AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Texas - Waco Division on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
6:21-cv-01372	December 29, 2021	Western District of Texas - Waco Division

PLAINTIFF	DEFENDANT
Topia Technology, Inc.	Box, Inc., Sailpoint Technologies Holdings, Inc., and Vistra Corp.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	9,143,561	Sep. 22, 2015	Topia Technology, Inc.
2	10,067,942	Sep. 4, 2018	Topia Technology, Inc.
3	10,289,607	May 14, 2019	Topia Technology, Inc.
4	10,642,787	May 5, 2020	Topia Technology, Inc.
5	10,754,823	Aug. 25, 2020	Topia Technology, Inc.

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**

AO 120 (Rev. 08/10)

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6:21-cv-01372	December 29, 2021	Western District of Texas - Waco Division

PLAINTIFF	DEFENDANT
Topia Technology, Inc.	Box, Inc., Sailpoint Technologies Holdings, Inc., and Vistra Corp.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	11,003,622	May 11, 2021	Topia Technology, Inc.
2			
3			
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
6:21-cv-01373	December 29, 2021	Western District of Texas - Waco Division

PLAINTIFF	DEFENDANT
Topia Technology, Inc.	Dropbox, Inc., Sailpoint Technologies Holdings, Inc., and Clear Channel Outdoor Holdings, Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	9,143,561	Sep. 22, 2015	Topia Technology, Inc.
2	10,067,942	Sep. 4, 2018	Topia Technology, Inc.
3	10,289,607	May 14, 2019	Topia Technology, Inc.
4	10,642,787	Aug. 25, 2020	Topia Technology, Inc.
5	10,754,823	Aug. 25, 2020	Topia Technology, Inc.

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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DECISION/JUDGEMENT

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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Texas - Waco Division on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
6:21-cv-01373	December 29, 2021	Western District of Texas - Waco Division

PLAINTIFF	DEFENDANT
Topia Technology, Inc.	Dropbox, Inc., Sailpoint Technologies Holdings, Inc., and Clear Channel Outdoor Holdings, Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	11,003,622	May 11, 2021	Topia Technology, Inc.
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court District of Delaware on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
	12/27/2021	District of Delaware

PLAINTIFF	DEFENDANT
TOPIA TECHNOLOGY, INC.	EGNYTE, INC.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	9,143,561	9/22/2015	Topia Technology, Inc.
2	10,067,942	9/4/2018	Topia Technology, Inc.
3	10,289,607	5/14/2019	Topia Technology, Inc.
4	10,642,787	5/5/2020	Topia Technology, Inc.
5	10,754,823	8/25/2020	Topia Technology, Inc.

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PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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Copy 2---Upon filing document adding patent(s), mail this copy to Director Copy 4---Case file copy

Box & Dropbox Exhibit 1009

ADDENDUM TO AO 120 (ADDITIONAL PATENTS)

Docket No.	Date Filed 12/27/2021	U.S. District Court for the District of Delaware	
PLAINTIFF TOPIA TECHNOLOGY, INC.			DEFENDANT EGNYTE, INC.
PATENT OR TRADEMARK NO.		DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
6	11,003,622	05/11/2021	Topia Technology, Inc.
7			
8			
9			
10			

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/017,348	06/25/2018	Michael R. Manzano	030721

CONFIRMATION NO. 3719

POA ACCEPTANCE LETTER

23373
SUGHRUE MION, PLLC
2000 PENNSYLVANIA AVENUE, N.W.
SUITE 9000
WASHINGTON, DC 20006

OC000000131120307

Date Mailed: 01/14/2022

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/11/2022.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/ltaba/

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in the attached transmittal letter.

I hereby appoint:

Andrew J. Taska, Registration No. 54,666, and

John M. Bird, Registration No. 46,027

as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (Form PTO/AIA/82A).

Please recognize or change the correspondence address for the application identified in the attached transmittal letter to:

The address associated with the above-mentioned Customer Number.

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

TOPIA TECHNOLOGY, INC.

- ☐ Inventor or Joint Inventor (title not required below)
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- ☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- ☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a Petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document)(provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	Janine Terrano	Date (Optional)	12/16/21
Name	Janine Terrano		
Title	CEO of TOPIA TECHNOLOGY, INC.		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ Total of 1 forms are submitted.

Electronic Acknowledgement Receipt

EFS ID:	44717233
Application Number:	16017348
International Application Number:	
Confirmation Number:	3719
Title of Invention:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK
First Named Inventor/Applicant Name:	Michael R. Manzano
Customer Number:	23373
Filer:	Andrew Joseph Taska/Mildred Cabrera
Filer Authorized By:	Andrew Joseph Taska
Attorney Docket Number:	030721
Receipt Date:	11-JAN-2022
Filing Date:	25-JUN-2018
Time Stamp:	13:58:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Change of Address	A271734SecondChangeofAddress10289607.pdf	101570 8b89743665361d486ba6803ec49fcebb723fa7d2	no	2

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	A271734StatementUnder373.pdf	218336 45cadd80bc51872d52dd6b4c84864d78a81b5abd	no	3
Warnings:					
Information:					
3	Power of Attorney	A271734ExecutedPowerofAttorney.pdf	147589 a578fa18fb1504c25e0650ba41480649dad4604e	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	467495	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/123 (04-15)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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CHANGE OF CORRESPONDENCE ADDRESS
Patent

Address to:
Mail Stop Post Issue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Patent Number	10,289,607
Issue Date	May 14, 2019
Application Number	16/017,348
Filing Date	June 25, 2018
First Named Inventor	Michael R. Manzano
Attorney Docket Number	A271734

Please change the Correspondence Address for the above-identified patent to:

☒ The address associated with Customer Number: **23373**

OR

☐ **Firm *or* Individual Name**

Address

City	**State**	**ZIP**

Country

Telephone	**Email**

This form cannot be used to change the data associated with a Customer Number. To change the data associated with an existing Customer Number use "Request for Customer Number Data Change" (PTO/SB/124).

This form will not affect any "fee address" provided for the above-identified patent. To change a "fee address" use the "Fee Address Indication Form" (PTO/SB/47).

I am the:

☐ Patentee.

☐ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).

☒ Attorney or agent of record. Registration Number 54,666.

Signature	/Andrew J. Taska/
Typed or Printed Name	Andrew J. Taska
Date	01/11/2022
Telephone	202-293-7060

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop Post Issue, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/AIA/96 (08-12)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Topia Technology, Inc.

Application No./Patent No.: 10,289,607 Filed/Issue Date: May 14, 2019

Titled: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

Topia Technology, Inc., a Corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Michael R. Manzano To: TOPIA TECHNOLOGY, INC.

   The document was recorded in the United States Patent and Trademark Office at
   Reel 046193, Frame 0552, or for which a copy thereof is attached.

2. From: John C. Haager To: TOPIA TECHNOLOGY, INC.

   The document was recorded in the United States Patent and Trademark Office at
   Reel 058279, Frame 0956, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/96 (08-12)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/ Andrew J. Taska /	01/11/2022
Signature	Date
Andrew J. Taska	54,666
Printed or Typed Name	Title or Registration Number

Privacy Act Statement

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1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/SB/123 (04-15)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

CHANGE OF CORRESPONDENCE ADDRESS
Patent

Address to:
Mail Stop Post Issue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Patent Number	10,289,607
Issue Date	May 14, 2019
Application Number	16/017,348
Filing Date	June 25, 2018
First Named Inventor	Michael R. Manzano
Attorney Docket Number	030721

Please change the Correspondence Address for the above-identified patent to:

☒ The address associated with Customer Number: **23373**

OR

☐ **Firm *or* Individual Name**

Address

City	**State**	**ZIP**

Country

Telephone	**Email**

This form cannot be used to change the data associated with a Customer Number. To change the data associated with an existing Customer Number use "Request for Customer Number Data Change" (PTO/SB/124).

This form will not affect any "fee address" provided for the above-identified patent. To change a "fee address" use the "Fee Address Indication Form" (PTO/SB/47).

I am the:

☐ Patentee.

☐ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).

☒ Attorney or agent of record. Registration Number 54,666.

Signature	/ Andrew J. Taska /
Typed or Printed Name	Andrew J. Taska
Date	December 22, 2021
Telephone	202-293-7060

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop Post Issue, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	44588527
Application Number:	16017348
International Application Number:	
Confirmation Number:	3719
Title of Invention:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK
First Named Inventor/Applicant Name:	Michael R. Manzano
Customer Number:	23373
Filer:	Andrew Joseph Taska/Mildred Cabrera
Filer Authorized By:	Andrew Joseph Taska
Attorney Docket Number:	030721
Receipt Date:	22-DEC-2021
Filing Date:	25-JUN-2018
Time Stamp:	13:38:56
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Change of Address	030721ChangeofAddress10289607.pdf	102674 1c9b5653ce46c2ac88efcf386db7c9b845fda9af	no	2

Warnings:

Information:	
Total Files Size (in bytes):	102674

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/017,348	06/25/2018	Michael R. Manzano	030721

CONFIRMATION NO. 3719

POA ACCEPTANCE LETTER

23373
SUGHRUE MION, PLLC
2000 PENNSYLVANIA AVENUE, N.W.
SUITE 9000
WASHINGTON, DC 20006

OC000000130598646

Date Mailed: 12/21/2021

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/17/2021.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/lqchau/

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/017,348	06/25/2018	Michael R. Manzano	023027-0459211

CONFIRMATION NO. 3719

909
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

POWER OF ATTORNEY NOTICE

OC000000130598568

Date Mailed: 12/21/2021

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/17/2021.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/lqchau/

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Docket No: 030721
Michael R. Manzano	Group Art Unit: 2157
Appln. No.: 16/017,348	Examiner: CHANNAVAJJALA, SRIRAMA T.
Confirmation No.: 3719	Patent No.: 10,289,607
Filed: June 25, 2018	Issue Date: May 14, 2019

For: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

PETITION UNDER 37 C.F.R. § 1.324 TO CORRECT INVENTORSHIP IN PATENT TO ADD INVENTOR(S), PURSUANT TO 35 U.S.C. § 256

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The undersigned, on behalf of the Inventors and the Assignee, petitions the Director in accordance with 37 C.F.R. § 1.324(a) to correct inventorship of the above-identified patent by adding the names of John C. Haager as co-inventor.

REMARKS

In accordance with 37 C.F.R. § 1.324(b), submitted herewith are the following:

(1) A statement from each person who is being added as an inventor and each person who is currently named as an inventor either agreeing to the change of inventorship or stating that he or she has no disagreement in regard to the requested change;

(2) A statement from all assignees of the parties submitting a statement under paragraph (b)(1) of this section agreeing to the change of inventorship in the patent, which statement must comply with the requirements of § 3.73(c) of this chapter; and

(3) The fee set forth in § 1.20(b).

The processing fee of $160.00 set forth in 37 C.F.R. § 1.20(b) is being remitted.

The USPTO is directed and authorized to charge the processing fee of $160.00 and all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880.

Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

/Andrew J. Taska/

Andrew J. Taska
Registration No. 54,666

SUGHRUE MION, PLLC
Telephone: 202.293.7060
Facsimile: 202.293.7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: December 17, 2021

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in the attached transmittal letter.

I hereby appoint:

Andrew J. Taska, Registration No. 54,666, and

John M. Bird, Registration No. 46,027

as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (Form PTO/AIA/82A).

Please recognize or change the correspondence address for the application identified in the attached transmittal letter to:

The address associated with the above-mentioned Customer Number.

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

TOPIA TECHNOLOGY, INC.

- ☐ Inventor or Joint Inventor (title not required below)
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- ☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- ☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a Petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document)(provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	Janine Terrano	Date (Optional)	12/16/21
Name	Janine Terrano		
Title	CEO of TOPIA TECHNOLOGY, INC.		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ Total of 1 forms are submitted.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Docket No: 030721
Michael R. Manzano	Group Art Unit: 2157
Appln. No.: 16/017,348	Examiner: CHANNAVAJJALA, SRIRAMA T.
Confirmation No.: 3719	Patent No.: 10,289,607
Filed: June 25, 2018	Issue Date: May 14, 2019

For: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

STATEMENT OF ASSIGNEE OF RIGHTS FROM ALL ASSIGNEES OF PARTIES SUBMITTING A STATEMENT UNDER (1) & (2) IN SUPPORT OF PETITION UNDER 37 C.F.R. § 1.324 TO CORRECT INVENTORSHIP OF PATENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The undersigned, a representative of TOPIA TECHNOLOGY, INC., represents that TOPIA TECHNOLOGY, INC. is the owner of the entire right, title and interest of Application No. 16/017,348, (now United States Patent 10,289,607), filed on June 25, 2018 for ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK by virtue of an Assignment from all of the currently named inventors thereof recorded on June 25, 2018 at Reel 046193 and Frame 0552 and by virtue of an Assignment from the inventor to be added, which is submitted herewith.

The undersigned hereby certifies that the above-mentioned Assignments have been reviewed and to the best of the undersigned's knowledge and belief, title is in who is seeking to take this action.

The undersigned (whose title is supplied below) is empowered to sign this consent statement on behalf of the assignee.

STATEMENT OF ASSIGNEE OF RIGHTS FROM ALL ASSIGNEES OF PARTIES SUBMITTING A STATEMENT UNDER (1) & (2) IN SUPPORT OF PETITION UNDER 37 C.F.R. § 1.324 TO CORRECT INVENTORSHIP OF PATENT
Attorney Docket No.: 030721
Appln.No.: 16/017,348
Patent No.: 10,289,607

Janine Terrano, CEO of TOPIA TECHNOLOGY, INC., on behalf of TOPIA TECHNOLOGY, INC., hereby agrees to the correction of inventorship in connection with the above-identified patent whereby the name of John C. Haager is added as a coinventor.

Name	Janine Terrano	Title	CEO
Signature			
Date	12/26/21		

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Docket No: 030721
Michael R. Manzano	Group Art Unit: 2157
Appln. No.: 16/017,348	Examiner: CHANNAVAJJALA, SRIRAMA T.
Confirmation No.: 3719	Patent No.: 10,289,607
Filed: June 25, 2018	Issue Date: May 14, 2019

For: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

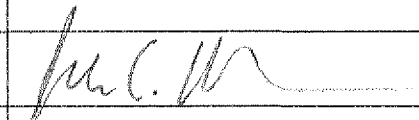
STATEMENT FROM ADDED INVENTOR IN SUPPORT OF PETITION UNDER 37 C.F.R. § 1.324 TO CORRECT INVENTORSHIP OF PATENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, John C. Haager, the inventor being added to the above-identified patent, hereby declare that I have no disagreement in regard to the requested change in inventors.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief is believed to be true; and further that these statements were made with the knowledge that willful statements and the like so made are punishable by fine or imprisonment or both under 18 USC §1001, and may jeopardize the validity of the application or any patent issuing thereon.

Name of Added Inventor	John C. Haager
Signature	
Date	11/15/2021

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Docket No: 030721
Michael R. Manzano	Group Art Unit: 2157
Appln. No.: 16/017,348	Examiner: CHANNAVAJJALA, SRIRAMA T.
Confirmation No.: 3719	Patent No.: 10,289,607
Filed: June 25, 2018	Issue Date: May 14, 2019

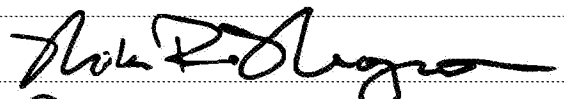
For: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

STATEMENT FROM CURRENT NAMED INVENTOR, WHO IS NOT A PERSON BEING ADDED AS AN INVENTOR, IN SUPPORT OF PETITION UNDER 37 C.F.R. § 1.324 TO CORRECT INVENTORSHIP OF PATENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Michael R. Manzano, the current named inventor, of the above-identified patent who is not a person being added as an inventor do hereby declare that I have no disagreement in regard to the requested change in inventors.

Name of Inventor	Michael R. Manzano
Signature	
Date	Dec 6, 2021

Electronic Patent Application Fee Transmittal

Application Number:	16017348
Filing Date:	25-Jun-2018
Title of Invention:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK
First Named Inventor/Applicant Name:	Michael R. Manzano
Filer:	Andrew Joseph Taska/Mildred Cabrera
Attorney Docket Number:	023027-0459211

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
PROCESSING FEE CORRECTING INVENTORSHIP	1816	1	160	160

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**160**

Electronic Acknowledgement Receipt

EFS ID:	44551608
Application Number:	16017348
International Application Number:	
Confirmation Number:	3719
Title of Invention:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK
First Named Inventor/Applicant Name:	Michael R. Manzano
Customer Number:	909
Filer:	Andrew Joseph Taska/Mildred Cabrera
Filer Authorized By:	Andrew Joseph Taska
Attorney Docket Number:	023027-0459211
Receipt Date:	17-DEC-2021
Filing Date:	25-JUN-2018
Time Stamp:	16:35:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$160
RAM confirmation Number	E2021BGG35320769
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request under Rule 48 correcting inventorship	030721PetitiontoCorrectInventorshipofPatentunder132410289607.pdf	85889 4e735be26a0e2d345e861314858011512f13ff04	no	2
Warnings:					
Information:					
2	Power of Attorney	Executed_Power_of_Attorney.pdf	47433 5dd6df6edde9faeb6074faeeda4252404856536e	no	1
Warnings:					
Information:					
3	Request under Rule 48 correcting inventorship	STATEMENT_OF_ASSIGNEE.pdf	60012 211ae5d997d58ac6d8e9ab306b6a57fe73356821	no	2
Warnings:					
Information:					
4	Request under Rule 48 correcting inventorship	STATEMENT_FROM_ADDED_INVENTOR.pdf	140447 38ab7f2e81667fbff4a2b0c194106130b717bef3	no	1
Warnings:					
Information:					
5	Request under Rule 48 correcting inventorship	STATEMENT_FROM_CURRENT_INVENTOR.pdf	449209 33908384e3059bc70ba04b4bead9c5afd42881ed	no	1
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	38607 98d084e529127d2031435830dea6276327a0bc4c	no	2
Warnings:					
Information:					

Total Files Size (in bytes):	821597

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT7054760

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
JOHN C. HAAGER	11/15/2021

RECEIVING PARTY DATA

Name:	TOPIA TECHNOLOGY, INC.
Street Address:	1927 DOCK STREET
City:	TACOMA
State/Country:	WASHINGTON
Postal Code:	98402

PROPERTY NUMBERS Total: 6

Property Type	Number
Patent Number:	9143561
Patent Number:	10067942
Patent Number:	10289607
Patent Number:	10642787
Patent Number:	10754823
Patent Number:	11003622

CORRESPONDENCE DATA

Fax Number: (202)293-7860

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 2022937060
Email: mcabrera@sughrue.com
Correspondent Name: SUGHRUE MION PLLC
Address Line 1: 2000 PENNSYLVANIA AVENUE NW
Address Line 2: SUITE 900
Address Line 4: WASHINGTON, D.C. 20006

ATTORNEY DOCKET NUMBER:	030221
NAME OF SUBMITTER:	MILLY CABRERA
SIGNATURE:	/Milly Cabrera/
DATE SIGNED:	12/03/2021
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 6
source=9,143,561_Executed Assignment#page1.tif
source=10,067,942_Executed Assignment#page1.tif
source=10,289,607_Executed Assignment#page1.tif
source=10,642,787_Executed Assignment#page1.tif
source=10,754,823_Executed Assignment#page1.tif
source=11,003,622_Executed Assignment#page1.tif

Assignment

Whereas, I, John C. Haager, hereinafter called assignor, have invented certain improvements in ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK and executed an application for Letters Patent of the United States of America therefor; (Application number 12/267,852 (now U.S. Patent 9,143,561)) and Confirmation number 7024, filed November 10, 2008); and

Whereas, TOPIA TECHNOLOGY, INC. of 1927 Dock Street, Tacoma, WA 98402, (assignee), desires to acquire the entire right, title, and interest in the application and invention, and to any United States patents to be obtained therefor;

Now therefore, for valuable consideration, receipt whereof is hereby acknowledged,

I, the above named assignor, hereby sell, assign and transfer to the above named assignee, its successors and assigns, the entire right, title and interest in the application and the invention disclosed therein for the United States of America, including all divisions, and continuations thereof, and all Letters Patent of the United States that may be granted thereon, and all reissues thereof, including the right to claim priority under 35 U.S.C. §119 and the right to sue for past damages, and I request the Director of the U.S. Patent and Trademark Office to issue any Letters Patent granted upon the invention set forth in the application to the assignee, its successors and assigns; and I will execute without further consideration all papers deemed necessary by the assignee in connection with the United States application when called upon to do so by the assignee.

Date: 11/15/2021

s/John C. Haager

(Legalization not required for recording but is prima facie evidence of execution under 35 U.S.C. §261)

Assignment

Whereas, I, John C. Haager, hereinafter called assignor, have invented certain improvements in ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK and executed an application for Letters Patent of the United States of America therefor; (Application number 14/860,289 (now U.S. Patent 10,067,942)) and Confirmation number 3426, filed September 21, 2015); and

Whereas, TOPIA TECHNOLOGY, INC. of 1927 Dock Street, Tacoma, WA 98402, (assignee), desires to acquire the entire right, title, and interest in the application and invention, and to any United States patents to be obtained therefor;

Now therefore, for valuable consideration, receipt whereof is hereby acknowledged,

I, the above named assignor, hereby sell, assign and transfer to the above named assignee, its successors and assigns, the entire right, title and interest in the application and the invention disclosed therein for the United States of America, including all divisions, and continuations thereof, and all Letters Patent of the United States that may be granted thereon, and all reissues thereof, including the right to claim priority under 35 U.S.C. §119 and the right to sue for past damages, and I request the Director of the U.S. Patent and Trademark Office to issue any Letters Patent granted upon the invention set forth in the application to the assignee, its successors and assigns; and I will execute without further consideration all papers deemed necessary by the assignee in connection with the United States application when called upon to do so by the assignee.

Date: 11/15/2021

s/John C. Haager

(Legalization not required for recording but is prima facie evidence of execution under 35 U.S.C. §261)

Assignment

Whereas, I, John C. Haager, hereinafter called assignor, have invented certain improvements in ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK and executed an application for Letters Patent of the United States of America therefor; (Application number 16/017,348 (now U.S. Patent 10,289,607)) and Confirmation number 3719, filed June 25, 2018); and

Whereas, TOPIA TECHNOLOGY, INC. of 1927 Dock Street, Tacoma, WA 98402, (assignee), desires to acquire the entire right, title, and interest in the application and invention, and to any United States patents to be obtained therefor;

Now therefore, for valuable consideration, receipt whereof is hereby acknowledged,

I, the above named assignor, hereby sell, assign and transfer to the above named assignee, its successors and assigns, the entire right, title and interest in the application and the invention disclosed therein for the United States of America, including all divisions, and continuations thereof, and all Letters Patent of the United States that may be granted thereon, and all reissues thereof, including the right to claim priority under 35 U.S.C. §119 and the right to sue for past damages, and I request the Director of the U.S. Patent and Trademark Office to issue any Letters Patent granted upon the invention set forth in the application to the assignee, its successors and assigns; and I will execute without further consideration all papers deemed necessary by the assignee in connection with the United States application when called upon to do so by the assignee.

Date: 11/15/2021

s/John C. Haager

(Legalization not required for recording but is prima facie evidence of execution under 35 U.S.C. §261)

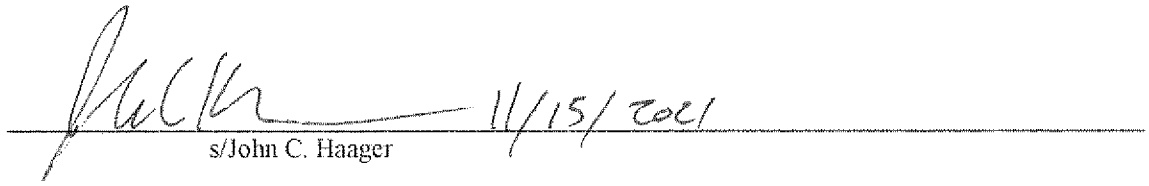
Assignment

Whereas, I, John C. Haager, hereinafter called assignor, have invented certain improvements in PRE-FILE-TRANSFER UPDATE BASED ON PRIORITIZED METADATA and executed an application for Letters Patent of the United States of America therefor; (Application number 16/750,399 (now U.S. Patent 10,642,787)) and Confirmation number 9316, filed January 23, 2020); and

Whereas, TOPIA TECHNOLOGY, INC. of 1927 Dock Street, Tacoma, WA 98402, (assignee), desires to acquire the entire right, title, and interest in the application and invention, and to any United States patents to be obtained therefor;

Now therefore, for valuable consideration, receipt whereof is hereby acknowledged,

I, the above named assignor, hereby sell, assign and transfer to the above named assignee, its successors and assigns, the entire right, title and interest in the application and the invention disclosed therein for the United States of America, including all divisions, and continuations thereof, and all Letters Patent of the United States that may be granted thereon, and all reissues thereof, including the right to claim priority under 35 U.S.C. §119 and the right to sue for past damages, and I request the Director of the U.S. Patent and Trademark Office to issue any Letters Patent granted upon the invention set forth in the application to the assignee, its successors and assigns; and I will execute without further consideration all papers deemed necessary by the assignee in connection with the United States application when called upon to do so by the assignee.

Date:  11/15/2021

s/John C. Haager

(Legalization not required for recording but is prima facie evidence of execution under 35 U.S.C. §261)

Assignment

Whereas, I, John C. Haager, hereinafter called assignor, have invented certain improvements in PRE-FILE-TRANSFER AVAILABILITY INDICATION BASED ON PRIORITIZED METADATA and executed an application for Letters Patent of the United States of America therefor; (Application number 16/750,435 (now U.S. Patent 10,754,823)) and Confirmation number 2793, filed January 23, 2020); and

Whereas, TOPIA TECHNOLOGY, INC. of 1927 Dock Street, Tacoma, WA 98402, (assignee), desires to acquire the entire right, title, and interest in the application and invention, and to any United States patents to be obtained therefor;

Now therefore, for valuable consideration, receipt whereof is hereby acknowledged,

I, the above named assignor, hereby sell, assign and transfer to the above named assignee, its successors and assigns, the entire right, title and interest in the application and the invention disclosed therein for the United States of America, including all divisions, and continuations thereof, and all Letters Patent of the United States that may be granted thereon, and all reissues thereof, including the right to claim priority under 35 U.S.C. §119 and the right to sue for past damages, and I request the Director of the U.S. Patent and Trademark Office to issue any Letters Patent granted upon the invention set forth in the application to the assignee, its successors and assigns; and I will execute without further consideration all papers deemed necessary by the assignee in connection with the United States application when called upon to do so by the assignee.

Date: 11/15/2021

s/John C. Haager

(Legalization not required for recording but is prima facie evidence of execution under 35 U.S.C. §261)

Assignment

Whereas, I, John C. Haager, hereinafter called assignor, have invented certain improvements in ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK and executed an application for Letters Patent of the United States of America therefor; (Application number 16/361,641 (now U.S. Patent 11,003,622)) and Confirmation number 7093, filed March 22, 2019); and

Whereas, TOPIA TECHNOLOGY, INC. of 1927 Dock Street, Tacoma, WA 98402, (assignee), desires to acquire the entire right, title, and interest in the application and invention, and to any United States patents to be obtained therefor;

Now therefore, for valuable consideration, receipt whereof is hereby acknowledged,

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Date: 11/15/2021

s/John C. Haager

(Legalization not required for recording but is prima facie evidence of execution under 35 U.S.C. §261)

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/017,348	05/14/2019	10289607	023027-0459211	3719

909 7590 04/24/2019

Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Michael R. Manzano, Seattle, WA;
TOPIA TECHNOLOGY, INC., Tacoma, WA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

909 7590 03/20/2019
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/017,348	06/25/2018	Michael R. Manzano	023027-0459211	3719

TITLE OF INVENTION: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	06/20/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
CHANNAVAJJALA, SRIRAMA T	2157	707-654000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Pillsbury Winthrop Shaw Pittman LLP
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: TOPIA TECHNOLOGY, INC.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): TACOMA, WASHINGTON

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 033975

5. **Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Ngai B. Zhang/ Date March 22, 2019

Typed or printed name Ngai B. Zhang Registration No. 65,473

Box & Dropbox Exhibit 1009
Page 43

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE PATENT APPLICATION OF:	Michael R. MANZANO
SERIAL NO.:	**16/017,348**
ATTORNEY DOCKET NO.:	023027-0459211
FILING DATE:	June 25, 2018
CONFIRMATION NO.	3719
ART UNIT:	2157
EXAMINER:	Srirama T. CHANNAVAJJALA
FOR:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

COMMENTS ON EXAMINER'S STATEMENT OF REASONS FOR ALLOWANCE

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

In reply to the Notice of Allowability dated March 20, 2019, consideration of the following comments is respectfully requested.

Applicant respectfully submits that the subject matter of the allowed claims are patentable for their respective recitations of claimed combinations as a whole, without any particular criticality or distinguishing feature being attributable to any one or more of such features, and without any narrowing interpretation being imposed on any of such features. The Applicant respectfully submits that the dependent claims are allowable not only for their dependence on the allowed independent claims, but also for the additional subject matter recited in each of those dependent claims.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP

/Ngai B. Zhang/

Ngai B. Zhang
Reg. No. 65,473
Tel. No. (703) 770-7532
Fax No. (703) 770-7901

Date: March 22, 2019
P.O. Box 10500
McLean, VA 22102
(703) 770-7900

Electronic Patent Application Fee Transmittal

Application Number:	16017348
Filing Date:	25-Jun-2018
Title of Invention:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK
First Named Inventor/Applicant Name:	Michael R. Manzano
Filer:	Ngai Bing Zhang/Maggie Barham
Attorney Docket Number:	023027-0459211

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	2501	1	500	500

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**500**

Electronic Acknowledgement Receipt

EFS ID:	35502123
Application Number:	16017348
International Application Number:	
Confirmation Number:	3719
Title of Invention:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK
First Named Inventor/Applicant Name:	Michael R. Manzano
Customer Number:	909
Filer:	Ngai Bing Zhang/Maggie Barham
Filer Authorized By:	Ngai Bing Zhang
Attorney Docket Number:	023027-0459211
Receipt Date:	22-MAR-2019
Filing Date:	25-JUN-2018
Time Stamp:	12:42:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$500
RAM confirmation Number	032219INTEFSW00011127033975
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	023027-0459211_Issue_Fee.pdf	1616238 b098bea1483d25dc0a083687c9b37da41d663b04	no	1
Warnings:					
Information:					
2	Post Allowance Communication - Incoming	023027-0459211_Comments.pdf	136156 d47c540ec3bb43cfb3a636cdbaafcea2cafd7d95	no	1
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30724 1a18e088631ad3549e4f347fba1397df85fe9078	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1783118		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

909 7590 03/20/2019
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

EXAMINER	
CHANNAVAJJALA, SRIRAMA T	
ART UNIT	PAPER NUMBER
2157	

DATE MAILED: 03/20/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/017,348	06/25/2018	Michael R. Manzano	023027-0459211	3719

TITLE OF INVENTION: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	06/20/2019

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

909 7590 03/20/2019
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/017,348	06/25/2018	Michael R. Manzano	023027-0459211	3719

TITLE OF INVENTION: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	06/20/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
CHANNAVAJJALA, SRIRAMA T	2157	707-654000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/017,348	06/25/2018	Michael R. Manzano	023027-0459211	3719

909 7590 03/20/2019

Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

EXAMINER	
CHANNAVAJJALA, SRIRAMA T	
ART UNIT	PAPER NUMBER
2157	

DATE MAILED: 03/20/2019

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 16/017,348	Applicant(s) Manzano, Michael R.	
	Examiner Srirama T Channavajjala	Art Unit 2157	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to 1/23/2019.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are See Continuation Sheet . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file areply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☑ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☑ Interview Summary (PTO-413), Paper No./Mail Date. 2/13/2019.
5. ☑ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/Srirama Channavajjala/
Primary Examiner, Art Unit 2157

Continuation of 3. The allowed claim(s) is/are: 21-22,24-33,35,37-40 and 42-45

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

This application is a CON of 14860289 filed on 09/21/2015 is now US PAT 10067942 14860289 is a CON of 12267852 filed on 11/10/2008 is now PAT 9143561, and 12267852 has PRO of 60986896 filed on 11/09/2007.

DETAILED ACTION

1. Examiner acknowledges applicant's response filed on 10/17/2018.

2. Examiner acknowledges applicant's amendment filed on 1/23/2019.

3. Examiner acknowledges ***Track 1*** granted on 8/1/2018.

Drawings

4. The Drawings filed on 6/25/2018 are acceptable for examination purpose.

Priority

5. Applicant's claim for the benefit of a US Provisional application **60/986,896** filed 11/9/2007 under 35 U.S.C. 119(e) is acknowledged.

Remarks

Double Patenting

In view of terminal disclaimer approved on 2/18/2019, the double patent rejection as set forth in the previous office action is hereby withdrawn.

35 USC § 101

In view of applicant's remarks and further examiner's amendment, the rejection under 35 USC 101 as set forth in the previous office action is hereby withdrawn.

Interview:

On 13 February 2019, a telephone call was made to applicant's representative Ngai B. Zhang, Reg. No. 65,473 to amend the claims 21-22,24-28,33,35,37,40, 43-45, cancel claims 23,34,36,41 in order to allow the case. The attorney agreed with the Examiner's proposal and authorization has given for an Examiner's Amendment.
Total claims allowed: 21-22, 24-33, 35, 37-40, 42-45 (re-numbered as 1-21).

EXAMINER'S AMENDMENT

An Examiner's amendment to the record appears below: Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provide by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ngai B. Zhang, Reg. No. 65,473 on 2/13/2019

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing Of Claims:

Please amend the claims as follows:

21. (**Currently Amended**) A system comprising:

a server system comprising one or more processors programmed with computer program instructions that, when executed, cause the server system to:

receive, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file;

determine that the server system is not in communication with a second client device associated with the user; ~~and~~

store the copy of the first file on the server system;

automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device; and

automatically transfer, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) resuming

communication with the second client device and (ii) receiving the copy of the first file from the first client device.

22. (**Currently Amended**) The system of claim 21, wherein the computer program instructions, when executed, cause the server system ~~is caused~~ to:

store the copy of the first file to a memory device associated with the server system, wherein the copy of the first file is stored on the memory device associated with the server system responsive to determining that the server system is not in communication with the second client device.

23. (**Cancelled**)

24. (**Currently Amended**) The system of ~~claim 23,~~ claim 21, wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

25. (**Currently Amended**) The system of ~~claim 23,~~ claim 21, wherein availability of the version of the first file is presented at the second client device based on the first metadata.

26. (**Currently Amended**) The system of claim 21, wherein the server system is caused to:

receive a copy of a second file from the second client device associated with the user, wherein the copy of the second file is automatically received from the second client device responsive to the user modifying a content of the second file stored on the second client device, the copy of the second file being a version of the second file that is generated from the user modifying the content of the second file;

determine that the server system is in communication with the first client device associated with the user; and

automatically transfer the copy of the second file to the first client device associated with the user to replace an older version of the second file stored on the first client device, responsive to (i) determining that the server system is in communication with the first client device and (ii) receiving the copy of the second file from the second ~~first~~ client device.

27. (**Currently Amended**) The system of claim 21, wherein the computer program instructions, when executed, cause the server system ~~is caused~~ to:

periodically perform a pull request, wherein the copy of the first file is automatically received from the first client device responsive to (i) the pull request and (ii) the user modifying [[a]] the content of the first file stored on the first client device.

28. (**Currently Amended**) The system of claim 21, wherein the copy of the first file is automatically received from the first client device responsive to (i) a push request of the first client device and (ii) the user modifying [[a]] the content of the first file stored on the first client device.

29. (**Previously Presented**) The system of claim 21, wherein the copy of the first file is automatically received from a first application at the first client device, and wherein the first application comprises a runtime environment for one or more mobile-agent objects.

30. (**Previously Presented**) The system of claim 29, wherein the first application is configured to create a first mobile object, and wherein the first mobile object is configured to create a proxy object at the server system.

31. (**Previously Presented**) The system of claim 30, wherein the first mobile object is configured to provide the copy of the first file to the proxy object.

32. (**Previously Presented**) The system of claim 31, wherein the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

33. (**Currently Amended**) A method being implemented by a server system comprising one or more processors executing computer program instructions that, when executed, perform the method, the method comprising:

receiving, by the server system, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

receiving, by the server system, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file;

determining, by the server system, ~~whether~~ that the server system is not in communication with a second client device associated with the user;

store the copy of the first file on the server system;

automatically transferring, by the server system, the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device; and

automatically transferring, by the server system, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) ~~determining that the~~

~~server system is in~~ resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device.

34. (**Cancelled**)

35. (**Currently Amended**) The method of claim 33, further comprising:

storing, by the server system, the copy of the first file to a memory device associated with the server system, wherein the copy of the first file is stored on the memory device associated with the server system responsive to ~~initially~~ determining that the server system is not in communication with the second client device.

36. (**Cancelled**)

37. (**Currently Amended**) The method of claim 33, ~~claim 36,~~ wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

38. (**Previously Presented**) The method of claim 33, wherein the copy of the first file is automatically received from a first application at the first client device, wherein the first application comprises a runtime environment for one or more mobile-agent objects,

and wherein the first application is configured to create a first mobile object, and the first mobile object is configured to create a proxy object at the server system and to provide the copy of the first file to the proxy object.

39. (**Previously Presented**) The method of claim 38, wherein the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

40. (**Currently Amended**) A system comprising:

a server system comprising one or more processors programmed with computer program instructions that, when executed, cause the server system to:

receive, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file, wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device

assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration;

determine that the server system is not in communication with a second client device associated with the user;

store the copy of the first file on the server system;

automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device; and

automatically transfer, over a network, the copy of the first file to the second client device associated with the user, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device,

wherein, responsive to transferring the copy of the first file to the second client device, an older version of the first file stored on the second client device is automatically caused to be replaced with the copy of the first file such that the copy of the first file is stored on the second client device in lieu of the older version of the first file.

41. (**Cancelled**)

42. (**Previously Presented**) The system of claim 40, wherein the copy of the first file is automatically received from a first application at the first client device, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, the first mobile object is configured to create a proxy object at the server system and to provide the copy of the first file to the proxy object, and the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

43. (**Currently Amended**) ~~A method being implemented by a first computer system comprising~~ One or more non-transitory machine-readable media storing instructions that, when executed by one or more processors of a server system, cause operations ~~executing computer program instructions that, when executed, perform the method, the method~~ comprising:

receiving, by the ~~first computer~~ server system, over a network, a copy of a first file from a ~~second computer system~~ first client device associated with a user, wherein the copy of the first file is automatically received from the ~~second computer system~~ first client device responsive to the user modifying a content of the first file stored on the ~~second computer system~~ first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

receiving, by the server system, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file;

determining, by the ~~first computer~~ server system, that the ~~first computer~~ server system is not in communication with a ~~third computer system~~ second client device associated with the user;

storing, by the ~~first computer~~ server system, the copy of the first file on the ~~first computer~~ server system;

automatically transferring, by the server system, the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device; and

automatically transferring, by the ~~first computer~~ server system, over a network, the copy of the first file to the ~~third computer system~~ second client device associated with the user to replace an older version of the first file stored on the ~~third computer system~~ second client device, responsive to (i) resuming communication with the ~~third computer system~~ second client device and (ii) receiving the copy of the first file from the ~~second computer system~~ first client device.

44. (**Currently Amended**) The ~~method~~ one or more non-transitory machine-readable media of claim 43, ~~further comprising: receiving, by the first computer system, from the second computer system, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and automatically transferring, by the first computer system, the first metadata to the second client device based on the first priority being greater than the second priority~~

~~such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device,~~ wherein at least one of the ~~first computer~~ server system or the ~~second computer system~~ first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the ~~first computer~~ server system or the ~~second computer system~~ first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

45. (**Currently Amended**) The ~~method~~ one or more non-transitory machine-readable media of claim 43, wherein the copy of the first file is automatically received from a first application at the ~~second computer system~~ first client device, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, the first mobile object is configured to create a proxy object at the ~~first computer~~ server system and to provide the copy of the first file to the proxy object, and the proxy object is configured to store the copy of the first file on a memory device associated with the ~~first computer~~ server system.

Reasons for allowance

Claims 21-22, 24-33, 35, 37-40, 42-45 are allowed

In view of applicant's remarks at page 12-14 filed 1/23/2019, further amendment to claims 21-22,24-28,33,35,37,40,43-45,cancel claims 23,34,36,41, the prior art of record Mohanty, US Pub. No. 2007/0180084 does not disclose, make obvious, or otherwise suggest the structure of applicant's

"*receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file;*

determine that the server system is not in communication with a second client device associated with the user

automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device", in claim 21,33, 43

"*receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file, wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server*

system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration;

determine that the server system is not in communication with a second client device associated with the user;

automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device", in claim 40.

These features, together with the other limitations of the independent claims are novel and non-obvious over the prior art of record. The dependent claims 22,24-32,35,37-39,42,44-45 being definite, enabled by the specification, and further limiting to the independent claims are also allowable

The newly cited prior art Kiessig et al., US Pub. 20050027757 is directed to managing versions of files, more specifically, file management system automatically manage versions of electronic files. This version management may be based on opening, saving, and changing of files. A user interface facilitates user interaction with the file management system. Kiessig also teaches a user to select a 'Show versions' menu item. This displays all extant past versions, which are all frozen. The user can drag these versions to somewhere, open them, compare them with other versions, or perform other file operations. They are just files and folders (except they're frozen). To make a previous version become the latest, most current version again, the user can right click on an old version and select the 'Make Current' command. The item will then be reinstated as the current version.(Abstract, 0020,0022).

The newly cited prior art Fletcher et al., US Pub. No. 20020143795 is directed to computer file management, more specifically, provides custom file system which allows tracking versions of files. Fletcher et al., also teaches storage of files and a main filesystem for accessing said files, the improvement of adding a custom filesystem comprising: a custom hierarchical structure of files and folders; and a set of links between said custom files and the locations of corresponding real files in said main file system; said custom file system having priority over said main file system, in that a process manager will attempt to address requests on said custom filesystem prior to placing said requests on said main filesystem.(Abstract, 0021-0023)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Srirama Channavajjala whose telephone number is 571-272-4108. The examiner can normally be reached on Monday-Friday from 8:00 AM to 5:30 PM Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Trujillo James, can be reached on (571) 272- 3677. The fax phone numbers for the organization where the application or proceeding is assigned is 571-273-8300 Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)

/Srirama Channavajjala/
Primary Examiner, Art Unit 2157.

Examiner-Initiated Interview Summary	Application No. 16/017,348	Applicant(s) Manzano, Michael R.	
	Examiner Srirama T Channavajjala	Art Unit 2157	AIA (FITF) Status No

All participants (applicant, applicant's representative, PTO personnel):

(1) Srirama T. Channavajjala. (3) _____.

(2) Ngai B. Zhang, Reg. No. 65,473. (4) _____.

Date of Interview: 13 February 2019.

Type: ☑ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☑ No.
If Yes, brief description: _____.

Issues Discussed ☐ 101 ☐ 112 ☐ 102 ☐ 103 ☐ Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: _____.

Identification of prior art discussed: _____.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

On 13 February 2019, a telephone call was made to applicant's representative Ngai B. Zhang, Reg. No. 65,473 to amend the claims 21-22,24-28,33,35,37,40, 43-45, cancel claims 23,34,36,41 in order to allow the case. The attorney agreed with the Examiner's proposal and authorization has given for an Examiner's Amendment. Total claims allowed: 21-22, 24-33, 35, 37-40, 42-45 (re-numbered as 1-21)..

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☑ Attachment

/Srirama Channavajjala/ Primary Examiner, Art Unit 2157	

Notice of References Cited	Application/Control No. 16/017,348	Applicant(s)/Patent Under Reexamination Manzano, Michael R.	
	Examiner Srirama T Channavajjala	Art Unit 2157	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20050027757-A1	02-2005	Kiessig, Rick	G06F16/10	1/1
*	B	US-20020143795-A1	10-2002	Fletcher, Thomas O.P.	G06F8/61	1/1
*	C	US-20090037718-A1	02-2009	GANESH; PERINKULAM I.	G06F9/4416	713/2
*	D	US-20050192966-A1	09-2005	Hilbert, David M.	H04L51/22	1/1
*	E	US-20050165722-A1	07-2005	Cannon, David Maxwell	G06F11/1451	1/1
*	F	US-20020055942-A1	05-2002	Reynolds, Mark L.	G06F21/64	1/1
*	G	US-20060136446-A1	06-2006	Hughes; Aidan T.	G06F16/10	1/1
*	H	US-20060004698-A1	01-2006	Pyhalammi; Seppo	G06F16/44	1/1
*	I	US-20140053227-A1	02-2014	Ruppin; Adi	G06F21/10	726/1
*	J	US-8595182-B1	11-2013	Nelson; Jeffrey	H04L67/1095	707/602
*	K	US-20030233241-A1	12-2003	Marsh, David J.	G06F16/48	725/14
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/017,348	Manzano, Michael R.
	Examiner	**Art Unit**
	Srirama T Channavajjala	2157

CPC						
Symbol					**Type**	**Version**
G06F	/	16	/	122	F	2019-01-01
G06F	/	15	/	16	I	2013-01-01
G06F	/	16	/	00	I	2019-01-01
G06F	/	16	/	13	I	2019-01-01
G06F	/	16	/	14	I	2019-01-01
G06F	/	16	/	128	I	2019-01-01
G06F	/	16	/	176	I	2019-01-01
G06F	/	16	/	178	I	2019-01-01
H04L	/	67	/	1095	I	2013-01-01

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	21	
/Srirama Channavajjala/ Primary Examiner, Art Unit 2157	18 February 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2-3

U.S. Patent and Trademark Office

Part of Paper No.: 20190213

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Page 75

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/017,348	Manzano, Michael R.
	Examiner	**Art Unit**
	Srirama T Channavajjala	2157

INTERNATIONAL CLASSIFICATION				
CLAIMED				
G06F	/	16	/	00

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	21	
/Srirama Channavajjala/ Primary Examiner, Art Unit 2157	18 February 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2-3

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/017,348	Manzano, Michael R.
	Examiner	**Art Unit**
	Srirama T Channavajjala	2157

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	21	10	31	19	43										
2	22	11	32	20	44										
3	24	12	33	21	45										
4	25	13	35												
5	26	14	37												
6	27	15	38												
7	28	16	39												
8	29	17	40												
9	30	18	42												

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	21	
/Srirama Channavajjala/ Primary Examiner, Art Unit 2157	18 February 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2-3

U.S. Patent and Trademark Office

Part of Paper No.: 20190213

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/017,348	Manzano, Michael R.
	Examiner	**Art Unit**
	Srirama T Channavajjala	2157

CPC - Searched*		
Symbol	**Date**	**Examiner**
G06F 17/30082;30067;3023;30194;30082;30174;30362	09/07/2018	sc
G06F 16/122,10,16,13-14,128,176,178	02/13/2019	sc

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
Inventor searched	09/06/2018	sc
PLUS search	09/06/2018	sc
IP.COM search attached	09/06/2018	sc
EAST search attached	09/06/2018	sc
EAST search updated	09/20/2018	sc
TD approved	02/18/2019	sc

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	G06F 16/122,10,16,13-14,128,176,178	02/13/2019	sc

/Srirama Channavajjala/ Primary Examiner, Art Unit 2157	

Exhibit Page No: 20190213

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/017,348	Manzano, Michael R.
	Examiner	**Art Unit**
	Srirama T Channavajjala	2157

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/06/2018	11/15/2018	02/18/2019						
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	3	✓	-	-						
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	41		✓	-						
18	42		✓	=						

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/017,348	Manzano, Michael R.
	Examiner	**Art Unit**
	Srirama T Channavajjala	2157

CLAIM		DATE								
Final	Original	09/06/2018	11/15/2018	02/18/2019						
19	43		✓	=						
20	44		✓	=						
21	45		✓	=						

Bibliographic Data

Application No: 16/017,348

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /Srirama Channavajjala/ Examiner's Signature | Initials

Title: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
06/25/2018	707	2157	023027-0459211
RULE			

APPLICANTS

TOPIA TECHNOLOGY, INC., Tacoma, WA,

INVENTORS

Michael R. Manzano Seattle, WA, UNITED STATES

CONTINUING DATA

This application is a CON of 14860289 09/21/2015 PAT 10067942

14860289 is a CON of 12267852 11/10/2008 PAT 9143561

12267852 has PRO of 60986896 11/09/2007

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

07/12/2018

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STATE OR COUNTRY

UNITED STATES

ADDRESS

Pillsbury Winthrop Shaw Pittman, LLP

PO Box 10500

McLean, VA 22102

UNITED STATES

FILING FEE RECEIVED

$3,085

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L17	17	(distribut$3 and file$1 and version$1 and device$1 and copy).ab. and @py<="2007"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L18	48	(distribut$3 and file$1 and version$1 and device$1 and user$1).ab. and @py<="2007"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L20	9	L19 and (distribut$3 adj5 file$1) and @py<="2007"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

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EAST Search History (Prior Art)

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EAST Search History (Prior Art)

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EAST Search History (Prior Art)

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L27	1	L26 AND ((G06F9/44536 OR G06F17/30194 OR G06F8/665 OR G06F8/68 OR G06F17/30477 OR G06F21/64 OR G06F3/0482 OR G06F3/1208 OR G06F3/122 OR G06F3/124 OR G06F3/1242 OR G06F3/1246 OR G06F3/1247 OR G06F3/1256 OR G06F3/1287 OR G06F3/1288 OR G06F3/1289 OR G06F3/1292 OR G06F3/167).CPC.) and transfer$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L29	10	(mobile and device$1 and file$1 and transfer$3).ti. and @py<="2007"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L30	10	(mobile and device$1 and file$1 and transfer$3 and version$1).ab. and @py<="2007"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L34	18	L32 AND ((G06F21/10 OR G06Q10/10 OR G06F17/30011 OR G06F17/3023 OR G06F11/1435 OR G06F11/2094 OR G06F11/2097 OR G06F17/30097 OR G06F17/30132 OR G06F17/30191 OR G06F17/30876 OR G06F17/30902 OR G06F21/123 OR G06F21/125 OR G06F2221/2149 OR G06F8/41).CPC.) and version$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L35	2	L32 AND ((G06F21/10 OR G06Q10/10 OR G06F17/30011 OR G06F17/3023 OR G06F11/1435 OR G06F11/2094 OR G06F11/2097 OR G06F17/30097 OR G06F17/30132 OR G06F17/30191 OR G06F17/30876 OR G06F17/30902 OR G06F21/123 OR G06F21/125 OR G06F2221/2149 OR G06F8/41).CPC.) and version$1 and mobile	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L36	2	L32 AND ((G06F21/10 OR G06Q10/10 OR G06F17/30011 OR G06F17/3023 OR G06F11/1435 OR G06F11/2094 OR G06F11/2097 OR G06F17/30097 OR G06F17/30132 OR G06F17/30191 OR G06F17/30876 OR G06F17/30902 OR G06F21/123 OR G06F21/125 OR G06F2221/2149 OR G06F8/41).CPC.) and mobile	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L37	7	(distribut$3 and file$1 and version$1 and copy$3).ab. and mobile and @py<="2007"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L41	1	L39 AND ((G06F1/1632 OR G06F13/409 OR G06F1/1626 OR H04M3/42323 OR G06F21/62 OR G06F3/0482 OR H04M11/06 OR H04M1/725 OR H04M3/42314 OR G06F1/206 OR H04N1/00127 OR H04N1/00236 OR H04N2201/0049 OR G06F1/169 OR G06F1/1656 OR H04M1/2473 OR H01H2223/052 OR G06F3/03541 OR G06F3/03549 OR H04M11/066 OR H04N1/00339 OR H04N1/00392 OR H04N1/00538 OR G06F1/1635 OR G06F3/03543 OR H04L63/10 OR G06F3/0362 OR G06Q30/0601 OR H04N2201/0081 OR H04N2201/0082 OR G06F21/73 OR G06F2221/2129 OR G06F9/445 OR H04N2201/0093 OR G06F3/03545 OR G06F1/1688 OR G06F1/1698 OR G06F2211/007 OR G06F3/0485 OR G06F12/1466 OR G06F13/385 OR G06F1/20 OR G06F21/10 OR G06F21/31 OR G06F21/445 OR G06F21/57 OR G06F21/6218 OR G06F21/79 OR G06F21/82 OR G06F2200/201 OR G06F2211/1097 OR G06F2221/0733 OR G06F2221/0737 OR G06F2221/0759 OR G06F2221/2141 OR G06F3/0213 OR G06F3/0354 OR G06F3/04886 OR G06F3/16 OR G06F8/68).CPC.) and (modify$3 same file$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L42	47	(file$1 and version$1 and distribut$4).ti. and @py<="2007"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L43	4	L42 AND ((G06F17/30132 OR G06F8/61 OR G06F8/65 OR G06F17/30176 OR G06F17/3023 OR G06F8/71).CPC.) and file$1 and transfer$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L44	2	L42 AND ((G06F17/30132 OR G06F8/61 OR G06F8/65 OR G06F17/30176 OR G06F17/3023 OR G06F8/71).CPC.) and file$1 and transfer$4 and (updat$3 or modif$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L46	1	"20020107808".PN.	US-PGPUB	OR	OFF	2019/02/14 11:11
L47	1	"20040128308".PN.	US-PGPUB	OR	OFF	2019/02/14 11:11
L48	1	"20050132204".PN.	US-PGPUB	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L49	1	"20060062426".PN.	US-PGPUB	OR	OFF	2019/02/14 11:11
L50	1	"20060075225".PN.	US-PGPUB	OR	OFF	2019/02/14 11:11
L51	1	"20070162764".PN.	US-PGPUB	OR	OFF	2019/02/14 11:11
L52	1	"20070243860".PN.	US-PGPUB	OR	OFF	2019/02/14 11:11
L53	1	"20070265977".PN.	US-PGPUB	OR	OFF	2019/02/14 11:11
L58	17	(distribut$3 and file$1 and version$1 and device$1 and copy).ab. and @py<="2007"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L59	48	(distribut$3 and file$1 and version$1 and device$1 and user$1).ab. and @py<="2007"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L61	9	L60 and (distribut$3 adj5 file$1) and @py<="2007"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L62	15	L60 AND ((G06F11/1464 OR Y10S707/99953 OR H04L67/06 OR Y10S707/99954 OR Y10S707/99955 OR G06F11/1448 OR G06F11/1458 OR G06F11/1461 OR G06F11/1469 OR G06F17/30067 OR G06F3/065 OR G06F8/65 OR H01L2924/00014 OR H04L29/06 OR H04L69/329 OR Y10S707/99952 OR A47F2005/0012 OR A47F5/0006 OR A61B1/00135 OR A61B1/00163 OR A61B1/04 OR A61B1/122 OR A61B1/125 OR A61B1/126 OR A61B1/127 OR A61B1/128 OR B32B15/04 OR B32B2255/02 OR B32B2255/06 OR B32B2255/10 OR B32B2255/12 OR B32B2255/26 OR B32B2307/31 OR B32B2405/00 OR B32B2553/00 OR B32B27/06 OR B32B27/18 OR B32B27/283 OR B32B27/32 OR B32B27/34 OR B32B27/36 OR B32B29/002 OR B32B5/022 OR B32B5/024 OR B32B7/06 OR B32B7/12 OR B65D73/0028 OR B65D75/46 OR G06F11/1435 OR G06F11/1451 OR G06F11/1453 OR G06F11/1662 OR G06F11/2038 OR G06F11/2048 OR G06F11/2094 OR G06F17/30085 OR G06F17/30221 OR G06F17/30861 OR G06F17/3089 OR G06F21/6218 OR G06F21/6227 OR G06F21/6245 OR G06F2201/83 OR G06F2201/84 OR G06F3/0683 OR H01L2224/05599 OR H04L2209/30 OR H04L63/08 OR G06F11/1443 OR G06F11/1456 OR G06F17/2288 OR G06F17/246 OR G06F17/30094 OR G06F17/30115 OR G06F17/30174 OR G06F17/30206 OR G06F17/30209 OR G06F17/30578 OR G06F2206/1008 OR G06F3/0607 OR G06F3/0613 OR G06F8/61 OR G06F9/44526 OR G06F9/44552 OR G06F9/54 OR G06F9/542 OR G06F9/543 OR Y10S707/99945).CPC.) and (file$1 near5 version$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L63	4	L60 AND ((G06F11/1464 OR Y10S707/99953 OR H04L67/06 OR Y10S707/99954 OR Y10S707/99955 OR G06F11/1448 OR G06F11/1458 OR G06F11/1461 OR G06F11/1469 OR G06F17/30067 OR G06F3/065 OR G06F8/65 OR H01L2924/00014 OR H04L29/06 OR H04L69/329 OR Y10S707/99952 OR A47F2005/0012 OR A47F5/0006 OR A61B1/00135 OR A61B1/00163 OR A61B1/04 OR A61B1/122 OR A61B1/125 OR A61B1/126 OR A61B1/127 OR A61B1/128 OR B32B15/04 OR B32B2255/02 OR B32B2255/06 OR B32B2255/10 OR B32B2255/12 OR B32B2255/26 OR B32B2307/31 OR B32B2405/00 OR B32B2553/00 OR B32B27/06 OR B32B27/18 OR B32B27/283 OR B32B27/32 OR B32B27/34 OR B32B27/36 OR B32B29/002 OR B32B5/022 OR B32B5/024 OR B32B7/06 OR B32B7/12 OR B65D73/0028 OR B65D75/46 OR G06F11/1435 OR G06F11/1451 OR G06F11/1453 OR G06F11/1662 OR G06F11/2038 OR G06F11/2048 OR G06F11/2094 OR G06F17/30085 OR G06F17/30221 OR G06F17/30861 OR G06F17/3089 OR G06F21/6218 OR G06F21/6227 OR G06F21/6245 OR G06F2201/83 OR G06F2201/84 OR G06F3/0683 OR H01L2224/05599 OR H04L2209/30 OR H04L63/08 OR G06F11/1443 OR G06F11/1456 OR G06F17/2288 OR G06F17/246 OR G06F17/30094 OR G06F17/30115 OR G06F17/30174 OR G06F17/30206 OR G06F17/30209 OR G06F17/30578 OR G06F2206/1008 OR G06F3/0607 OR G06F3/0613 OR G06F8/61 OR G06F9/44526 OR G06F9/44552 OR G06F9/54 OR G06F9/542 OR G06F9/543 OR Y10S707/99945).CPC.) and (file$1 near5 version$1) and mobile	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L64	4	L60 AND ((G06F11/1464 OR Y10S707/99953 OR H04L67/06 OR Y10S707/99954 OR Y10S707/99955 OR G06F11/1448 OR G06F11/1458 OR G06F11/1461 OR G06F11/1469 OR G06F17/30067 OR G06F3/065 OR G06F8/65 OR H01L2924/00014 OR H04L29/06 OR H04L69/329 OR Y10S707/99952 OR A47F2005/0012 OR A47F5/0006 OR A61B1/00135 OR A61B1/00163 OR A61B1/04 OR A61B1/122 OR A61B1/125 OR A61B1/126 OR A61B1/127 OR A61B1/128 OR B32B15/04 OR B32B2255/02 OR B32B2255/06 OR B32B2255/10 OR B32B2255/12 OR B32B2255/26 OR B32B2307/31 OR B32B2405/00 OR B32B2553/00 OR B32B27/06 OR B32B27/18 OR B32B27/283 OR B32B27/32 OR B32B27/34 OR B32B27/36 OR B32B29/002 OR B32B5/022 OR B32B5/024 OR B32B7/06 OR B32B7/12 OR B65D73/0028 OR B65D75/46 OR G06F11/1435 OR G06F11/1451 OR G06F11/1453 OR G06F11/1662 OR G06F11/2038 OR G06F11/2048 OR G06F11/2094 OR G06F17/30085 OR G06F17/30221 OR G06F17/30861 OR G06F17/3089 OR G06F21/6218 OR G06F21/6227 OR G06F21/6245 OR G06F2201/83 OR G06F2201/84 OR G06F3/0683 OR H01L2224/05599 OR H04L2209/30 OR H04L63/08 OR G06F11/1443 OR G06F11/1456 OR G06F17/2288 OR G06F17/246 OR G06F17/30094 OR G06F17/30115 OR G06F17/30174 OR G06F17/30206 OR G06F17/30209 OR G06F17/30578 OR G06F2206/1008 OR G06F3/0607 OR G06F3/0613 OR G06F8/61 OR G06F9/44526 OR G06F9/44552 OR G06F9/54 OR G06F9/542 OR G06F9/543 OR Y10S707/99945).CPC.) and (file$1 near5 version$1) and mobile and device$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L65	4	L60 AND ((G06F11/1464 OR Y10S707/99953 OR H04L67/06 OR Y10S707/99954 OR Y10S707/99955 OR G06F11/1448 OR G06F11/1458 OR G06F11/1461 OR G06F11/1469 OR G06F17/30067 OR G06F3/065 OR G06F8/65 OR H01L2924/00014 OR H04L29/06 OR H04L69/329 OR Y10S707/99952 OR A47F2005/0012 OR A47F5/0006 OR A61B1/00135 OR A61B1/00163 OR A61B1/04 OR A61B1/122 OR A61B1/125 OR A61B1/126 OR A61B1/127 OR A61B1/128 OR B32B15/04 OR B32B2255/02 OR B32B2255/06 OR B32B2255/10 OR B32B2255/12 OR B32B2255/26 OR B32B2307/31 OR B32B2405/00 OR B32B2553/00 OR B32B27/06 OR B32B27/18 OR B32B27/283 OR B32B27/32 OR B32B27/34 OR B32B27/36 OR B32B29/002 OR B32B5/022 OR B32B5/024 OR B32B7/06 OR B32B7/12 OR B65D73/0028 OR B65D75/46 OR G06F11/1435 OR G06F11/1451 OR G06F11/1453 OR G06F11/1662 OR G06F11/2038 OR G06F11/2048 OR G06F11/2094 OR G06F17/30085 OR G06F17/30221 OR G06F17/30861 OR G06F17/3089 OR G06F21/6218 OR G06F21/6227 OR G06F21/6245 OR G06F2201/83 OR G06F2201/84 OR G06F3/0683 OR H01L2224/05599 OR H04L2209/30 OR H04L63/08 OR G06F11/1443 OR G06F11/1456 OR G06F17/2288 OR G06F17/246 OR G06F17/30094 OR G06F17/30115 OR G06F17/30174 OR G06F17/30206 OR G06F17/30209 OR G06F17/30578 OR G06F2206/1008 OR G06F3/0607 OR G06F3/0613 OR G06F8/61 OR G06F9/44526 OR G06F9/44552 OR G06F9/54 OR G06F9/542 OR G06F9/543 OR Y10S707/99945).CPC.) and (file$1 near5 modify$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L67	34	(distribut$3 and file$1 and version$1 and mobile).ab. and @py<="2007"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L68	1	L67 AND ((G06F9/44536 OR G06F17/30194 OR G06F8/665 OR G06F8/68 OR G06F17/30477 OR G06F21/64 OR G06F3/0482 OR G06F3/1208 OR G06F3/122 OR G06F3/124 OR G06F3/1242 OR G06F3/1246 OR G06F3/1247 OR G06F3/1256 OR G06F3/1287 OR G06F3/1288 OR G06F3/1289 OR G06F3/1292 OR G06F3/167).CPC.) and transfer$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L70	10	(mobile and device$1 and file$1 and transfer$3).ti. and @py<="2007"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L71	10	(mobile and device$1 and file$1 and transfer$3 and version$1).ab. and @py<="2007"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L73	66	(distribut$3 and file$1 and version$1 and copy$3).ab. and @py<="2007"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L75	18	L73 AND ((G06F21/10 OR G06Q10/10 OR G06F17/30011 OR G06F17/3023 OR G06F11/1435 OR G06F11/2094 OR G06F11/2097 OR G06F17/30097 OR G06F17/30132 OR G06F17/30191 OR G06F17/30876 OR G06F17/30902 OR G06F21/123 OR G06F21/125 OR G06F2221/2149 OR G06F8/41).CPC.) and version$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L76	2	L73 AND ((G06F21/10 OR G06Q10/10 OR G06F17/30011 OR G06F17/3023 OR G06F11/1435 OR G06F11/2094 OR G06F11/2097 OR G06F17/30097 OR G06F17/30132 OR G06F17/30191 OR G06F17/30876 OR G06F17/30902 OR G06F21/123 OR G06F21/125 OR G06F2221/2149 OR G06F8/41).CPC.) and version$1 and mobile	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L77	2	L73 AND ((G06F21/10 OR G06Q10/10 OR G06F17/30011 OR G06F17/3023 OR G06F11/1435 OR G06F11/2094 OR G06F11/2097 OR G06F17/30097 OR G06F17/30132 OR G06F17/30191 OR G06F17/30876 OR G06F17/30902 OR G06F21/123 OR G06F21/125 OR G06F2221/2149 OR G06F8/41).CPC.) and mobile	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L78	7	(distribut$3 and file$1 and version$1 and copy$3).ab. and mobile and @py<="2007"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L80	26	L79 and (version$1 near5 id$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L82	1	L80 AND ((G06F1/1632 OR G06F13/409 OR G06F1/1626 OR H04M3/42323 OR G06F21/62 OR G06F3/0482 OR H04M11/06 OR H04M1/725 OR H04M3/42314 OR G06F1/206 OR H04N1/00127 OR H04N1/00236 OR H04N2201/0049 OR G06F1/169 OR G06F1/1656 OR H04M1/2473 OR H01H2223/052 OR G06F3/03541 OR G06F3/03549 OR H04M11/066 OR H04N1/00339 OR H04N1/00392 OR H04N1/00538 OR G06F1/1635 OR G06F3/03543 OR H04L63/10 OR G06F3/0362 OR G06Q30/0601 OR H04N2201/0081 OR H04N2201/0082 OR G06F21/73 OR G06F2221/2129 OR G06F9/445 OR H04N2201/0093 OR G06F3/03545 OR G06F1/1688 OR G06F1/1698 OR G06F2211/007 OR G06F3/0485 OR G06F12/1466 OR G06F13/385 OR G06F1/20 OR G06F21/10 OR G06F21/31 OR G06F21/445 OR G06F21/57 OR G06F21/6218 OR G06F21/79 OR G06F21/82 OR G06F2200/201 OR G06F2211/1097 OR G06F2221/0733 OR G06F2221/0737 OR G06F2221/0759 OR G06F2221/2141 OR G06F3/0213 OR G06F3/0354 OR G06F3/04886 OR G06F3/16 OR G06F8/68). CPC.) and (modify$3 same file$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:11
L83	10	L66 and version$1	USPAT	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L84	9	L83 AND ((G06F17/30174 OR G06F8/654 OR G06F8/658 OR H04L29/06 OR H04L41/00 OR Y10S707/99938 OR Y10S707/99939 OR Y10S707/99953 OR Y10S707/99954 OR G06F11/2064 OR G06F11/2082 OR G06F17/30011 OR G06F17/30067 OR G06F17/30575 OR G06F21/00 OR G06F21/10 OR G06Q10/10 OR G06Q50/34 OR G07F17/32 OR G07F17/3288 OR H04L2209/60 OR H04L2463/101 OR H04L63/0428 OR H04L63/0853 OR H04L63/166 OR H04L67/04 OR H04L67/06 OR H04L67/10). CPC.) and updat$3	USPAT	OR	OFF	2019/02/14 11:11
L85	9	L83 AND ((G06F17/30174 OR G06F8/654 OR G06F8/658 OR H04L29/06 OR H04L41/00 OR Y10S707/99938 OR Y10S707/99939 OR Y10S707/99953 OR Y10S707/99954 OR G06F11/2064 OR G06F11/2082 OR G06F17/30011 OR G06F17/30067 OR G06F17/30575 OR G06F21/00 OR G06F21/10 OR G06Q10/10 OR G06Q50/34 OR G07F17/32 OR G07F17/3288 OR H04L2209/60 OR H04L2463/101 OR H04L63/0428 OR H04L63/0853 OR H04L63/166 OR H04L67/04 OR H04L67/06 OR H04L67/10). CPC.) and updat$3 and (file$1 near5 copy)	USPAT	OR	OFF	2019/02/14 11:11
L88	1	L56 and (old near5 version$1)	USPAT	OR	OFF	2019/02/14 11:11
L90	39	L89 and (file adj5 copy)	USPAT	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L92	17	L90 AND ((Y10S707/99953 OR G06F8/71 OR Y10S707/99955 OR Y10S707/99954 OR Y10S707/99938 OR Y10S707/99942 OR Y10S707/99939 OR G06F11/1461 OR G06F11/2071 OR G06F17/30067 OR G06F11/1451 OR G06F11/1464 OR G06F11/2058 OR G06F11/2082 OR G06F2201/855 OR G06F3/0689 OR Y10S707/99943 OR Y10S707/99952 OR G06F11/1435 OR G06F11/1471 OR G06F11/2064 OR G06F11/2094 OR G06F17/30165 OR G06F17/30233 OR G06F21/6218 OR G06F3/0659 OR G06F9/542 OR Y10S707/99931 OR Y10S707/99933 OR G06F11/1076 OR G06F11/1458 OR G06F11/1466 OR G06F11/1469 OR G06F11/1662 OR G06F11/201 OR G06F11/2056 OR G06F11/2069 OR G06F11/2097 OR G06F12/0284 OR G06F12/109 OR G06F13/1657 OR G06F17/30082 OR G06F17/30088 OR G06F17/30171 OR G06F17/30194 OR G06F17/30212 OR G06F17/3023 OR G06F17/30362 OR G06F2003/0697 OR G06F2201/80 OR G06F2211/105 OR G06F2212/656 OR G06F3/0601 OR G06F3/0607 OR G06F3/061 OR G06F3/0611 OR G06F3/0614 OR G06F3/0619 OR G06F3/064 OR G06F3/0644 OR G06F8/65 OR G06F9/3844 OR G06F9/4488).CPC.) and (modify$3 near5 file$1)	USPAT	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L94	1	L90 AND ((Y10S707/99953 OR G06F8/71 OR Y10S707/99955 OR Y10S707/99954 OR Y10S707/99938 OR Y10S707/99942 OR Y10S707/99939 OR G06F11/1461 OR G06F11/2071 OR G06F17/30067 OR G06F11/1451 OR G06F11/1464 OR G06F11/2058 OR G06F11/2082 OR G06F2201/855 OR G06F3/0689 OR Y10S707/99943 OR Y10S707/99952 OR G06F11/1435 OR G06F11/1471 OR G06F11/2064 OR G06F11/2094 OR G06F17/30165 OR G06F17/30233 OR G06F21/6218 OR G06F3/0659 OR G06F9/542 OR Y10S707/99931 OR Y10S707/99933 OR G06F11/1076 OR G06F11/1458 OR G06F11/1466 OR G06F11/1469 OR G06F11/1662 OR G06F11/201 OR G06F11/2056 OR G06F11/2069 OR G06F11/2097 OR G06F12/0284 OR G06F12/109 OR G06F13/1657 OR G06F17/30082 OR G06F17/30088 OR G06F17/30171 OR G06F17/30194 OR G06F17/30212 OR G06F17/3023 OR G06F17/30362 OR G06F2003/0697 OR G06F2201/80 OR G06F2211/105 OR G06F2212/656 OR G06F3/0601 OR G06F3/0607 OR G06F3/061 OR G06F3/0611 OR G06F3/0614 OR G06F3/0619 OR G06F3/064 OR G06F3/0644 OR G06F8/65 OR G06F9/3844 OR G06F9/4488).CPC.) and (modify$3 near5 file$1) and proxy	USPAT	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L95	10	L90 AND ((Y10S707/99953 OR G06F8/71 OR Y10S707/99955 OR Y10S707/99954 OR Y10S707/99938 OR Y10S707/99942 OR Y10S707/99939 OR G06F11/1461 OR G06F11/2071 OR G06F17/30067 OR G06F11/1451 OR G06F11/1464 OR G06F11/2058 OR G06F11/2082 OR G06F2201/855 OR G06F3/0689 OR Y10S707/99943 OR Y10S707/99952 OR G06F11/1435 OR G06F11/1471 OR G06F11/2064 OR G06F11/2094 OR G06F17/30165 OR G06F17/30233 OR G06F21/6218 OR G06F3/0659 OR G06F9/542 OR Y10S707/99931 OR Y10S707/99933 OR G06F11/1076 OR G06F11/1458 OR G06F11/1466 OR G06F11/1469 OR G06F11/1662 OR G06F11/201 OR G06F11/2056 OR G06F11/2069 OR G06F11/2097 OR G06F12/0284 OR G06F12/109 OR G06F13/1657 OR G06F17/30082 OR G06F17/30088 OR G06F17/30171 OR G06F17/30194 OR G06F17/30212 OR G06F17/3023 OR G06F17/30362 OR G06F2003/0697 OR G06F2201/80 OR G06F2211/105 OR G06F2212/656 OR G06F3/0601 OR G06F3/0607 OR G06F3/061 OR G06F3/0611 OR G06F3/0614 OR G06F3/0619 OR G06F3/064 OR G06F3/0644 OR G06F8/65 OR G06F9/3844 OR G06F9/4488).CPC.) and (modify$3 near5 file$1) and (generat$3 near5 file$1)	USPAT	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L96	1	L90 AND ((Y10S707/99953 OR G06F8/71 OR Y10S707/99955 OR Y10S707/99954 OR Y10S707/99938 OR Y10S707/99942 OR Y10S707/99939 OR G06F11/1461 OR G06F11/2071 OR G06F17/30067 OR G06F11/1451 OR G06F11/1464 OR G06F11/2058 OR G06F11/2082 OR G06F2201/855 OR G06F3/0689 OR Y10S707/99943 OR Y10S707/99952 OR G06F11/1435 OR G06F11/1471 OR G06F11/2064 OR G06F11/2094 OR G06F17/30165 OR G06F17/30233 OR G06F21/6218 OR G06F3/0659 OR G06F9/542 OR Y10S707/99931 OR Y10S707/99933 OR G06F11/1076 OR G06F11/1458 OR G06F11/1466 OR G06F11/1469 OR G06F11/1662 OR G06F11/201 OR G06F11/2056 OR G06F11/2069 OR G06F11/2097 OR G06F12/0284 OR G06F12/109 OR G06F13/1657 OR G06F17/30082 OR G06F17/30088 OR G06F17/30171 OR G06F17/30194 OR G06F17/30212 OR G06F17/3023 OR G06F17/30362 OR G06F2003/0697 OR G06F2201/80 OR G06F2211/105 OR G06F2212/656 OR G06F3/0601 OR G06F3/0607 OR G06F3/061 OR G06F3/0611 OR G06F3/0614 OR G06F3/0619 OR G06F3/064 OR G06F3/0644 OR G06F8/65 OR G06F9/3844 OR G06F9/4488).CPC.) and (modify$3 near5 file$1) and (generat$3 near5 file$1) and (replac$3 near5 copy)	USPAT	OR	OFF	2019/02/14 11:11
L100	22	(mobile near5 object$1) and (mobile near5 agent$1) and (distribut$3 near5 file$1) and @py<="2007"	USPAT	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L101	4	L100 AND ((G06F21/10 OR G06F2221/2135 OR G06Q20/02 OR G06Q20/12 OR G06Q20/24 OR G06F21/86 OR G06F2211/007 OR G06F2221/0737 OR G06F2221/2101 OR G06Q20/04 OR G06Q20/1235 OR G07F9/026 OR H04L2463/101 OR H04L63/20 OR H04N21/25875 OR G06F2221/2151 OR G06Q20/023 OR G06Q30/06 OR H04L2463/102 OR H04L2463/103 OR H04N21/2347 OR H04N21/235 OR H04N21/2362 OR H04N21/2541 OR H04N21/2543 OR H04N21/2547 OR H04N21/4143 OR H04N21/4345 OR H04N21/435 OR H04N21/4405 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/4753 OR H04N21/6581 OR H04N21/835 OR H04N21/83555 OR H04N21/8358 OR H04N7/162 OR H04N7/17309 OR G06F21/31 OR G06F21/33 OR G06F2221/0797 OR H04N21/8355 OR G06F17/30598 OR G06F21/6209 OR G06Q20/10 OR G06Q30/00 OR G06Q30/0257 OR G06Q30/0271 OR G06Q99/00 OR G08B2001/085 OR H04L63/123 OR G06F21/71 OR G06F2221/2137 OR G06Q10/10 OR G06Q20/085 OR G06Q20/102 OR G06Q20/14 OR G06Q20/389 OR G06Q20/401 OR H04L63/102 OR H04L9/3218 OR H04L9/3247 OR G06F21/32 OR G06Q10/063112 OR G06Q10/06314 OR G06Q10/06398 OR G06Q10/087 OR G06Q40/00 OR G06Q40/02 OR G06Q40/04 OR G06Q50/184 OR H04L63/16 OR H04L63/168 OR H04L67/1095 OR H04L67/16 OR H04L67/22).CPC.) and (first near5 file)	USPAT	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L102	1	L100 AND ((G06F21/10 OR G06F2221/2135 OR G06Q20/02 OR G06Q20/12 OR G06Q20/24 OR G06F21/86 OR G06F2211/007 OR G06F2221/0737 OR G06F2221/2101 OR G06Q20/04 OR G06Q20/1235 OR G07F9/026 OR H04L2463/101 OR H04L63/20 OR H04N21/25875 OR G06F2221/2151 OR G06Q20/023 OR G06Q30/06 OR H04L2463/102 OR H04L2463/103 OR H04N21/2347 OR H04N21/235 OR H04N21/2362 OR H04N21/2541 OR H04N21/2543 OR H04N21/2547 OR H04N21/4143 OR H04N21/4345 OR H04N21/435 OR H04N21/4405 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/4753 OR H04N21/6581 OR H04N21/835 OR H04N21/83555 OR H04N21/8358 OR H04N7/162 OR H04N7/17309 OR G06F21/31 OR G06F21/33 OR G06F2221/0797 OR H04N21/8355 OR G06F17/30598 OR G06F21/6209 OR G06Q20/10 OR G06Q30/00 OR G06Q30/0257 OR G06Q30/0271 OR G06Q99/00 OR G08B2001/085 OR H04L63/123 OR G06F21/71 OR G06F2221/2137 OR G06Q10/10 OR G06Q20/085 OR G06Q20/102 OR G06Q20/14 OR G06Q20/389 OR G06Q20/401 OR H04L63/102 OR H04L9/3218 OR H04L9/3247 OR G06F21/32 OR G06Q10/063112 OR G06Q10/06314 OR G06Q10/06398 OR G06Q10/087 OR G06Q40/00 OR G06Q40/02 OR G06Q40/04 OR G06Q50/184 OR H04L63/16 OR H04L63/168 OR H04L67/1095 OR H04L67/16 OR H04L67/22).CPC.) and (mobile near5 device$1)	USPAT	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L103	19	L100 AND ((G06F21/10 OR G06F2221/2135 OR G06Q20/02 OR G06Q20/12 OR G06Q20/24 OR G06F21/86 OR G06F2211/007 OR G06F2221/0737 OR G06F2221/2101 OR G06Q20/04 OR G06Q20/1235 OR G07F9/026 OR H04L2463/101 OR H04L63/20 OR H04N21/25875 OR G06F2221/2151 OR G06Q20/023 OR G06Q30/06 OR H04L2463/102 OR H04L2463/103 OR H04N21/2347 OR H04N21/235 OR H04N21/2362 OR H04N21/2541 OR H04N21/2543 OR H04N21/2547 OR H04N21/4143 OR H04N21/4345 OR H04N21/435 OR H04N21/4405 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/4753 OR H04N21/6581 OR H04N21/835 OR H04N21/83555 OR H04N21/8358 OR H04N7/162 OR H04N7/17309 OR G06F21/31 OR G06F21/33 OR G06F2221/0797 OR H04N21/8355 OR G06F17/30598 OR G06F21/6209 OR G06Q20/10 OR G06Q30/00 OR G06Q30/0257 OR G06Q30/0271 OR G06Q99/00 OR G08B2001/085 OR H04L63/123 OR G06F21/71 OR G06F2221/2137 OR G06Q10/10 OR G06Q20/085 OR G06Q20/102 OR G06Q20/14 OR G06Q20/389 OR G06Q20/401 OR H04L63/102 OR H04L9/3218 OR H04L9/3247 OR G06F21/32 OR G06Q10/063112 OR G06Q10/06314 OR G06Q10/06398 OR G06Q10/087 OR G06Q40/00 OR G06Q40/02 OR G06Q40/04 OR G06Q50/184 OR H04L63/16 OR H04L63/168 OR H04L67/1095 OR H04L67/16 OR H04L67/22).CPC.) and version$1	USPAT	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L104	19	L100 AND ((G06F21/10 OR G06F2221/2135 OR G06Q20/02 OR G06Q20/12 OR G06Q20/24 OR G06F21/86 OR G06F2211/007 OR G06F2221/0737 OR G06F2221/2101 OR G06Q20/04 OR G06Q20/1235 OR G07F9/026 OR H04L2463/101 OR H04L63/20 OR H04N21/25875 OR G06F2221/2151 OR G06Q20/023 OR G06Q30/06 OR H04L2463/102 OR H04L2463/103 OR H04N21/2347 OR H04N21/235 OR H04N21/2362 OR H04N21/2541 OR H04N21/2543 OR H04N21/2547 OR H04N21/4143 OR H04N21/4345 OR H04N21/435 OR H04N21/4405 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/4753 OR H04N21/6581 OR H04N21/835 OR H04N21/83555 OR H04N21/8358 OR H04N7/162 OR H04N7/17309 OR G06F21/31 OR G06F21/33 OR G06F2221/0797 OR H04N21/8355 OR G06F17/30598 OR G06F21/6209 OR G06Q20/10 OR G06Q30/00 OR G06Q30/0257 OR G06Q30/0271 OR G06Q99/00 OR G08B2001/085 OR H04L63/123 OR G06F21/71 OR G06F2221/2137 OR G06Q10/10 OR G06Q20/085 OR G06Q20/102 OR G06Q20/14 OR G06Q20/389 OR G06Q20/401 OR H04L63/102 OR H04L9/3218 OR H04L9/3247 OR G06F21/32 OR G06Q10/063112 OR G06Q10/06314 OR G06Q10/06398 OR G06Q10/087 OR G06Q40/00 OR G06Q40/02 OR G06Q40/04 OR G06Q50/184 OR H04L63/16 OR H04L63/168 OR H04L67/1095 OR H04L67/16 OR H04L67/22).CPC.) and version$1 and network$3	USPAT	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L105	19	L100 AND ((G06F21/10 OR G06F2221/2135 OR G06Q20/02 OR G06Q20/12 OR G06Q20/24 OR G06F21/86 OR G06F2211/007 OR G06F2221/0737 OR G06F2221/2101 OR G06Q20/04 OR G06Q20/1235 OR G07F9/026 OR H04L2463/101 OR H04L63/20 OR H04N21/25875 OR G06F2221/2151 OR G06Q20/023 OR G06Q30/06 OR H04L2463/102 OR H04L2463/103 OR H04N21/2347 OR H04N21/235 OR H04N21/2362 OR H04N21/2541 OR H04N21/2543 OR H04N21/2547 OR H04N21/4143 OR H04N21/4345 OR H04N21/435 OR H04N21/4405 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/4753 OR H04N21/6581 OR H04N21/835 OR H04N21/83555 OR H04N21/8358 OR H04N7/162 OR H04N7/17309 OR G06F21/31 OR G06F21/33 OR G06F2221/0797 OR H04N21/8355 OR G06F17/30598 OR G06F21/6209 OR G06Q20/10 OR G06Q30/00 OR G06Q30/0257 OR G06Q30/0271 OR G06Q99/00 OR G08B2001/085 OR H04L63/123 OR G06F21/71 OR G06F2221/2137 OR G06Q10/10 OR G06Q20/085 OR G06Q20/102 OR G06Q20/14 OR G06Q20/389 OR G06Q20/401 OR H04L63/102 OR H04L9/3218 OR H04L9/3247 OR G06F21/32 OR G06Q10/063112 OR G06Q10/06314 OR G06Q10/06398 OR G06Q10/087 OR G06Q40/00 OR G06Q40/02 OR G06Q40/04 OR G06Q50/184 OR H04L63/16 OR H04L63/168 OR H04L67/1095 OR H04L67/16 OR H04L67/22).CPC.) and version$1 and network$3 and copy	USPAT	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L106	19	L100 AND ((G06F21/10 OR G06F2221/2135 OR G06Q20/02 OR G06Q20/12 OR G06Q20/24 OR G06F21/86 OR G06F2211/007 OR G06F2221/0737 OR G06F2221/2101 OR G06Q20/04 OR G06Q20/1235 OR G07F9/026 OR H04L2463/101 OR H04L63/20 OR H04N21/25875 OR G06F2221/2151 OR G06Q20/023 OR G06Q30/06 OR H04L2463/102 OR H04L2463/103 OR H04N21/2347 OR H04N21/235 OR H04N21/2362 OR H04N21/2541 OR H04N21/2543 OR H04N21/2547 OR H04N21/4143 OR H04N21/4345 OR H04N21/435 OR H04N21/4405 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/4753 OR H04N21/6581 OR H04N21/835 OR H04N21/83555 OR H04N21/8358 OR H04N7/162 OR H04N7/17309 OR G06F21/31 OR G06F21/33 OR G06F2221/0797 OR H04N21/8355 OR G06F17/30598 OR G06F21/6209 OR G06Q20/10 OR G06Q30/00 OR G06Q30/0257 OR G06Q30/0271 OR G06Q99/00 OR G08B2001/085 OR H04L63/123 OR G06F21/71 OR G06F2221/2137 OR G06Q10/10 OR G06Q20/085 OR G06Q20/102 OR G06Q20/14 OR G06Q20/389 OR G06Q20/401 OR H04L63/102 OR H04L9/3218 OR H04L9/3247 OR G06F21/32 OR G06Q10/063112 OR G06Q10/06314 OR G06Q10/06398 OR G06Q10/087 OR G06Q40/00 OR G06Q40/02 OR G06Q40/04 OR G06Q50/184 OR H04L63/16 OR H04L63/168 OR H04L67/1095 OR H04L67/16 OR H04L67/22).CPC.) and version$1 and network$3 and copy and application$1	USPAT	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L107	12	L100 AND ((G06F21/10 OR G06F2221/2135 OR G06Q20/02 OR G06Q20/12 OR G06Q20/24 OR G06F21/86 OR G06F2211/007 OR G06F2221/0737 OR G06F2221/2101 OR G06Q20/04 OR G06Q20/1235 OR G07F9/026 OR H04L2463/101 OR H04L63/20 OR H04N21/25875 OR G06F2221/2151 OR G06Q20/023 OR G06Q30/06 OR H04L2463/102 OR H04L2463/103 OR H04N21/2347 OR H04N21/235 OR H04N21/2362 OR H04N21/2541 OR H04N21/2543 OR H04N21/2547 OR H04N21/4143 OR H04N21/4345 OR H04N21/435 OR H04N21/4405 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/4753 OR H04N21/6581 OR H04N21/835 OR H04N21/83555 OR H04N21/8358 OR H04N7/162 OR H04N7/17309 OR G06F21/31 OR G06F21/33 OR G06F2221/0797 OR H04N21/8355 OR G06F17/30598 OR G06F21/6209 OR G06Q20/10 OR G06Q30/00 OR G06Q30/0257 OR G06Q30/0271 OR G06Q99/00 OR G08B2001/085 OR H04L63/123 OR G06F21/71 OR G06F2221/2137 OR G06Q10/10 OR G06Q20/085 OR G06Q20/102 OR G06Q20/14 OR G06Q20/389 OR G06Q20/401 OR H04L63/102 OR H04L9/3218 OR H04L9/3247 OR G06F21/32 OR G06Q10/063112 OR G06Q10/06314 OR G06Q10/06398 OR G06Q10/087 OR G06Q40/00 OR G06Q40/02 OR G06Q40/04 OR G06Q50/184 OR H04L63/16 OR H04L63/168 OR H04L67/1095 OR H04L67/16 OR H04L67/22).CPC.) and version$1 and network$3 and copy and application$1 and replac$3	USPAT	OR	OFF	2019/02/14 11:11

EAST Search History (Prior Art)

L109	7	L100 AND ((G06F21/10 OR G06F2221/2135 OR G06Q20/02 OR G06Q20/12 OR G06Q20/24 OR G06F21/86 OR G06F2211/007 OR G06F2221/0737 OR G06F2221/2101 OR G06Q20/04 OR G06Q20/1235 OR G07F9/026 OR H04L2463/101 OR H04L63/20 OR H04N21/25875 OR G06F2221/2151 OR G06Q20/023 OR G06Q30/06 OR H04L2463/102 OR H04L2463/103 OR H04N21/2347 OR H04N21/235 OR H04N21/2362 OR H04N21/2541 OR H04N21/2543 OR H04N21/2547 OR H04N21/4143 OR H04N21/4345 OR H04N21/435 OR H04N21/4405 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/4753 OR H04N21/6581 OR H04N21/835 OR H04N21/83555 OR H04N21/8358 OR H04N7/162 OR H04N7/17309 OR G06F21/31 OR G06F21/33 OR G06F2221/0797 OR H04N21/8355 OR G06F17/30598 OR G06F21/6209 OR G06Q20/10 OR G06Q30/00 OR G06Q30/0257 OR G06Q30/0271 OR G06Q99/00 OR G08B2001/085 OR H04L63/123 OR G06F21/71 OR G06F2221/2137 OR G06Q10/10 OR G06Q20/085 OR G06Q20/102 OR G06Q20/14 OR G06Q20/389 OR G06Q20/401 OR H04L63/102 OR H04L9/3218 OR H04L9/3247 OR G06F21/32 OR G06Q10/063112 OR G06Q10/06314 OR G06Q10/06398 OR G06Q10/087 OR G06Q40/00 OR G06Q40/02 OR G06Q40/04 OR G06Q50/184 OR H04L63/16 OR H04L63/168 OR H04L67/1095 OR H04L67/16 OR H04L67/22).CPC.) and version$1 and network$3 and copy and application$1 and replac$3 and (memory near5 device$1)	USPAT	OR	OFF	2019/02/14 11:11
L110	7	79 and metadata and @py<="2007"	USPAT	OR	OFF	2019/02/14 11:22
L111	7	110 AND ((G06F21/10 OR G06Q10/10 OR H04L67/104 OR H04L67/1046 OR G06F11/3409 OR G06F16/27 OR G06F16/93 OR G06F16/958 OR G06F2221/2107 OR G06F2221/2135 OR G06F2221/2137 OR G06Q10/06 OR H04L2463/101 OR H04L63/0428 OR H04L63/0823 OR H04L63/0853 OR H04L63/104 OR H04L63/166 OR H04L67/04 OR H04L67/1042 OR H04L67/1048 OR H04L67/1057 OR H04L67/1068 OR H04L67/34 OR H04L69/329 OR H04N1/32771 OR H04N1/32776 OR H04N2201/3246).CPC.) and object$1	USPAT	OR	OFF	2019/02/14 11:23

EAST Search History (Prior Art)

L112	7	110 AND ((G06F21/10 OR G06Q10/10 OR H04L67/104 OR H04L67/1046 OR G06F11/3409 OR G06F16/27 OR G06F16/93 OR G06F16/958 OR G06F2221/2107 OR G06F2221/2135 OR G06F2221/2137 OR G06Q10/06 OR H04L2463/101 OR H04L63/0428 OR H04L63/0823 OR H04L63/0853 OR H04L63/104 OR H04L63/166 OR H04L67/04 OR H04L67/1042 OR H04L67/1048 OR H04L67/1057 OR H04L67/1068 OR H04L67/34 OR H04L69/329 OR H04N1/32771 OR H04N1/32776 OR H04N2201/3246).CPC.) and object$1 and client and device$1	USPAT	OR	OFF	2019/02/14 11:23
L114	1	(file$1 and priority and version$1).ab. and @py<="2007"	USPAT	OR	OFF	2019/02/14 11:24

EAST Search History (Prior Art)

L115	1	59 AND ((H04L69/329 OR G06F21/10 OR H04L41/00 OR H04L67/1095 OR G06F16/958 OR G06Q10/10 OR H04L67/10 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04N21/2221 OR H04N21/2343 OR H04N21/2393 OR H04N21/262 OR H04N21/6125 OR H04N21/6143 OR H04N21/6405 OR H04N21/6437 OR Y10S707/99939 OR Y10S707/99953 OR G06F8/61 OR Y10S707/99938 OR A63F13/10 OR A63F13/12 OR A63F13/35 OR A63F13/63 OR A63F13/655 OR A63F13/798 OR A63F13/812 OR A63F2300/407 OR A63F2300/50 OR G06F16/182 OR G06F16/9574 OR G06F21/121 OR G06F2221/0704 OR G06F2221/0744 OR G06F2221/2135 OR G06F2221/2137 OR G06F2221/2143 OR G06F2221/2145 OR G06F8/60 OR G06F9/44 OR G06F9/4416 OR G06F9/453 OR G06Q20/04 OR G06Q20/12 OR G06Q20/1235 OR G06Q20/3825 OR G06Q30/06 OR G11B2020/1259 OR G11B20/00086 OR G11B20/00094 OR G11B20/0021 OR G11B20/00253 OR G11B2220/215 OR G11B2220/2537 OR H04H60/21 OR H04H60/23 OR H04H60/82 OR H04L29/06 OR H04L29/06027 OR H04L63/04 OR H04L63/08 OR H04L67/06 OR H04N1/00132 OR H04N1/00151 OR H04N1/2112 OR H04N1/2141 OR H04N1/2158 OR H04N1/2183 OR H04N2101/00 OR H04N21/2223 OR H04N21/2335 OR H04N21/2347 OR H04N21/252 OR H04N21/2543 OR H04N21/41407 OR H04N21/41422 OR H04N21/4184 OR H04N21/472 OR H04N21/8106 OR H04N21/8113 OR H04N21/8355 OR H04N2201/0084 OR H04N2201/3226 OR H04N5/772 OR H04N9/8227 OR Y10S707/99944 OR Y10S707/99945 OR Y10S707/99948 OR Y10S707/99952).CPC.) and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:37

EAST Search History (Prior Art)

L116	4	59 AND ((H04L69/329 OR G06F21/10 OR H04L41/00 OR H04L67/1095 OR G06F16/958 OR G06Q10/10 OR H04L67/10 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04N21/2221 OR H04N21/2343 OR H04N21/2393 OR H04N21/262 OR H04N21/6125 OR H04N21/6143 OR H04N21/6405 OR H04N21/6437 OR Y10S707/99939 OR Y10S707/99953 OR G06F8/61 OR Y10S707/99938 OR A63F13/10 OR A63F13/12 OR A63F13/35 OR A63F13/63 OR A63F13/655 OR A63F13/798 OR A63F13/812 OR A63F2300/407 OR A63F2300/50 OR G06F16/182 OR G06F16/9574 OR G06F21/121 OR G06F2221/0704 OR G06F2221/0744 OR G06F2221/2135 OR G06F2221/2137 OR G06F2221/2143 OR G06F2221/2145 OR G06F8/60 OR G06F9/44 OR G06F9/4416 OR G06F9/453 OR G06Q20/04 OR G06Q20/12 OR G06Q20/1235 OR G06Q20/3825 OR G06Q30/06 OR G11B2020/1259 OR G11B20/00086 OR G11B20/00094 OR G11B20/0021 OR G11B20/00253 OR G11B2220/215 OR G11B2220/2537 OR H04H60/21 OR H04H60/23 OR H04H60/82 OR H04L29/06 OR H04L29/06027 OR H04L63/04 OR H04L63/08 OR H04L67/06 OR H04N1/00132 OR H04N1/00151 OR H04N1/2112 OR H04N1/2141 OR H04N1/2158 OR H04N1/2183 OR H04N2101/00 OR H04N21/2223 OR H04N21/2335 OR H04N21/2347 OR H04N21/252 OR H04N21/2543 OR H04N21/41407 OR H04N21/41422 OR H04N21/4184 OR H04N21/472 OR H04N21/8106 OR H04N21/8113 OR H04N21/8355 OR H04N2201/0084 OR H04N2201/3226 OR H04N5/772 OR H04N9/8227 OR Y10S707/99944 OR Y10S707/99945 OR Y10S707/99948 OR Y10S707/99952).CPC.) and modify$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:37

EAST Search History (Prior Art)

L117	2	59 AND ((H04L69/329 OR G06F21/10 OR H04L41/00 OR H04L67/1095 OR G06F16/958 OR G06Q10/10 OR H04L67/10 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04N21/2221 OR H04N21/2343 OR H04N21/2393 OR H04N21/262 OR H04N21/6125 OR H04N21/6143 OR H04N21/6405 OR H04N21/6437 OR Y10S707/99939 OR Y10S707/99953 OR G06F8/61 OR Y10S707/99938 OR A63F13/10 OR A63F13/12 OR A63F13/35 OR A63F13/63 OR A63F13/655 OR A63F13/798 OR A63F13/812 OR A63F2300/407 OR A63F2300/50 OR G06F16/182 OR G06F16/9574 OR G06F21/121 OR G06F2221/0704 OR G06F2221/0744 OR G06F2221/2135 OR G06F2221/2137 OR G06F2221/2143 OR G06F2221/2145 OR G06F8/60 OR G06F9/44 OR G06F9/4416 OR G06F9/453 OR G06Q20/04 OR G06Q20/12 OR G06Q20/1235 OR G06Q20/3825 OR G06Q30/06 OR G11B2020/1259 OR G11B20/00086 OR G11B20/00094 OR G11B20/0021 OR G11B20/00253 OR G11B2220/215 OR G11B2220/2537 OR H04H60/21 OR H04H60/23 OR H04H60/82 OR H04L29/06 OR H04L29/06027 OR H04L63/04 OR H04L63/08 OR H04L67/06 OR H04N1/00132 OR H04N1/00151 OR H04N1/2112 OR H04N1/2141 OR H04N1/2158 OR H04N1/2183 OR H04N2101/00 OR H04N21/2223 OR H04N21/2335 OR H04N21/2347 OR H04N21/252 OR H04N21/2543 OR H04N21/41407 OR H04N21/41422 OR H04N21/4184 OR H04N21/472 OR H04N21/8106 OR H04N21/8113 OR H04N21/8355 OR H04N2201/0084 OR H04N2201/3226 OR H04N5/772 OR H04N9/8227 OR Y10S707/99944 OR Y10S707/99945 OR Y10S707/99948 OR Y10S707/99952).CPC.) and modify$3 and replac$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:37

EAST Search History (Prior Art)

L118	6	59 AND ((H04L69/329 OR G06F21/10 OR H04L41/00 OR H04L67/1095 OR G06F16/958 OR G06Q10/10 OR H04L67/10 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04N21/2221 OR H04N21/2343 OR H04N21/2393 OR H04N21/262 OR H04N21/6125 OR H04N21/6143 OR H04N21/6405 OR H04N21/6437 OR Y10S707/99939 OR Y10S707/99953 OR G06F8/61 OR Y10S707/99938 OR A63F13/10 OR A63F13/12 OR A63F13/35 OR A63F13/63 OR A63F13/655 OR A63F13/798 OR A63F13/812 OR A63F2300/407 OR A63F2300/50 OR G06F16/182 OR G06F16/9574 OR G06F21/121 OR G06F2221/0704 OR G06F2221/0744 OR G06F2221/2135 OR G06F2221/2137 OR G06F2221/2143 OR G06F2221/2145 OR G06F8/60 OR G06F9/44 OR G06F9/4416 OR G06F9/453 OR G06Q20/04 OR G06Q20/12 OR G06Q20/1235 OR G06Q20/3825 OR G06Q30/06 OR G11B2020/1259 OR G11B20/00086 OR G11B20/00094 OR G11B20/0021 OR G11B20/00253 OR G11B2220/215 OR G11B2220/2537 OR H04H60/21 OR H04H60/23 OR H04H60/82 OR H04L29/06 OR H04L29/06027 OR H04L63/04 OR H04L63/08 OR H04L67/06 OR H04N1/00132 OR H04N1/00151 OR H04N1/2112 OR H04N1/2141 OR H04N1/2158 OR H04N1/2183 OR H04N2101/00 OR H04N21/2223 OR H04N21/2335 OR H04N21/2347 OR H04N21/252 OR H04N21/2543 OR H04N21/41407 OR H04N21/41422 OR H04N21/4184 OR H04N21/472 OR H04N21/8106 OR H04N21/8113 OR H04N21/8355 OR H04N2201/0084 OR H04N2201/3226 OR H04N5/772 OR H04N9/8227 OR Y10S707/99944 OR Y10S707/99945 OR Y10S707/99948 OR Y10S707/99952).CPC.) and automatically and transfer$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:38

EAST Search History (Prior Art)

L119	6	59 AND ((H04L69/329 OR G06F21/10 OR H04L41/00 OR H04L67/1095 OR G06F16/958 OR G06Q10/10 OR H04L67/10 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04N21/2221 OR H04N21/2343 OR H04N21/2393 OR H04N21/262 OR H04N21/6125 OR H04N21/6143 OR H04N21/6405 OR H04N21/6437 OR Y10S707/99939 OR Y10S707/99953 OR G06F8/61 OR Y10S707/99938 OR A63F13/10 OR A63F13/12 OR A63F13/35 OR A63F13/63 OR A63F13/655 OR A63F13/798 OR A63F13/812 OR A63F2300/407 OR A63F2300/50 OR G06F16/182 OR G06F16/9574 OR G06F21/121 OR G06F2221/0704 OR G06F2221/0744 OR G06F2221/2135 OR G06F2221/2137 OR G06F2221/2143 OR G06F2221/2145 OR G06F8/60 OR G06F9/44 OR G06F9/4416 OR G06F9/453 OR G06Q20/04 OR G06Q20/12 OR G06Q20/1235 OR G06Q20/3825 OR G06Q30/06 OR G11B2020/1259 OR G11B20/00086 OR G11B20/00094 OR G11B20/0021 OR G11B20/00253 OR G11B2220/215 OR G11B2220/2537 OR H04H60/21 OR H04H60/23 OR H04H60/82 OR H04L29/06 OR H04L29/06027 OR H04L63/04 OR H04L63/08 OR H04L67/06 OR H04N1/00132 OR H04N1/00151 OR H04N1/2112 OR H04N1/2141 OR H04N1/2158 OR H04N1/2183 OR H04N2101/00 OR H04N21/2223 OR H04N21/2335 OR H04N21/2347 OR H04N21/252 OR H04N21/2543 OR H04N21/41407 OR H04N21/41422 OR H04N21/4184 OR H04N21/472 OR H04N21/8106 OR H04N21/8113 OR H04N21/8355 OR H04N2201/0084 OR H04N2201/3226 OR H04N5/772 OR H04N9/8227 OR Y10S707/99944 OR Y10S707/99945 OR Y10S707/99948 OR Y10S707/99952).CPC.) and automatically and transfer$3 and generat$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:38

EAST Search History (Prior Art)

L120	3	59 AND ((H04L69/329 OR G06F21/10 OR H04L41/00 OR H04L67/1095 OR G06F16/958 OR G06Q10/10 OR H04L67/10 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04N21/2221 OR H04N21/2343 OR H04N21/2393 OR H04N21/262 OR H04N21/6125 OR H04N21/6143 OR H04N21/6405 OR H04N21/6437 OR Y10S707/99939 OR Y10S707/99953 OR G06F8/61 OR Y10S707/99938 OR A63F13/10 OR A63F13/12 OR A63F13/35 OR A63F13/63 OR A63F13/655 OR A63F13/798 OR A63F13/812 OR A63F2300/407 OR A63F2300/50 OR G06F16/182 OR G06F16/9574 OR G06F21/121 OR G06F2221/0704 OR G06F2221/0744 OR G06F2221/2135 OR G06F2221/2137 OR G06F2221/2143 OR G06F2221/2145 OR G06F8/60 OR G06F9/44 OR G06F9/4416 OR G06F9/453 OR G06Q20/04 OR G06Q20/12 OR G06Q20/1235 OR G06Q20/3825 OR G06Q30/06 OR G11B2020/1259 OR G11B20/00086 OR G11B20/00094 OR G11B20/0021 OR G11B20/00253 OR G11B2220/215 OR G11B2220/2537 OR H04H60/21 OR H04H60/23 OR H04H60/82 OR H04L29/06 OR H04L29/06027 OR H04L63/04 OR H04L63/08 OR H04L67/06 OR H04N1/00132 OR H04N1/00151 OR H04N1/2112 OR H04N1/2141 OR H04N1/2158 OR H04N1/2183 OR H04N2101/00 OR H04N21/2223 OR H04N21/2335 OR H04N21/2347 OR H04N21/252 OR H04N21/2543 OR H04N21/41407 OR H04N21/41422 OR H04N21/4184 OR H04N21/472 OR H04N21/8106 OR H04N21/8113 OR H04N21/8355 OR H04N2201/0084 OR H04N2201/3226 OR H04N5/772 OR H04N9/8227 OR Y10S707/99944 OR Y10S707/99945 OR Y10S707/99948 OR Y10S707/99952).CPC.) and automatically and transfer$3 and generat$3 and priority	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:39

EAST Search History (Prior Art)

L122	1	18 AND ((H04L69/329 OR G06F21/10 OR H04L41/00 OR H04L67/1095 OR G06F16/958 OR G06Q10/10 OR H04L67/10 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04N21/2221 OR H04N21/2343 OR H04N21/2393 OR H04N21/262 OR H04N21/6125 OR H04N21/6143 OR H04N21/6405 OR H04N21/6437 OR Y10S707/99939 OR Y10S707/99953 OR G06F8/61 OR Y10S707/99938 OR A63F13/10 OR A63F13/12 OR A63F13/35 OR A63F13/63 OR A63F13/655 OR A63F13/798 OR A63F13/812 OR A63F2300/407 OR A63F2300/50 OR G06F16/182 OR G06F16/9574 OR G06F21/121 OR G06F2221/0704 OR G06F2221/0744 OR G06F2221/2135 OR G06F2221/2137 OR G06F2221/2143 OR G06F2221/2145 OR G06F8/60 OR G06F9/44 OR G06F9/4416 OR G06F9/453 OR G06Q20/04 OR G06Q20/12 OR G06Q20/1235 OR G06Q20/3825 OR G06Q30/06 OR G11B2020/1259 OR G11B20/00086 OR G11B20/00094 OR G11B20/0021 OR G11B20/00253 OR G11B2220/215 OR G11B2220/2537 OR H04H60/21 OR H04H60/23 OR H04H60/82 OR H04L29/06 OR H04L29/06027 OR H04L63/04 OR H04L63/08 OR H04L67/06 OR H04N1/00132 OR H04N1/00151 OR H04N1/2112 OR H04N1/2141 OR H04N1/2158 OR H04N1/2183 OR H04N2101/00 OR H04N21/2223 OR H04N21/2335 OR H04N21/2347 OR H04N21/252 OR H04N21/2543 OR H04N21/41407 OR H04N21/41422 OR H04N21/4184 OR H04N21/472 OR H04N21/8106 OR H04N21/8113 OR H04N21/8355 OR H04N2201/0084 OR H04N2201/3226 OR H04N5/772 OR H04N9/8227 OR Y10S707/99944 OR Y10S707/99945 OR Y10S707/99948 OR Y10S707/99952).CPC.) and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:47

EAST Search History (Prior Art)

L123	13	18 AND ((H04L69/329 OR G06F21/10 OR H04L41/00 OR H04L67/1095 OR G06F16/958 OR G06Q10/10 OR H04L67/10 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04N21/2221 OR H04N21/2343 OR H04N21/2393 OR H04N21/262 OR H04N21/6125 OR H04N21/6143 OR H04N21/6405 OR H04N21/6437 OR Y10S707/99939 OR Y10S707/99953 OR G06F8/61 OR Y10S707/99938 OR A63F13/10 OR A63F13/12 OR A63F13/35 OR A63F13/63 OR A63F13/655 OR A63F13/798 OR A63F13/812 OR A63F2300/407 OR A63F2300/50 OR G06F16/182 OR G06F16/9574 OR G06F21/121 OR G06F2221/0704 OR G06F2221/0744 OR G06F2221/2135 OR G06F2221/2137 OR G06F2221/2143 OR G06F2221/2145 OR G06F8/60 OR G06F9/44 OR G06F9/4416 OR G06F9/453 OR G06Q20/04 OR G06Q20/12 OR G06Q20/1235 OR G06Q20/3825 OR G06Q30/06 OR G11B2020/1259 OR G11B20/00086 OR G11B20/00094 OR G11B20/0021 OR G11B20/00253 OR G11B2220/215 OR G11B2220/2537 OR H04H60/21 OR H04H60/23 OR H04H60/82 OR H04L29/06 OR H04L29/06027 OR H04L63/04 OR H04L63/08 OR H04L67/06 OR H04N1/00132 OR H04N1/00151 OR H04N1/2112 OR H04N1/2141 OR H04N1/2158 OR H04N1/2183 OR H04N2101/00 OR H04N21/2223 OR H04N21/2335 OR H04N21/2347 OR H04N21/252 OR H04N21/2543 OR H04N21/41407 OR H04N21/41422 OR H04N21/4184 OR H04N21/472 OR H04N21/8106 OR H04N21/8113 OR H04N21/8355 OR H04N2201/0084 OR H04N2201/3226 OR H04N5/772 OR H04N9/8227 OR Y10S707/99944 OR Y10S707/99945 OR Y10S707/99948 OR Y10S707/99952).CPC.) and generat$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:47

EAST Search History (Prior Art)

L124	13	18 AND ((H04L69/329 OR G06F21/10 OR H04L41/00 OR H04L67/1095 OR G06F16/958 OR G06Q10/10 OR H04L67/10 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04N21/2221 OR H04N21/2343 OR H04N21/2393 OR H04N21/262 OR H04N21/6125 OR H04N21/6143 OR H04N21/6405 OR H04N21/6437 OR Y10S707/99939 OR Y10S707/99953 OR G06F8/61 OR Y10S707/99938 OR A63F13/10 OR A63F13/12 OR A63F13/35 OR A63F13/63 OR A63F13/655 OR A63F13/798 OR A63F13/812 OR A63F2300/407 OR A63F2300/50 OR G06F16/182 OR G06F16/9574 OR G06F21/121 OR G06F2221/0704 OR G06F2221/0744 OR G06F2221/2135 OR G06F2221/2137 OR G06F2221/2143 OR G06F2221/2145 OR G06F8/60 OR G06F9/44 OR G06F9/4416 OR G06F9/453 OR G06Q20/04 OR G06Q20/12 OR G06Q20/1235 OR G06Q20/3825 OR G06Q30/06 OR G11B2020/1259 OR G11B20/00086 OR G11B20/00094 OR G11B20/0021 OR G11B20/00253 OR G11B2220/215 OR G11B2220/2537 OR H04H60/21 OR H04H60/23 OR H04H60/82 OR H04L29/06 OR H04L29/06027 OR H04L63/04 OR H04L63/08 OR H04L67/06 OR H04N1/00132 OR H04N1/00151 OR H04N1/2112 OR H04N1/2141 OR H04N1/2158 OR H04N1/2183 OR H04N2101/00 OR H04N21/2223 OR H04N21/2335 OR H04N21/2347 OR H04N21/252 OR H04N21/2543 OR H04N21/41407 OR H04N21/41422 OR H04N21/4184 OR H04N21/472 OR H04N21/8106 OR H04N21/8113 OR H04N21/8355 OR H04N2201/0084 OR H04N2201/3226 OR H04N5/772 OR H04N9/8227 OR Y10S707/99944 OR Y10S707/99945 OR Y10S707/99948 OR Y10S707/99952).CPC.) and generat$3 and server$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:48

EAST Search History (Prior Art)

L125	13	18 AND ((H04L69/329 OR G06F21/10 OR H04L41/00 OR H04L67/1095 OR G06F16/958 OR G06Q10/10 OR H04L67/10 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04N21/2221 OR H04N21/2343 OR H04N21/2393 OR H04N21/262 OR H04N21/6125 OR H04N21/6143 OR H04N21/6405 OR H04N21/6437 OR Y10S707/99939 OR Y10S707/99953 OR G06F8/61 OR Y10S707/99938 OR A63F13/10 OR A63F13/12 OR A63F13/35 OR A63F13/63 OR A63F13/655 OR A63F13/798 OR A63F13/812 OR A63F2300/407 OR A63F2300/50 OR G06F16/182 OR G06F16/9574 OR G06F21/121 OR G06F2221/0704 OR G06F2221/0744 OR G06F2221/2135 OR G06F2221/2137 OR G06F2221/2143 OR G06F2221/2145 OR G06F8/60 OR G06F9/44 OR G06F9/4416 OR G06F9/453 OR G06Q20/04 OR G06Q20/12 OR G06Q20/1235 OR G06Q20/3825 OR G06Q30/06 OR G11B2020/1259 OR G11B20/00086 OR G11B20/00094 OR G11B20/0021 OR G11B20/00253 OR G11B2220/215 OR G11B2220/2537 OR H04H60/21 OR H04H60/23 OR H04H60/82 OR H04L29/06 OR H04L29/06027 OR H04L63/04 OR H04L63/08 OR H04L67/06 OR H04N1/00132 OR H04N1/00151 OR H04N1/2112 OR H04N1/2141 OR H04N1/2158 OR H04N1/2183 OR H04N2101/00 OR H04N21/2223 OR H04N21/2335 OR H04N21/2347 OR H04N21/252 OR H04N21/2543 OR H04N21/41407 OR H04N21/41422 OR H04N21/4184 OR H04N21/472 OR H04N21/8106 OR H04N21/8113 OR H04N21/8355 OR H04N2201/0084 OR H04N2201/3226 OR H04N5/772 OR H04N9/8227 OR Y10S707/99944 OR Y10S707/99945 OR Y10S707/99948 OR Y10S707/99952).CPC.) and generat$3 and server$1 and file$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:48

EAST Search History (Prior Art)

L128	13	18 AND ((H04L69/329 OR G06F21/10 OR H04L41/00 OR H04L67/1095 OR G06F16/958 OR G06Q10/10 OR H04L67/10 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04N21/2221 OR H04N21/2343 OR H04N21/2393 OR H04N21/262 OR H04N21/6125 OR H04N21/6143 OR H04N21/6405 OR H04N21/6437 OR Y10S707/99939 OR Y10S707/99953 OR G06F8/61 OR Y10S707/99938 OR A63F13/10 OR A63F13/12 OR A63F13/35 OR A63F13/63 OR A63F13/655 OR A63F13/798 OR A63F13/812 OR A63F2300/407 OR A63F2300/50 OR G06F16/182 OR G06F16/9574 OR G06F21/121 OR G06F2221/0704 OR G06F2221/0744 OR G06F2221/2135 OR G06F2221/2137 OR G06F2221/2143 OR G06F2221/2145 OR G06F8/60 OR G06F9/44 OR G06F9/4416 OR G06F9/453 OR G06Q20/04 OR G06Q20/12 OR G06Q20/1235 OR G06Q20/3825 OR G06Q30/06 OR G11B2020/1259 OR G11B20/00086 OR G11B20/00094 OR G11B20/0021 OR G11B20/00253 OR G11B2220/215 OR G11B2220/2537 OR H04H60/21 OR H04H60/23 OR H04H60/82 OR H04L29/06 OR H04L29/06027 OR H04L63/04 OR H04L63/08 OR H04L67/06 OR H04N1/00132 OR H04N1/00151 OR H04N1/2112 OR H04N1/2141 OR H04N1/2158 OR H04N1/2183 OR H04N2101/00 OR H04N21/2223 OR H04N21/2335 OR H04N21/2347 OR H04N21/252 OR H04N21/2543 OR H04N21/41407 OR H04N21/41422 OR H04N21/4184 OR H04N21/472 OR H04N21/8106 OR H04N21/8113 OR H04N21/8355 OR H04N2201/0084 OR H04N2201/3226 OR H04N5/772 OR H04N9/8227 OR Y10S707/99944 OR Y10S707/99945 OR Y10S707/99948 OR Y10S707/99952).CPC.) and generat$3 and server$1 and file$1 and version$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:49

EAST Search History (Prior Art)

L129	13	18 AND ((H04L69/329 OR G06F21/10 OR H04L41/00 OR H04L67/1095 OR G06F16/958 OR G06Q10/10 OR H04L67/10 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04N21/2221 OR H04N21/2343 OR H04N21/2393 OR H04N21/262 OR H04N21/6125 OR H04N21/6143 OR H04N21/6405 OR H04N21/6437 OR Y10S707/99939 OR Y10S707/99953 OR G06F8/61 OR Y10S707/99938 OR A63F13/10 OR A63F13/12 OR A63F13/35 OR A63F13/63 OR A63F13/655 OR A63F13/798 OR A63F13/812 OR A63F2300/407 OR A63F2300/50 OR G06F16/182 OR G06F16/9574 OR G06F21/121 OR G06F2221/0704 OR G06F2221/0744 OR G06F2221/2135 OR G06F2221/2137 OR G06F2221/2143 OR G06F2221/2145 OR G06F8/60 OR G06F9/44 OR G06F9/4416 OR G06F9/453 OR G06Q20/04 OR G06Q20/12 OR G06Q20/1235 OR G06Q20/3825 OR G06Q30/06 OR G11B2020/1259 OR G11B20/00086 OR G11B20/00094 OR G11B20/0021 OR G11B20/00253 OR G11B2220/215 OR G11B2220/2537 OR H04H60/21 OR H04H60/23 OR H04H60/82 OR H04L29/06 OR H04L29/06027 OR H04L63/04 OR H04L63/08 OR H04L67/06 OR H04N1/00132 OR H04N1/00151 OR H04N1/2112 OR H04N1/2141 OR H04N1/2158 OR H04N1/2183 OR H04N2101/00 OR H04N21/2223 OR H04N21/2335 OR H04N21/2347 OR H04N21/252 OR H04N21/2543 OR H04N21/41407 OR H04N21/41422 OR H04N21/4184 OR H04N21/472 OR H04N21/8106 OR H04N21/8113 OR H04N21/8355 OR H04N2201/0084 OR H04N2201/3226 OR H04N5/772 OR H04N9/8227 OR Y10S707/99944 OR Y10S707/99945 OR Y10S707/99948 OR Y10S707/99952).CPC.) and generat$3 and server$1 and file$1 and version$1 and network$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:49

EAST Search History (Prior Art)

L130	8	18 AND ((H04L69/329 OR G06F21/10 OR H04L41/00 OR H04L67/1095 OR G06F16/958 OR G06Q10/10 OR H04L67/10 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04N21/2221 OR H04N21/2343 OR H04N21/2393 OR H04N21/262 OR H04N21/6125 OR H04N21/6143 OR H04N21/6405 OR H04N21/6437 OR Y10S707/99939 OR Y10S707/99953 OR G06F8/61 OR Y10S707/99938 OR A63F13/10 OR A63F13/12 OR A63F13/35 OR A63F13/63 OR A63F13/655 OR A63F13/798 OR A63F13/812 OR A63F2300/407 OR A63F2300/50 OR G06F16/182 OR G06F16/9574 OR G06F21/121 OR G06F2221/0704 OR G06F2221/0744 OR G06F2221/2135 OR G06F2221/2137 OR G06F2221/2143 OR G06F2221/2145 OR G06F8/60 OR G06F9/44 OR G06F9/4416 OR G06F9/453 OR G06Q20/04 OR G06Q20/12 OR G06Q20/1235 OR G06Q20/3825 OR G06Q30/06 OR G11B2020/1259 OR G11B20/00086 OR G11B20/00094 OR G11B20/0021 OR G11B20/00253 OR G11B2220/215 OR G11B2220/2537 OR H04H60/21 OR H04H60/23 OR H04H60/82 OR H04L29/06 OR H04L29/06027 OR H04L63/04 OR H04L63/08 OR H04L67/06 OR H04N1/00132 OR H04N1/00151 OR H04N1/2112 OR H04N1/2141 OR H04N1/2158 OR H04N1/2183 OR H04N2101/00 OR H04N21/2223 OR H04N21/2335 OR H04N21/2347 OR H04N21/252 OR H04N21/2543 OR H04N21/41407 OR H04N21/41422 OR H04N21/4184 OR H04N21/472 OR H04N21/8106 OR H04N21/8113 OR H04N21/8355 OR H04N2201/0084 OR H04N2201/3226 OR H04N5/772 OR H04N9/8227 OR Y10S707/99944 OR Y10S707/99945 OR Y10S707/99948 OR Y10S707/99952).CPC.) and generat$3 and server$1 and file$1 and version$1 and network$3 and copy	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:49

EAST Search History (Prior Art)

L132	8	18 AND ((H04L69/329 OR G06F21/10 OR H04L41/00 OR H04L67/1095 OR G06F16/958 OR G06Q10/10 OR H04L67/10 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04N21/2221 OR H04N21/2343 OR H04N21/2393 OR H04N21/262 OR H04N21/6125 OR H04N21/6143 OR H04N21/6405 OR H04N21/6437 OR Y10S707/99939 OR Y10S707/99953 OR G06F8/61 OR Y10S707/99938 OR A63F13/10 OR A63F13/12 OR A63F13/35 OR A63F13/63 OR A63F13/655 OR A63F13/798 OR A63F13/812 OR A63F2300/407 OR A63F2300/50 OR G06F16/182 OR G06F16/9574 OR G06F21/121 OR G06F2221/0704 OR G06F2221/0744 OR G06F2221/2135 OR G06F2221/2137 OR G06F2221/2143 OR G06F2221/2145 OR G06F8/60 OR G06F9/44 OR G06F9/4416 OR G06F9/453 OR G06Q20/04 OR G06Q20/12 OR G06Q20/1235 OR G06Q20/3825 OR G06Q30/06 OR G11B2020/1259 OR G11B20/00086 OR G11B20/00094 OR G11B20/0021 OR G11B20/00253 OR G11B2220/215 OR G11B2220/2537 OR H04H60/21 OR H04H60/23 OR H04H60/82 OR H04L29/06 OR H04L29/06027 OR H04L63/04 OR H04L63/08 OR H04L67/06 OR H04N1/00132 OR H04N1/00151 OR H04N1/2112 OR H04N1/2141 OR H04N1/2158 OR H04N1/2183 OR H04N2101/00 OR H04N21/2223 OR H04N21/2335 OR H04N21/2347 OR H04N21/252 OR H04N21/2543 OR H04N21/41407 OR H04N21/41422 OR H04N21/4184 OR H04N21/472 OR H04N21/8106 OR H04N21/8113 OR H04N21/8355 OR H04N2201/0084 OR H04N2201/3226 OR H04N5/772 OR H04N9/8227 OR Y10S707/99944 OR Y10S707/99945 OR Y10S707/99948 OR Y10S707/99952).CPC.) and generat$3 and server$1 and file$1 and version$1 and network$3 and copy and device	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:50

EAST Search History (Prior Art)

L133	2	18 AND ((H04L69/329 OR G06F21/10 OR H04L41/00 OR H04L67/1095 OR G06F16/958 OR G06Q10/10 OR H04L67/10 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04N21/2221 OR H04N21/2343 OR H04N21/2393 OR H04N21/262 OR H04N21/6125 OR H04N21/6143 OR H04N21/6405 OR H04N21/6437 OR Y10S707/99939 OR Y10S707/99953 OR G06F8/61 OR Y10S707/99938 OR A63F13/10 OR A63F13/12 OR A63F13/35 OR A63F13/63 OR A63F13/655 OR A63F13/798 OR A63F13/812 OR A63F2300/407 OR A63F2300/50 OR G06F16/182 OR G06F16/9574 OR G06F21/121 OR G06F2221/0704 OR G06F2221/0744 OR G06F2221/2135 OR G06F2221/2137 OR G06F2221/2143 OR G06F2221/2145 OR G06F8/60 OR G06F9/44 OR G06F9/4416 OR G06F9/453 OR G06Q20/04 OR G06Q20/12 OR G06Q20/1235 OR G06Q20/3825 OR G06Q30/06 OR G11B2020/1259 OR G11B20/00086 OR G11B20/00094 OR G11B20/0021 OR G11B20/00253 OR G11B2220/215 OR G11B2220/2537 OR H04H60/21 OR H04H60/23 OR H04H60/82 OR H04L29/06 OR H04L29/06027 OR H04L63/04 OR H04L63/08 OR H04L67/06 OR H04N1/00132 OR H04N1/00151 OR H04N1/2112 OR H04N1/2141 OR H04N1/2158 OR H04N1/2183 OR H04N2101/00 OR H04N21/2223 OR H04N21/2335 OR H04N21/2347 OR H04N21/252 OR H04N21/2543 OR H04N21/41407 OR H04N21/41422 OR H04N21/4184 OR H04N21/472 OR H04N21/8106 OR H04N21/8113 OR H04N21/8355 OR H04N2201/0084 OR H04N2201/3226 OR H04N5/772 OR H04N9/8227 OR Y10S707/99944 OR Y10S707/99945 OR Y10S707/99948 OR Y10S707/99952).CPC.) and generat$3 and server$1 and file$1 and version$1 and network$3 and copy and device and replac$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:50

EAST Search History (Prior Art)

L135	1	18 AND ((H04L69/329 OR G06F21/10 OR H04L41/00 OR H04L67/1095 OR G06F16/958 OR G06Q10/10 OR H04L67/10 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04N21/2221 OR H04N21/2343 OR H04N21/2393 OR H04N21/262 OR H04N21/6125 OR H04N21/6143 OR H04N21/6405 OR H04N21/6437 OR Y10S707/99939 OR Y10S707/99953 OR G06F8/61 OR Y10S707/99938 OR A63F13/10 OR A63F13/12 OR A63F13/35 OR A63F13/63 OR A63F13/655 OR A63F13/798 OR A63F13/812 OR A63F2300/407 OR A63F2300/50 OR G06F16/182 OR G06F16/9574 OR G06F21/121 OR G06F2221/0704 OR G06F2221/0744 OR G06F2221/2135 OR G06F2221/2137 OR G06F2221/2143 OR G06F2221/2145 OR G06F8/60 OR G06F9/44 OR G06F9/4416 OR G06F9/453 OR G06Q20/04 OR G06Q20/12 OR G06Q20/1235 OR G06Q20/3825 OR G06Q30/06 OR G11B2020/1259 OR G11B20/00086 OR G11B20/00094 OR G11B20/0021 OR G11B20/00253 OR G11B2220/215 OR G11B2220/2537 OR H04H60/21 OR H04H60/23 OR H04H60/82 OR H04L29/06 OR H04L29/06027 OR H04L63/04 OR H04L63/08 OR H04L67/06 OR H04N1/00132 OR H04N1/00151 OR H04N1/2112 OR H04N1/2141 OR H04N1/2158 OR H04N1/2183 OR H04N2101/00 OR H04N21/2223 OR H04N21/2335 OR H04N21/2347 OR H04N21/252 OR H04N21/2543 OR H04N21/41407 OR H04N21/41422 OR H04N21/4184 OR H04N21/472 OR H04N21/8106 OR H04N21/8113 OR H04N21/8355 OR H04N2201/0084 OR H04N2201/3226 OR H04N5/772 OR H04N9/8227 OR Y10S707/99944 OR Y10S707/99945 OR Y10S707/99948 OR Y10S707/99952).CPC.) and generat$3 and server$1 and file$1 and version$1 and network$3 and copy and device and replac$3 and assign$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:51
L136	56	55 and (automatically near5 file$1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:52

EAST Search History (Prior Art)

L137	4	136 AND ((Y10S707/99952 OR Y10S707/99953 OR G06F16/178 OR Y10S707/99938 OR Y10S707/99954 OR H04L69/329 OR Y10S707/99944 OR G06F21/10 OR G06F8/654 OR G06F8/658 OR G06F11/263 OR G06F16/182 OR G06F16/1865 OR G06F16/93 OR G06F2221/2135 OR G06F8/61 OR G06F8/71 OR H04L2463/101 OR H04L67/1095 OR Y10S707/959 OR Y10S707/99931 OR Y10S707/99932 OR Y10S707/99937 OR Y10S707/99942 OR G06F11/3684 OR G06F16/10 OR G06F8/60 OR G06F8/65 OR G06Q10/10 OR H04L29/06 OR H04L41/00 OR H04L63/0428 OR H04L63/0853 OR H04L63/166 OR H04L67/06 OR H04L67/10 OR H04N1/32771 OR H04N1/32776 OR H04N2201/3246 OR Y10S707/99939 OR B07C1/00 OR B07C3/00 OR G06F11/1435 OR G06F11/3409 OR G06F11/3457 OR G06F11/366 OR G06F11/3688 OR G06F12/1408 OR G06F16/1767 OR G06F16/184 OR G06F16/1873 OR G06F16/27 OR G06F16/9574 OR G06F17/30067 OR G06F17/30132 OR G06F17/30194 OR G06F21/121 OR G06F21/575 OR G06F21/6209 OR G06F2211/007 OR G06F2211/008 OR G06F2221/0737 OR G06F2221/2137 OR G06F2221/2141 OR G06F2221/2143 OR G06F2221/2145 OR G06F9/4416 OR G06F9/44584 OR G06T13/20 OR H04L63/10 OR H04L63/123 OR H04L63/126 OR H04L63/1441 OR H04L67/02 OR H04L67/104 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04L67/40 OR H04N2005/91364 OR H04N21/2221 OR H04N21/2343 OR H04N21/2381 OR H04N21/2393 OR H04N21/25891 OR H04N21/262 OR H04N21/4381 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/6125 OR H04N21/6143 OR H04N21/63345 OR H04N21/6377 OR H04N21/6405 OR H04N21/64322 OR H04N21/6437 OR H04N21/835 OR H04N5/913 OR Y10S707/966).CPC.) and proxy	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:54

EAST Search History (Prior Art)

L138	4	136 AND ((Y10S707/99952 OR Y10S707/99953 OR G06F16/178 OR Y10S707/99938 OR Y10S707/99954 OR H04L69/329 OR Y10S707/99944 OR G06F21/10 OR G06F8/654 OR G06F8/658 OR G06F11/263 OR G06F16/182 OR G06F16/1865 OR G06F16/93 OR G06F2221/2135 OR G06F8/61 OR G06F8/71 OR H04L2463/101 OR H04L67/1095 OR Y10S707/959 OR Y10S707/99931 OR Y10S707/99932 OR Y10S707/99937 OR Y10S707/99942 OR G06F11/3684 OR G06F16/10 OR G06F8/60 OR G06F8/65 OR G06Q10/10 OR H04L29/06 OR H04L41/00 OR H04L63/0428 OR H04L63/0853 OR H04L63/166 OR H04L67/06 OR H04L67/10 OR H04N1/32771 OR H04N1/32776 OR H04N2201/3246 OR Y10S707/99939 OR B07C1/00 OR B07C3/00 OR G06F11/1435 OR G06F11/3409 OR G06F11/3457 OR G06F11/366 OR G06F11/3688 OR G06F12/1408 OR G06F16/1767 OR G06F16/184 OR G06F16/1873 OR G06F16/27 OR G06F16/9574 OR G06F17/30067 OR G06F17/30132 OR G06F17/30194 OR G06F21/121 OR G06F21/575 OR G06F21/6209 OR G06F2211/007 OR G06F2211/008 OR G06F2221/0737 OR G06F2221/2137 OR G06F2221/2141 OR G06F2221/2143 OR G06F2221/2145 OR G06F9/4416 OR G06F9/44584 OR G06T13/20 OR H04L63/10 OR H04L63/123 OR H04L63/126 OR H04L63/1441 OR H04L67/02 OR H04L67/104 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04L67/40 OR H04N2005/91364 OR H04N21/2221 OR H04N21/2343 OR H04N21/2381 OR H04N21/2393 OR H04N21/25891 OR H04N21/262 OR H04N21/4381 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/6125 OR H04N21/6143 OR H04N21/63345 OR H04N21/6377 OR H04N21/6405 OR H04N21/64322 OR H04N21/6437 OR H04N21/835 OR H04N5/913 OR Y10S707/966).CPC.) and proxy and object$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:54

EAST Search History (Prior Art)

L139	1	136 AND ((Y10S707/99952 OR Y10S707/99953 OR G06F16/178 OR Y10S707/99938 OR Y10S707/99954 OR H04L69/329 OR Y10S707/99944 OR G06F21/10 OR G06F8/654 OR G06F8/658 OR G06F11/263 OR G06F16/182 OR G06F16/1865 OR G06F16/93 OR G06F2221/2135 OR G06F8/61 OR G06F8/71 OR H04L2463/101 OR H04L67/1095 OR Y10S707/959 OR Y10S707/99931 OR Y10S707/99932 OR Y10S707/99937 OR Y10S707/99942 OR G06F11/3684 OR G06F16/10 OR G06F8/60 OR G06F8/65 OR G06Q10/10 OR H04L29/06 OR H04L41/00 OR H04L63/0428 OR H04L63/0853 OR H04L63/166 OR H04L67/06 OR H04L67/10 OR H04N1/32771 OR H04N1/32776 OR H04N2201/3246 OR Y10S707/99939 OR B07C1/00 OR B07C3/00 OR G06F11/1435 OR G06F11/3409 OR G06F11/3457 OR G06F11/366 OR G06F11/3688 OR G06F12/1408 OR G06F16/1767 OR G06F16/184 OR G06F16/1873 OR G06F16/27 OR G06F16/9574 OR G06F17/30067 OR G06F17/30132 OR G06F17/30194 OR G06F21/121 OR G06F21/575 OR G06F21/6209 OR G06F2211/007 OR G06F2211/008 OR G06F2221/0737 OR G06F2221/2137 OR G06F2221/2141 OR G06F2221/2143 OR G06F2221/2145 OR G06F9/4416 OR G06F9/44584 OR G06T13/20 OR H04L63/10 OR H04L63/123 OR H04L63/126 OR H04L63/1441 OR H04L67/02 OR H04L67/104 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04L67/40 OR H04N2005/91364 OR H04N21/2221 OR H04N21/2343 OR H04N21/2381 OR H04N21/2393 OR H04N21/25891 OR H04N21/262 OR H04N21/4381 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/6125 OR H04N21/6143 OR H04N21/63345 OR H04N21/6377 OR H04N21/6405 OR H04N21/64322 OR H04N21/6437 OR H04N21/835 OR H04N5/913 OR Y10S707/966).CPC.) and proxy and object$1 and priority	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:54

EAST Search History (Prior Art)

L140	4	136 AND ((Y10S707/99952 OR Y10S707/99953 OR G06F16/178 OR Y10S707/99938 OR Y10S707/99954 OR H04L69/329 OR Y10S707/99944 OR G06F21/10 OR G06F8/654 OR G06F8/658 OR G06F11/263 OR G06F16/182 OR G06F16/1865 OR G06F16/93 OR G06F2221/2135 OR G06F8/61 OR G06F8/71 OR H04L2463/101 OR H04L67/1095 OR Y10S707/959 OR Y10S707/99931 OR Y10S707/99932 OR Y10S707/99937 OR Y10S707/99942 OR G06F11/3684 OR G06F16/10 OR G06F8/60 OR G06F8/65 OR G06Q10/10 OR H04L29/06 OR H04L41/00 OR H04L63/0428 OR H04L63/0853 OR H04L63/166 OR H04L67/06 OR H04L67/10 OR H04N1/32771 OR H04N1/32776 OR H04N2201/3246 OR Y10S707/99939 OR B07C1/00 OR B07C3/00 OR G06F11/1435 OR G06F11/3409 OR G06F11/3457 OR G06F11/366 OR G06F11/3688 OR G06F12/1408 OR G06F16/1767 OR G06F16/184 OR G06F16/1873 OR G06F16/27 OR G06F16/9574 OR G06F17/30067 OR G06F17/30132 OR G06F17/30194 OR G06F21/121 OR G06F21/575 OR G06F21/6209 OR G06F2211/007 OR G06F2211/008 OR G06F2221/0737 OR G06F2221/2137 OR G06F2221/2141 OR G06F2221/2143 OR G06F2221/2145 OR G06F9/4416 OR G06F9/44584 OR G06T13/20 OR H04L63/10 OR H04L63/123 OR H04L63/126 OR H04L63/1441 OR H04L67/02 OR H04L67/104 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04L67/40 OR H04N2005/91364 OR H04N21/2221 OR H04N21/2343 OR H04N21/2381 OR H04N21/2393 OR H04N21/25891 OR H04N21/262 OR H04N21/4381 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/6125 OR H04N21/6143 OR H04N21/63345 OR H04N21/6377 OR H04N21/6405 OR H04N21/64322 OR H04N21/6437 OR H04N21/835 OR H04N5/913 OR Y10S707/966).CPC.) and proxy and object$1 and server$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:55

EAST Search History (Prior Art)

L141	3	136 AND ((Y10S707/99952 OR Y10S707/99953 OR G06F16/178 OR Y10S707/99938 OR Y10S707/99954 OR H04L69/329 OR Y10S707/99944 OR G06F21/10 OR G06F8/654 OR G06F8/658 OR G06F11/263 OR G06F16/182 OR G06F16/1865 OR G06F16/93 OR G06F2221/2135 OR G06F8/61 OR G06F8/71 OR H04L2463/101 OR H04L67/1095 OR Y10S707/959 OR Y10S707/99931 OR Y10S707/99932 OR Y10S707/99937 OR Y10S707/99942 OR G06F11/3684 OR G06F16/10 OR G06F8/60 OR G06F8/65 OR G06Q10/10 OR H04L29/06 OR H04L41/00 OR H04L63/0428 OR H04L63/0853 OR H04L63/166 OR H04L67/06 OR H04L67/10 OR H04N1/32771 OR H04N1/32776 OR H04N2201/3246 OR Y10S707/99939 OR B07C1/00 OR B07C3/00 OR G06F11/1435 OR G06F11/3409 OR G06F11/3457 OR G06F11/366 OR G06F11/3688 OR G06F12/1408 OR G06F16/1767 OR G06F16/184 OR G06F16/1873 OR G06F16/27 OR G06F16/9574 OR G06F17/30067 OR G06F17/30132 OR G06F17/30194 OR G06F21/121 OR G06F21/575 OR G06F21/6209 OR G06F2211/007 OR G06F2211/008 OR G06F2221/0737 OR G06F2221/2137 OR G06F2221/2141 OR G06F2221/2143 OR G06F2221/2145 OR G06F9/4416 OR G06F9/44584 OR G06T13/20 OR H04L63/10 OR H04L63/123 OR H04L63/126 OR H04L63/1441 OR H04L67/02 OR H04L67/104 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04L67/40 OR H04N2005/91364 OR H04N21/2221 OR H04N21/2343 OR H04N21/2381 OR H04N21/2393 OR H04N21/25891 OR H04N21/262 OR H04N21/4381 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/6125 OR H04N21/6143 OR H04N21/63345 OR H04N21/6377 OR H04N21/6405 OR H04N21/64322 OR H04N21/6437 OR H04N21/835 OR H04N5/913 OR Y10S707/966).CPC.) and proxy and object$1 and server$1 and copy	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:55

EAST Search History (Prior Art)

L142	3	136 AND ((Y10S707/99952 OR Y10S707/99953 OR G06F16/178 OR Y10S707/99938 OR Y10S707/99954 OR H04L69/329 OR Y10S707/99944 OR G06F21/10 OR G06F8/654 OR G06F8/658 OR G06F11/263 OR G06F16/182 OR G06F16/1865 OR G06F16/93 OR G06F2221/2135 OR G06F8/61 OR G06F8/71 OR H04L2463/101 OR H04L67/1095 OR Y10S707/959 OR Y10S707/99931 OR Y10S707/99932 OR Y10S707/99937 OR Y10S707/99942 OR G06F11/3684 OR G06F16/10 OR G06F8/60 OR G06F8/65 OR G06Q10/10 OR H04L29/06 OR H04L41/00 OR H04L63/0428 OR H04L63/0853 OR H04L63/166 OR H04L67/06 OR H04L67/10 OR H04N1/32771 OR H04N1/32776 OR H04N2201/3246 OR Y10S707/99939 OR B07C1/00 OR B07C3/00 OR G06F11/1435 OR G06F11/3409 OR G06F11/3457 OR G06F11/366 OR G06F11/3688 OR G06F12/1408 OR G06F16/1767 OR G06F16/184 OR G06F16/1873 OR G06F16/27 OR G06F16/9574 OR G06F17/30067 OR G06F17/30132 OR G06F17/30194 OR G06F21/121 OR G06F21/575 OR G06F21/6209 OR G06F2211/007 OR G06F2211/008 OR G06F2221/0737 OR G06F2221/2137 OR G06F2221/2141 OR G06F2221/2143 OR G06F2221/2145 OR G06F9/4416 OR G06F9/44584 OR G06T13/20 OR H04L63/10 OR H04L63/123 OR H04L63/126 OR H04L63/1441 OR H04L67/02 OR H04L67/104 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04L67/40 OR H04N2005/91364 OR H04N21/2221 OR H04N21/2343 OR H04N21/2381 OR H04N21/2393 OR H04N21/25891 OR H04N21/262 OR H04N21/4381 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/6125 OR H04N21/6143 OR H04N21/63345 OR H04N21/6377 OR H04N21/6405 OR H04N21/64322 OR H04N21/6437 OR H04N21/835 OR H04N5/913 OR Y10S707/966).CPC.) and proxy and object$1 and server$1 and copy and metadata	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:55

EAST Search History (Prior Art)

L143	3	136 AND ((Y10S707/99952 OR Y10S707/99953 OR G06F16/178 OR Y10S707/99938 OR Y10S707/99954 OR H04L69/329 OR Y10S707/99944 OR G06F21/10 OR G06F8/654 OR G06F8/658 OR G06F11/263 OR G06F16/182 OR G06F16/1865 OR G06F16/93 OR G06F2221/2135 OR G06F8/61 OR G06F8/71 OR H04L2463/101 OR H04L67/1095 OR Y10S707/959 OR Y10S707/99931 OR Y10S707/99932 OR Y10S707/99937 OR Y10S707/99942 OR G06F11/3684 OR G06F16/10 OR G06F8/60 OR G06F8/65 OR G06Q10/10 OR H04L29/06 OR H04L41/00 OR H04L63/0428 OR H04L63/0853 OR H04L63/166 OR H04L67/06 OR H04L67/10 OR H04N1/32771 OR H04N1/32776 OR H04N2201/3246 OR Y10S707/99939 OR B07C1/00 OR B07C3/00 OR G06F11/1435 OR G06F11/3409 OR G06F11/3457 OR G06F11/366 OR G06F11/3688 OR G06F12/1408 OR G06F16/1767 OR G06F16/184 OR G06F16/1873 OR G06F16/27 OR G06F16/9574 OR G06F17/30067 OR G06F17/30132 OR G06F17/30194 OR G06F21/121 OR G06F21/575 OR G06F21/6209 OR G06F2211/007 OR G06F2211/008 OR G06F2221/0737 OR G06F2221/2137 OR G06F2221/2141 OR G06F2221/2143 OR G06F2221/2145 OR G06F9/4416 OR G06F9/44584 OR G06T13/20 OR H04L63/10 OR H04L63/123 OR H04L63/126 OR H04L63/1441 OR H04L67/02 OR H04L67/104 OR H04L67/2823 OR H04L67/2828 OR H04L67/288 OR H04L67/289 OR H04L67/2895 OR H04L67/325 OR H04L67/40 OR H04N2005/91364 OR H04N21/2221 OR H04N21/2343 OR H04N21/2381 OR H04N21/2393 OR H04N21/25891 OR H04N21/262 OR H04N21/4381 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/6125 OR H04N21/6143 OR H04N21/63345 OR H04N21/6377 OR H04N21/6405 OR H04N21/64322 OR H04N21/6437 OR H04N21/835 OR H04N5/913 OR Y10S707/966).CPC.) and proxy and object$1 and server$1 and copy and metadata and version$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/14 11:55

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L10	1	(metadata and generat$3 and version$1 and modify$3 and automatically and user$1 and associat$3 and client and device$1 and server$1 and receiv$3 and network$3 and copy and first and file$1).clm.	USPAT	OR	OFF	2019/02/14 09:31
L11	0	(priorit$2 and metadata and generat$3 and version$1 and modify$3 and automatically and user$1 and associat$3 and client and device$1 and server$1 and receiv$3 and network$3 and copy and first and file$1).clm.	USPAT	OR	OFF	2019/02/14 09:32
L12	0	(priority and metadata and generat$3 and version$1 and modify$3 and automatically and user$1 and associat$3 and client and device$1 and server$1 and receiv$3 and network$3 and copy and first and file$1).clm.	USPAT	OR	OFF	2019/02/14 09:32
L13	0	(assign$3 and metadata and generat$3 and version$1 and modify$3 and automatically and user$1 and associat$3 and client and device$1 and server$1 and receiv$3 and network$3 and copy and first and file$1).clm.	USPAT	OR	OFF	2019/02/14 09:32
L14	1	(determin$3 and metadata and generat$3 and version$1 and modify$3 and automatically and user$1 and associat$3 and client and device$1 and server$1 and receiv$3 and network$3 and copy and first and file$1).clm.	USPAT	OR	OFF	2019/02/14 09:32
L15	1	(stor$3 and determin$3 and metadata and generat$3 and version$1 and modify$3 and automatically and user$1 and associat$3 and client and device$1 and server$1 and receiv$3 and network$3 and copy and first and file$1).clm.	USPAT	OR	OFF	2019/02/14 09:33
L16	1	(transfer$3 and stor$3 and determin$3 and metadata and generat$3 and version$1 and modify$3 and automatically and user$1 and associat$3 and client and device$1 and server$1 and receiv$3 and network$3 and copy and first and file$1).clm.	USPAT	OR	OFF	2019/02/14 09:33
L17	0	(replac$3 and transfer$3 and stor$3 and determin$3 and metadata and generat$3 and version$1 and modify$3 and automatically and user$1 and associat$3 and client and device$1 and server$1 and receiv$3 and network$3 and copy and first and file$1).clm.	USPAT	OR	OFF	2019/02/14 09:34

EAST Search History (Interference)

L18	0	(old and transfer$3 and stor$3 and determin$3 and metadata and generat$3 and version$1 and modify$3 and automatically and user$1 and associat$3 and client and device$1 and server$1 and receiv$3 and network$3 and copy and first and file$1).clm.	USPAT	OR	OFF	2019/02/14 09:34
L19	0	(greater and transfer$3 and stor$3 and determin$3 and metadata and generat$3 and version$1 and modify$3 and automatically and user$1 and associat$3 and client and device$1 and server$1 and receiv$3 and network$3 and copy and first and file$1).clm.	USPAT	OR	OFF	2019/02/14 09:34
L22	0	(assign$3 and second and priority and file$1 and version$1 and resum$3 and client and device$1).clm.	USPAT	OR	OFF	2019/02/14 09:35
L23	0	(modify$3 and second and priority and file$1 and version$1 and resum$3 and client and device$1).clm.	USPAT	OR	OFF	2019/02/14 09:36
L24	0	(content and second and priority and file$1 and version$1 and resum$3 and client and device$1).clm.	USPAT	OR	OFF	2019/02/14 09:36
L25	0	(metadata and second and priority and file$1 and version$1 and resum$3 and client and device$1).clm.	USPAT	OR	OFF	2019/02/14 09:36
L26	0	(automatically and second and priority and file$1 and version$1 and resum$3 and client and device$1).clm.	USPAT	OR	OFF	2019/02/14 09:36
L28	1	(transfer$3 and user$1 and second and priority and file$1 and version$1 and resum$3 and client and device$1).clm.	USPAT	OR	OFF	2019/02/14 09:37
L29	1	(system$1 and transfer$3 and user$1 and second and priority and file$1 and version$1 and resum$3 and client and device$1).clm.	USPAT	OR	OFF	2019/02/14 09:37
L30	1	(communication$1 and system$1 and transfer$3 and user$1 and second and priority and file$1 and version$1 and resum$3 and client and device$1).clm.	USPAT	OR	OFF	2019/02/14 09:37
L31	1	(network$3 and communication$1 and system$1 and transfer$3 and user$1 and second and priority and file$1 and version$1 and resum$3 and client and device$1).clm.	USPAT	OR	OFF	2019/02/14 09:38
L32	1	(resum$3 and network$3 and communication$1 and system$1 and transfer$3 and user$1 and second and priority and file$1 and version$1 and resum$3 and client and device$1).clm.	USPAT	OR	OFF	2019/02/14 09:38

EAST Search History (Interference)

L33	0	(copy and resum$3 and network$3 and communication$1 and system$1 and transfer$3 and user$1 and second and priority and file$1 and version$1 and resum$3 and client and device$1).clm.	USPAT	OR	OFF	2019/02/14 09:38
L34	0	(replac$3 and copy and resum$3 and network$3 and communication$1 and system$1 and transfer$3 and user$1 and second and priority and file$1 and version$1 and resum$3 and client and device$1).clm.	USPAT	OR	OFF	2019/02/14 09:38
L35	0	(stor$3 and copy and resum$3 and network$3 and communication$1 and system$1 and transfer$3 and user$1 and second and priority and file$1 and version$1 and resum$3 and client and device$1).clm.	USPAT	OR	OFF	2019/02/14 09:39
L36	0	(assignment$1 and copy and resum$3 and network$3 and communication$1 and system$1 and transfer$3 and user$1 and second and priority and file$1 and version$1 and resum$3 and client and device$1).clm.	USPAT	OR	OFF	2019/02/14 09:40
L37	0	(mobile and copy and resum$3 and network$3 and communication$1 and system$1 and transfer$3 and user$1 and second and priority and file$1 and version$1 and resum$3 and client and device$1).clm.	USPAT	OR	OFF	2019/02/14 09:40
L38	1	(mobile and proxy and object$1 and file$1 and application$1 and modify$3 and copy).clm.	USPAT	OR	OFF	2019/02/14 09:41
L39	1	(memory and mobile and proxy and object$1 and file$1 and application$1 and modify$3 and copy).clm.	USPAT	OR	OFF	2019/02/14 09:42
L40	1	(device$1 and memory and mobile and proxy and object$1 and file$1 and application$1 and modify$3 and copy).clm.	USPAT	OR	OFF	2019/02/14 09:42
L41	1	(runtime and device$1 and memory and mobile and proxy and object$1 and file$1 and application$1 and modify$3 and copy).clm.	USPAT	OR	OFF	2019/02/14 09:42
L42	1	(agent and runtime and device$1 and memory and mobile and proxy and object$1 and file$1 and application$1 and modify$3 and copy).clm.	USPAT	OR	OFF	2019/02/14 09:42
L43	1	(object$1 and agent and runtime and device$1 and memory and mobile and proxy and object$1 and file$1 and application$1 and modify$3 and copy).clm.	USPAT	OR	OFF	2019/02/14 09:43
L44	0	(pull and object$1 and agent and runtime and device$1 and memory and mobile and proxy and object$1 and file$1 and application$1 and modify$3 and copy).clm.	USPAT	OR	OFF	2019/02/14 09:43

EAST Search History (Interference)

L45	0	(request$1 and object$1 and agent and runtime and device$1 and memory and mobile and proxy and object$1 and file$1 and application$1 and modify$3 and copy).clm.	USPAT	OR	OFF	2019/02/14 09:43
L46	1	(automatically and object$1 and agent and runtime and device$1 and memory and mobile and proxy and object$1 and file$1 and application$1 and modify$3 and copy).clm.	USPAT	OR	OFF	2019/02/14 09:44
L47	0	(server$1 and automatically and object$1 and agent and runtime and device$1 and memory and mobile and proxy and object$1 and file$1 and application$1 and modify$3 and copy).clm.	USPAT	OR	OFF	2019/02/14 09:44
L48	0	(priority and server$1 and automatically and object$1 and agent and runtime and device$1 and memory and mobile and proxy and object$1 and file$1 and application$1 and modify$3 and copy).clm.	USPAT	OR	OFF	2019/02/14 09:45
L49	0	(version$1 and server$1 and automatically and object$1 and agent and runtime and device$1 and memory and mobile and proxy and object$1 and file$1 and application$1 and modify$3 and copy).clm.	USPAT	OR	OFF	2019/02/14 09:45
L50	0	(metadata and server$1 and automatically and object$1 and agent and runtime and device$1 and memory and mobile and proxy and object$1 and file$1 and application$1 and modify$3 and copy).clm.	USPAT	OR	OFF	2019/02/14 09:46
L51	0	(resum$3 and server$1 and automatically and object$1 and agent and runtime and device$1 and memory and mobile and proxy and object$1 and file$1 and application$1 and modify$3 and copy).clm.	USPAT	OR	OFF	2019/02/14 09:47
L52	0	(generat$3 and server$1 and automatically and object$1 and agent and runtime and device$1 and memory and mobile and proxy and object$1 and file$1 and application$1 and modify$3 and copy).clm.	USPAT	OR	OFF	2019/02/14 09:47

Channavajjala, Srirama

From: Zhang, Ngai <ngai.zhang@pillsburylaw.com>
Sent: Wednesday, February 13, 2019 12:08 PM
To: Channavajjala, Srirama
Cc: Awan, Miriam
Subject: 16/017,348 (023027-0459211) Fourth Proposed Examiner's Amendment
Attachments: 023027-0459211 Examiner's Amendment (2019-02-13).docx

Hi Examiner Channavajjala –

Thanks again for your comments. Attached is the full list of claims for your review.

Best,
Ngai

Ngai Zhang ¦ Partner
Pillsbury Winthrop Shaw Pittman LLP
1650 Tysons Blvd, 14th Floor ¦ McLean, VA 22102-4856
t +1.703.770.7532
ngai.zhang@pillsburylaw.com ¦ website bio

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023027-0459211 Fourth Proposed Examiner's Amendment

21. (**Currently Amended**) A system comprising:

a server system comprising one or more processors programmed with computer program instructions that, when executed, cause the server system to:

receive, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file;

determine that the server system is not in communication with a second client device associated with the user; ~~and~~

store the copy of the first file on the server system;

automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device; and

automatically transfer, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device.

22. (**Currently Amended**) The system of claim 21, wherein the computer program instructions, when executed, cause the server system ~~is caused~~ to:

store the copy of the first file to a memory device associated with the server system, wherein the copy of the first file is stored on the memory device associated with the server system

responsive to determining that the server system is not in communication with the second client device.

23. **(Cancelled)**

24. **(Currently Amended)** The system of ~~claim 23,~~ claim 21, wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

25. **(Currently Amended)** The system of ~~claim 23,~~ claim 21, wherein availability of the version of the first file is presented at the second client device based on the first metadata.

26. **(Currently Amended)** The system of claim 21, wherein the server system is caused to:

receive a copy of a second file from the second client device associated with the user, wherein the copy of the second file is automatically received from the second client device responsive to the user modifying a content of the second file stored on the second client device, the copy of the second file being a version of the second file that is generated from the user modifying the content of the second file;

determine that the server system is in communication with the first client device associated with the user; and

automatically transfer the copy of the second file to the first client device associated with the user to replace an older version of the second file stored on the first client device, responsive to (i) determining that the server system is in communication with the first client device and (ii) receiving the copy of the second file from the second ~~first~~ client device.

27. (**Currently Amended**) The system of claim 21, wherein the computer program instructions, when executed, cause the server system ~~is caused~~ to:

periodically perform a pull request, wherein the copy of the first file is automatically received from the first client device responsive to (i) the pull request and (ii) the user modifying [[a]] the content of the first file stored on the first client device.

28. (**Currently Amended**) The system of claim 21, wherein the copy of the first file is automatically received from the first client device responsive to (i) a push request of the first client device and (ii) the user modifying [[a]] the content of the first file stored on the first client device.

29. (**Previously Presented**) The system of claim 21, wherein the copy of the first file is automatically received from a first application at the first client device, and wherein the first application comprises a runtime environment for one or more mobile-agent objects.

30. (**Previously Presented**) The system of claim 29, wherein the first application is configured to create a first mobile object, and wherein the first mobile object is configured to create a proxy object at the server system.

31. (**Previously Presented**) The system of claim 30, wherein the first mobile object is configured to provide the copy of the first file to the proxy object.

32. (**Previously Presented**) The system of claim 31, wherein the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

33. (**Currently Amended**) A method being implemented by a server system comprising one or more processors executing computer program instructions that, when executed, perform the method, the method comprising:

receiving, by the server system, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first

client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

receiving, by the server system, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file;

determining, by the server system, ~~whether~~ that the server system is not in communication with a second client device associated with the user;

store the copy of the first file on the server system;

automatically transferring, by the server system, the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device; and

automatically transferring, by the server system, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) ~~determining that the server system is in~~ resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device.

34. **(Cancelled)**

35. **(Currently Amended)** The method of claim 33, further comprising:

storing, by the server system, the copy of the first file to a memory device associated with the server system, wherein the copy of the first file is stored on the memory device associated with the server system responsive to ~~initially~~ determining that the server system is not in communication with the second client device.

36. **(Cancelled)**

37. **(Currently Amended)** The method of claim 33, ~~claim 36,~~ wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater

priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

38. (**Previously Presented**) The method of claim 33, wherein the copy of the first file is automatically received from a first application at the first client device, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, and the first mobile object is configured to create a proxy object at the server system and to provide the copy of the first file to the proxy object.

39. (**Previously Presented**) The method of claim 38, wherein the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

40. (**Currently Amended**) A system comprising:

a server system comprising one or more processors programmed with computer program instructions that, when executed, cause the server system to:

receive, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file, wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration;

determine that the server system is not in communication with a second client device associated with the user;

store the copy of the first file on the server system;

automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device; and

automatically transfer, over a network, the copy of the first file to the second client device associated with the user, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device,

wherein, responsive to transferring the copy of the first file to the second client device, an older version of the first file stored on the second client device is automatically caused to be replaced with the copy of the first file such that the copy of the first file is stored on the second client device in lieu of the older version of the first file.

41. (**Cancelled**)

42. (**Previously Presented**) The system of claim 40, wherein the copy of the first file is automatically received from a first application at the first client device, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, the first mobile object is configured to create a proxy object at the server system and to provide the copy of the first file to the proxy object, and the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

43. (**Currently Amended**) ~~A method being implemented by a first computer system comprising~~ One or more non-transitory machine-readable media storing instructions that, when executed by one or more processors of a server system, cause operations ~~executing computer program instructions that, when executed, perform the method, the method~~ comprising:

receiving, by the ~~first computer~~ server system, over a network, a copy of a first file from a ~~second computer system~~ first client device associated with a user, wherein the copy of the first file

is automatically received from the ~~second computer system~~ first client device responsive to the user modifying a content of the first file stored on the ~~second computer system~~ first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

receiving, by the server system, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file;

determining, by the ~~first computer~~ server system, that the ~~first computer~~ server system is not in communication with a ~~third computer system~~ second client device associated with the user;

storing, by the ~~first computer~~ server system, the copy of the first file on the ~~first computer~~ server system;

automatically transferring, by the server system, the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device; and

automatically transferring, by the ~~first computer~~ server system, over a network, the copy of the first file to the ~~third computer system~~ second client device associated with the user to replace an older version of the first file stored on the ~~third computer system~~ second client device, responsive to (i) resuming communication with the ~~third computer system~~ second client device and (ii) receiving the copy of the first file from the ~~second computer system~~ first client device.

44. (**Currently Amended**) The ~~method~~ one or more non-transitory machine-readable media of claim 43, ~~further comprising: receiving, by the first computer system, from the second computer system, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and automatically transferring, by the first computer system, the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device,~~ wherein at least one of the ~~first computer~~ server system or the ~~second computer system~~ first client device comprises a

priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the ~~first computer~~ server system or the ~~second computer system~~ first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

45. (**Currently Amended**) The ~~method~~ one or more non-transitory machine-readable media of claim 43, wherein the copy of the first file is automatically received from a first application at the ~~second computer system~~ first client device, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, the first mobile object is configured to create a proxy object at the ~~first computer~~ server system and to provide the copy of the first file to the proxy object, and the proxy object is configured to store the copy of the first file on a memory device associated with the ~~first computer~~ server system.

Methods and systems are provided for providing concurrency control over remotely- stored data that may be shared across multiple clients via virtual drives. To prevent data corruption that may result from multiple clients concurrently modifying the same file, metadata indicative of a file's locking...

CURRENT ASSIGNEES: EXTENSIA INC
WO2014182064A2 | WIPO APPLICATIONS | 13-NOV-2014

32. **Consolidating and transforming metadata changes**

Techniques for patching metadata content in a base repository are disclosed. Techniques can include customizing, by a computer including a processor and a memory, metadata content in an existing base repository, consolidating the metadata content customized in the existing base repository into a...

CURRENT ASSIGNEES: ORACLE INTL CORP
US20170091295 | US APPLICATIONS | 30-MAR-2017

33. **Retrieval of digital assets**

A technique enables intelligent retrieval of digital assets. The technique involves gathering metadata based on a scan of the digital assets. The gathered metadata includes metadata entries, each metadata

A method of preserving file metadata associated with an edited file, performed on a client device, includes storing in a log information denoting a plurality of create, delete, and rename operations on one or more files in a file system, and determining when two or more operations denoted in the...

CURRENT ASSIGNEES: GOOGLE LLC
US20140089933 | US APPLICATIONS | 20-MAR-2014

4. **Network folder resynchronization**

Resynchronization of folders shared among multiple client devices over a network is provided. Metadata and hash values stored on the client device are moved from a metadata database to a resynchronization database, and the data in the metadata database is deleted. Metadata is created for locally...

CURRENT ASSIGNEES: DROPBOX INC
US9740570 | US PATENTS | 22-AUG-2017

35. **Intelligent retrieval of digital assets**

A technique enables intelligent retrieval of digital assets. The technique involves gathering metadata based on a scan of the digital assets. The gathered metadata includes metadata entries, each metadata entry identifying a particular digital asset and a particular set of digital asset properties...

CURRENT ASSIGNEES: RHYTT SOFTWARE LLC
US8166039 | US PATENTS | 24-APR-2012

36. **Software updates using client self-reporting and a hierarchical data structure**

A client device forwards data about itself to an update device. The client metadata may identify hardware components included in the client, software being executed by the client, or other information, such as a geographic location associated with the client device and/or account information for...

CURRENT ASSIGNEES: VERIZON PATENT & LICENSING INC
US20160379464 | US APPLICATIONS | 29-DEC-2016

37. **Secure Relational File System With Version Control, Deduplication, And Error Correction**

A computer implemented method and a secure relational file system (SRFS) for storing and managing data for backup and restore are provided. The SRFS receives data, generates first metadata including file-to-sector mapping information, splits the data into fixed sized data chunks (FSDCs), generates...

CURRENT ASSIGNEES: VEMBU TECH PVT LTD
US20150293817 | US APPLICATIONS | 15-OCT-2015

38. **Secure relational file system with version control, deduplication, and error correction**

A computer implemented method and a secure relational file system (SRFS) for storing and managing data for backup and restore are provided. The SRFS receives data, generates first metadata including file-to-sector mapping information, splits the data into fixed sized data chunks (FSDCs), generates...

CURRENT ASSIGNEES: VEMBU TECH PVT LTD
US9697228 | US PATENTS | 04-JUL-2017

39. **Determining a preferred modified version from among multiple modified versions for synchronized files**

A server stores files and manages the synchronization of those files across client devices in accordance with user preferences that may be embodied in change management rules. A first version of a file has been designated to be synchronized across at least a first client and a second client. The...

CURRENT ASSIGNEES: DROPBOX INC
US9344518 | US PATENTS | 24-MAY-2016

40. **Differential patching of content**

Devices and techniques to incrementally update content associated with an electronic publication are described. A patch generation module may be configured to generate patch data files comprising incremental changes associated with the electronic publication. A differential patch module located on a...

CURRENT ASSIGNEES: AMAZON TECH INC
US9529586 | US PATENTS | 27-DEC-2016

41. **Determining a preferred modified version from among multiple modified versions for synchronized files**

A server stores files and manages the synchronization of those files across client devices in accordance with user preferences that may be embodied in change management rules. A first version of a file has been designated to be synchronized across at least a first client and a second client. The...

CURRENT ASSIGNEES: DROPBOX INC
US20150134614 | US APPLICATIONS | 14-MAY-2015

42. **Secure relational file system with version control, deduplication, and**

7. ABSTRACT OF THE INVENTION A computer implemented method and a secure relational file system (SRFS) for storing and managing data for backup and restore are provided. The SRFS receives data, generates first metadata including file-to-sector mapping information, splits the data into fixed sized...

CURRENT ASSIGNEES: VENBU TECH PVT LTD
IN1977CH2014A | INDIA APPLICATIONS | 01-JAN-2018

43. **Differential patch of content**

Devices and techniques to incrementally update content associated with an electronic publication are described. A patch generation module may be configured to generate patch data files comprising incremental changes associated with the electronic publication. A differential patch module located on a...

CURRENT ASSIGNEES: AMAZON TECH INC
US8997082 | US PATENTS | 31-MAR-2015

44. **Methods and systems for providing audiovisual media items**

The various embodiments described herein include methods and systems for providing audiovisual media items. In one aspect, a method performed at a client device includes: (1) receiving one or more natural language inputs from a user; (2) identifying audio files by extracting one or more commands...

CURRENT ASSIGNEES: FACEBOOK INC

Innovation Plus | Patents | Non-Patent | metadata modifying file client device versions | 0 more | 0 filters
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node and multiple leaf nodes; and the genesis node corresponds to the respective root media...

CURRENT ASSIGNEES: FACEBOOK INC
US20150220558 | US APPLICATIONS | 06-AUG-2015

45. **Selectively updating a dynamic manifest file**

A method for selectively updating a dynamic manifest file is described, wherein the method may comprise: selecting one or more metadata elements of a manifest file used by a client, the one or more selected metadata elements being associated with a subset of representations of the set of...

CURRENT ASSIGNEES: KONINKL PHILIPS NV [NL]
WO2018222402A1 | WIPO APPLICATIONS | 06-DEC-2018

47. **Managing digital photograph metadata anonymization**

An approach for managing photograph metadata anonymization is provided. The approach receives, by one or more processors, a photograph file, wherein the photograph file comprises a digital photograph and a first metadata. The approach receives, by one or more processors, a rule set for modifying the...

CURRENT ASSIGNEES: INTL BUSINESS MACHINES CORP
US10158638 | US PATENTS | 02-JAN-2018

48. **Remote artifact repository**

System for generating a pseudo-repository. The system scans a directory to detect compiled binary files, and assembles an index of the compiled binary files based on metadata describing the compiled binary files. Then the system generates a pseudo-repository based on the index that maps each...

CURRENT ASSIGNEES: RED HAT INC
US9983212 | US PATENTS | 16-OCT-2018

49. **Determining a preferred modified version from among multiple modified versions for synchronized files**

A server stores files and manages the synchronization of those files across client devices in accordance with user preferences that may be embodied in change management rules. A first version of a file has been designated to be synchronized across at least a first client and a second client. The...

CURRENT ASSIGNEES: DROPBOX INC
WO2014004432A1 | WIPO APPLICATIONS | 03-JAN-2014

50. **Methods and devices for modifying pre-existing media items**

A server system with one or more processors and memory maintains a database for a plurality of root media items, where, a respective root media item is associated with a family tree that includes a genesis node and multiple leaf nodes, and the genesis node corresponds to the respective root media...

CURRENT ASSIGNEES: FACEBOOK INC
US9116912 | US PATENTS | 25-AUG-2015

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1 - 50 | 955,483 results

1. **Management method and system for shared data file**

CURRENT ASSIGNEES: INTL BUSINESS MACHINES CORP
JP10326445B2 | JAPAN APPLICATIONS | 19-SEP-1997

2. **Method, system, and program for storing data for retrieval and transfer**

Provided is a method, system and program for storing data for later retrieval and for transfer within a storage hierarchy. A data storage subsystem stores both individual user files and also managed files, each managed file comprising an aggregation of multiple user files. After receiving user files...

CURRENT ASSIGNEES: INTL BUSINESS MACHINES CORP
US7058763S7B2 | US APPLICATIONS | 28-JUN-2005

3. **Method, system, and program for storing data for retrieval and transfer**

Provided is a method, system and program for storing data for later retrieval and for transfer within a storage hierarchy. A data storage subsystem stores both individual user files and also managed files, each managed file comprising an aggregation of multiple user files. After receiving user files...

CURRENT ASSIGNEES: INTL BUSINESS MACHINES CORP [+2]
WO2005071555A2 | WIPO APPLICATIONS | 04-AUG-2005

4. **Automated prioritization of user data files**

Electronic images and / or user data files for the different types of information are connected to a display such as a television set and stored in the server having a communication interface through one or more communication networks. Priorities of the individual user data file are modified on the...

CURRENT ASSIGNEES: NOKIA CORP
KR20070023488A | KOREA APPLICATIONS | 26-FEB-2007

5. **Usage history based content exchange between a base system and a mobile system**

A method and system for transferring information from a base system (110) to a mobile system (120) based on a history of usage of information at the base system (110). Recently used files at the base system (110) are transferred to the mobile system (120), without express user interaction. Select...

CURRENT ASSIGNEES: KONINKL PHILIPS ELECTRONICS NV
EP1817664A2 | EPO APPLICATIONS | 15-AUG-2007

6. **Usage history based content exchange between a base system and a mobile system**

A method and system for transferring information from a base system (110) to a mobile system (120) based on a history of usage of information at the base system (110). Recently used files at the base system (110) are transferred to the mobile system (120), without express user interaction. Select...

Innovation Plus | Discover | Text Analytics | priority file copy versions | 0 words | 1 filter

Visuals | Query | Results | Timeline | Sort: Relevance | Cut-off: None | De-dup: None

23. **Prioritized files**

An entry for a file to be stored in a file system can be created. A priority is assigned to the file that indicates an importance of the file relative to a plurality of additional files stored in the file system, the priority being one of three or more priorities available to files in the file...

CURRENT ASSIGNEES: MICROSOFT TECHNOLOGY LICENSING LLC
US20060136446 | US APPLICATIONS | 22-JUN-2006

24. **Continuously-snapshotted protection of computer files**

An Integrity Server computer for economically protecting the data of a computer network's servers, and providing hot standby access to up-to-date copies of the data of a failed server. As the servers' files are

Innovation Plus | Discover | Text Analytics | priority file copy versions | 0 words | 1 filter

Visuals | Query | Results | Timeline | Sort: Relevance | Cut-off: None | De-dup: None

32. **Method and device for automatically synchronizing versions of distributed documents**

PROBLEM TO BE SOLVED: To make automatically synchronize the versions of distributed documents by using a taken-out copy to format a 2nd copy when it is judged that the taken-out copy is the latest version of a 1st document. SOLUTION: A Web page including plural paths is accessed (S10). When the Web...

CURRENT ASSIGNEES: INTL BUSINESS MACHINES CORP
JP2001084528A | JAPAN APPLICATIONS | 09-FEB-2001

33. **Maintenance of a file version set including read-only and read-write snapshot copies of a production file**

Read-only and read-write snapshot copies of a production file in a time-based file system are organized as a version set of file inodes and shared file blocks. Version pointers and branch pointers link the inodes. Initially the production file can have all its blocks preallocated or it can be a...

CURRENT ASSIGNEES: EMC IP HLDG CO LLC
US20050065986 | US APPLICATIONS | 24-MAR-2005

34. **Hierarchical data storage management**

A system and method for managing the storage of files within an HSM system incorporate an architecture and methodology that facilitate the storage and retrieval of large image files as part of an overall image processing workflow. In particular, the system and method may find ready application in a...

CURRENT ASSIGNEES: MICROSOFT TECHNOLOGY LICENSING LLC
US6330572 | US PATENTS | 11-DEC-2001

28. **Automated prioritization of user data files**

User data files for electronic images and/or other types of information are stored in a server coupled to a display such as a television set and having interfaces with one or more communication networks. Priorities of individual user data files are modified based on prior activity regarding those...

CURRENT ASSIGNEES: NOKIA CORP (+1)
WO2006005827A1 | WIPO APPLICATIONS | 19-JAN-2006

36. **Methods and apparatuses for file synchronization and updating using a signature list**

A server computer generates an update file for transmission to a client computer that permits the client computer to generate a copy of a current version of a subscription file from a copy of an earlier version of the subscription file. For each segment of the current version of the subscription...

CURRENT ASSIGNEES: CLOUDING CORP
US20050080697 | US APPLICATIONS | 23-OCT-2003

37. **Automated prioritization of user data files**

User data files for electronic images and/or other types of information are stored in a server coupled to a display such as a television set and having interfaces with one or more communication networks. Priorities of individual user data files are modified based on prior activity regarding those...

CURRENT ASSIGNEES: NOKIA CORP
EP1761873A1 | EPO APPLICATIONS | 14-MAR-2007

38. **System and method for distributed storage management on networked computer systems**

The present invention is directed to a system and method for the distributed management of the storage space and data on a networked computer system (10) wherein the networked computer system (10) includes at least two storage devices (19) for storing data files comprised of one or more binary ..

CURRENT ASSIGNEES: LEGENT CORP
EP0778666B1 | EPO PATENTS | 14-OCT-1998

39. **System and method for distributed storage management on networked computer systems**

The present invention is directed to a system and method for the distributed management of the storage space and data on a networked computer system (10) wherein the networked computer system (10) includes at least two storage devices (19) for storing data files comprised of one or more binary...

CURRENT ASSIGNEES: LEGENT CORP
WO1995015528A1 | WIPO APPLICATIONS | 12-JAN-1995

40. **Improved method and system of computer file management**

Computer systems with multiple users will typically store various versions of the same software, different versions being required for different platforms and to maintain compatibility with other software applications. These computer files are generally organized in a hierarchical structure to make...

CURRENT ASSIGNEES: 2236008 ONTARIO INC (+1)
US20020143795 | US APPLICATIONS | 03-OCT-2002

41. **Computer file management system**

Computer systems with multiple users will typically store various versions of the same software; different versions being required for different platforms and to maintain compatibility with other software applications. These computer files are generally organized in a hierarchical structure to make...

CURRENT ASSIGNEES: 2236008 ONTARIO INC (+1)
US20060200456 | US APPLICATIONS | 14-SEP-2006

42. **Hierarchical data storage management**

A system and method for managing the storage of files within an HSM system incorporate an architecture and methodology that facilitate the storage and retrieval of large image files as part of an overall image processing workflow. In particular, the system and method may find ready application in a...

CURRENT ASSIGNEES: GLASSBRIDGE ENTPR INC
WO2000004483A2 | WIPO APPLICATIONS | 27-JAN-2000

43. **Method for automatically producing actual distributed data sequences**

The invention relates to a method for automatically producing actual distributed data sequences, integrating, as distributed data sequences, central address tables which are stored in data bases and transmitted by electronic data transfer. The inventive method comprises the following steps: the...

CURRENT ASSIGNEES: SIEMENS AG
AU2002320891382 | AUSTRALIA PATENTS | 21-DEC-2006

44. **System and method for distributed storage management on networked computer systems using binary object identifiers**

The present invention is directed to a system and method for the distributed management of the storage space and data on a networked computer system wherein the networked computer system includes at least two storage devices for storing data files comprised of one or more binary objects. The...

CURRENT ASSIGNEES: CA INC
US5649196 | US PATENTS | 15-JUL-1997

45. **Methods and systems for managing data**

[illegible] for managing data, such as metadata or index keys for [illegible] to one operating method, different operating priorities are assigned to [illegible] a [illegible] and [illegible] the

Innovation Q plus | Search | Advanced Search | priority file copy versions | 0 results | Filter | Visuals | Family | Result | Timeline | Sort: Relevance | Cut-off: None | De-dup: None

46. **System for intellectual property reuse in integrated circuit design**

The invention provides a knowledge management system particularly suited for use in the integrated circuit design environment. The system allows administrators to define standardized component types. Instantiated components versions comprise "deliverables" and "attributes." Deliverables comprise a...

CURRENT ASSIGNEES: MENTOR GRAPHICS CORP
US20020199730 | US APPLICATIONS | 14-FEB-2002

47. **System and method for backing up computer files over a wide area computer network**

A system backs up computer files to a remote site via modem, LAN, WAN, or other network device 16. Files of a user computer that are found in a common library at the remote site initially are not copied to the remote site, whereas files not in the library are copied to the remote site and...

CURRENT ASSIGNEES: CDS TECH LLC
US6058874 | US PATENTS | 15-APR-2000

48. **System and method for managing content**

A system and method for electronic file management includes an object-oriented file management database, a volume manager, and a coherency manager. The volume manager manages electronic files and metadata relating to the files of one or more volumes. Each volume may include folders, files, and/or...

CURRENT ASSIGNEES: MATHON SYS INC
US20040133589 | US APPLICATIONS | 08-JUL-2004

49. **Peer to peer type content broadcast transfer mechanism**

PROBLEM TO BE SOLVED: To promote real-time file sharing over the network in a peer-to-peer network by using a technique for efficiently transferring files. SOLUTION: Nodes of the network serve as both clients and servers, such that the file transfer burden in the network is equitably distributed...

CURRENT ASSIGNEES: MICROSOFT CORP
JP2004185626A | JAPAN APPLICATIONS | 02-JUL-2004

50. **Systems and methods for distributing and viewing electronic documents**

A system for distributing an electronic version of a printed document is disclosed. The system comprises a memory device storing at least one document file that is based at least in part on a source document, which is an electronic version of a printed document. The system further comprises a...

CURRENT ASSIGNEES: ZINIO LLC
US7290285 | US PATENTS | 30-OCT-2007

Show next: 50 | 100 | 250 | 500 | 1000 results

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
* 16/017,348 *	16/017,348	Manzano, Michael R.	
	Examiner	**Art Unit**	
	CHANNAVAJJALA, SRIRAMA T	2157	

Document Code - DISQ	**Internal Document - DO NOT MAIL**

TERMINAL DISCLAIMER	☑ APPROVED	☐ DISAPPROVED
Date Filed: **11 February 2019**	**This patent is subject to a Terminal Disclaimer**	

Approved/Disapproved by:

/CRYSTAL QUEEN/

Technology Center: PLRC

Telephone:

2 TDS APPROVED.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/017,348	06/25/2018	Michael R. Manzano	023027-0459211

CONFIRMATION NO. 3719

909
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

POA ACCEPTANCE LETTER

OC000000105872381

Date Mailed: 02/14/2019

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 02/11/2019.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/mmasfaw/

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/017,348	06/25/2018	2157	1345	023027-0459211	20	4

CONFIRMATION NO. 3719

CORRECTED FILING RECEIPT

909
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

OC000000105872384

Date Mailed: 02/14/2019

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Michael R. Manzano, Seattle, WA;

Applicant(s)

TOPIA TECHNOLOGY, INC., Tacoma, WA;

Assignment For Published Patent Application

TOPIA TECHNOLOGY, INC., Tacoma, WA

Power of Attorney: The patent practitioners associated with Customer Number 00909

Domestic Priority data as claimed by applicant

This application is a CON of 14/860,289 09/21/2015 PAT 10067942
which is a CON of 12/267,852 11/10/2008 PAT 9143561
which claims benefit of 60/986,896 11/09/2007

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: No

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 07/12/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/017,348**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

Preliminary Class

707

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

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The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

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SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

PTO/AIA/80 (07-12)
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POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

■ Practitioners associated with Customer Number: 00909

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

■ The address associated with Customer Number: 00909

OR

☐

Firm or Individual Name			
Address			
City		State	Zip
Country			
Telephone		Email	

Assignee Name and Address: TOPIA TECHNOLOGY, INC.
1119 Pacific Avenue, Suite 200
Tacoma, WA 98402

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record
The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	Janine Terrano	Date	11/03/15
Name	Janine Terrano	Telephone	
Title	President, CEO		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/14 (02-18)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
	Application Number	
Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 — Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Michael	R.	MANZANO	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Seattle	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

Address 1	5702 35th Avenue NE		
Address 2			
City	Seattle	State/Province	WA
Postal Code	98105	Country i	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ An Address is being provided for the correspondence Information of this application.

Customer Number	00909		
Email Address	docket_ip@pillsburylaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK		
Attorney Docket Number	023027-0459211	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	3	Suggested Figure for Publication (if any)	1

PTO/AIA/14 (02-18)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
	Application Number	
Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	00909		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	14860289	2015-09-21

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
	Application Number	
Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14860289	Continuation of	12267852	2008-11-10	9143561	2015-09-22

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
12267852	Claims benefit of provisional	60986896	2007-11-09

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
	Application Number	
Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
	Application Number	
Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◉ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
○ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	TOPIA TECHNOLOGY, INC.		
Mailing Address Information For Applicant:			
Address 1	1927 Dock St		
Address 2			
City	Tacoma	**State/Province**	WA
Country	US	Postal Code	98402
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
	Application Number	
Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	TOPIA TECHNOLOGY, INC.

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	1927 Dock St.		
Address 2			
City	Tacoma	**State/Province**	WA
Country i	US	Postal Code	98402
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Ngai B. Zhang/			Date (YYYY-MM-DD)	2019-02-11
First Name	Ngai B.	Last Name	Zhang	Registration Number	65473

Additional Signature may be generated within this form by selecting the Add button.

PTO/AIA/14 (02-18)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
	Application Number	
Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

INVENTORS :	Michael R. MANZANO, *et al.*	CONFIRMATION NO.:	3719
SERIAL NUMBER :	16/017,348	ART UNIT:	2157
FILING DATE :	June 25, 2018	EXAMINER:	Srirama T. Channavajjala

FOR : ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

REQUEST CHANGE OF APPLICANT NAME UNDER 37 CFR 1.46(c)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Applicant respectfully requests under 37 CFR 1.46(c) that the applicant name be changed to the following:

TOPIA TECHNOLOGY, INC.
1927 Dock Street
Tacoma, Washington 98402

A corrected Application Data Sheet, a Power of Attorney and Statement Under 37 CFR 3.73(c) are being filed concurrently herewith. Please charge any fees associated with the submission of these papers to Deposit Account No. 03-3975 (ref. no. 023027-0459211).

Date: February 11, 2019

Respectfully submitted,

/NGAI B. ZHANG/

By: _____
Ngai B. Zhang
Reg. No. 42,663

Customer No. 00909

PILLSBURY WINTHROP SHAW PITTMAN LLP
1650 Tysons Boulevard
McLean, Virginia 22102
(703) 770-7900

Electronic Patent Application Fee Transmittal

Application Number:	16017348
Filing Date:	25-Jun-2018
Title of Invention:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK
First Named Inventor/Applicant Name:	Michael R. Manzano
Filer:	Ngai Bing Zhang/Miriam Awan
Attorney Docket Number:	023027-0459211

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
STATUTORY OR TERMINAL DISCLAIMER	2814	2	160	320
		Total in USD ($)		**320**

Electronic Acknowledgement Receipt

EFS ID:	35118573
Application Number:	16017348
International Application Number:	
Confirmation Number:	3719
Title of Invention:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK
First Named Inventor/Applicant Name:	Michael R. Manzano
Customer Number:	909
Filer:	Ngai Bing Zhang/Miriam Awan
Filer Authorized By:	Ngai Bing Zhang
Attorney Docket Number:	023027-0459211
Receipt Date:	11-FEB-2019
Filing Date:	25-JUN-2018
Time Stamp:	18:02:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$320
RAM confirmation Number	021219INTEFSW00005222033975
Deposit Account	033975
Authorized User	Miriam Awan

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		023027-0459211_TerminalDisclaimers_CorrectApplicantName.pdf	477541 d2a8a520c35ffbde7e2f9dff1a5746a5da8e9596	yes	13

Multipart Description/PDF files in .zip description

Document Description	Start	End
Assignee showing of ownership per 37 CFR 3.73	12	13
Power of Attorney	11	11
Application Data Sheet	4	10
Req to correct/update/change appl name until pay issue fee	3	3
Terminal Disclaimer Filed	1	2

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30813 1abb419fa03e2a13eb04288426ba6467d1ffbbb0	no	2

Warnings:

Information:

Total Files Size (in bytes):	508354

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/AIA/96 (08-12)
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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Topia Technology, Inc.

Application No./Patent No.: 16/017,348 Filed/Issue Date: June 25, 2018

Titled: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

Topia Technology, Inc., a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. [✓] The assignee of the entire right, title, and interest.

2. [ ] An assignee of less than the entire right, title, and interest (check applicable box):

   [ ] The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   [ ] There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. [ ] The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. [ ] The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. [✓] An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 046193, Frame 0552, or for which a copy thereof is attached.

B. [ ] A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

   1. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.

   2. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

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4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Ngai B. Zhang/	February 11, 2019
Signature	Date
Ngai B. Zhang	65,473
Printed or Typed Name	Title or Registration Number

PTO/AIA/26 (04-13)
Approved for use through 04/30/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) 023027-0459211

In re Application of: Topia Technology, Inc.

Application No.: 16/017,348

Filed: June 25, 2018

For: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

The applicant, Topia Technology, Inc., owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 9,143,561 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for any during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 65,473

/Ngai B. Zhang/ — Signature
February 11, 2019 — Date

Ngai B. Zhang — Typed or printed name

Representative for Applicant — Title
(703) 770-7532 — Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) 023027-0459211

In re Application of: Topia Technology, Inc.

Application No.: 16/017,348

Filed: June 25, 2018

For: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

The applicant, Topia Technology, Inc., owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 10,067,942 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for any during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 65,473

/Ngai B. Zhang/ — Signature
February 11, 2019 — Date

Ngai B. Zhang — Typed or printed name

Representative for Applicant — Title
(703) 770-7532 — Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

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This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PLUS Search Results for S/N 16017348, Searched Thu Feb 07 13:24:30 EST 2019

The Patent Linguistics Utility System (PLUS) is a USPTO automated search system for U.S. Patents from 1971 to the present PLUS is a query-by-example search system which produces a list of patents that are most closely related linguistically to the application searched. This search was prepared by the staff of the Scientific and Technical Information Center, SIRA.

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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Inventor(s):	Michael R. MANZANO	**Attorney Docket No.:**	023027-0459211
Serial No.:	16/017,348	**Confirmation No.:**	3719
Filing Date:	June 25, 2018	**Examiner:**	Srirama T. CHANNAVAJJALA
		Art Unit:	2157

For: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

RESPONSE TO OFFICE ACTION

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22313-1450

Dear Commissioner:

In response to the Office Action mailed **November 15, 2018**, please reconsider the above-identified application as follows:

A listing of the Claims begins on page **2** of this paper.

Remarks begin on page **10** of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a), and any fees required therefore (including fees for net addition of claims) are hereby authorized to be charged to Deposit Account No. 033975 (**Ref. No. 023027-0459211**).

This listing of claims will replace all prior versions and listings of claims in the Application.

LISTING OF CLAIMS:

1-20. (**Cancelled**)

21. (**Previously Presented**) A system comprising:

a server system comprising one or more processors programmed with computer program instructions that, when executed, cause the server system to:

receive, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

determine that the server system is not in communication with a second client device associated with the user; and

store the copy of the first file on the server system;

automatically transfer, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device.

22. (**Currently Amended**) The system of claim 21, wherein the server system is caused to:

store the copy of the first file to a memory device associated with the server system, wherein the copy of the first file is stored on the memory device associated with the server system responsive to determining that the server system is not in communication with the second client device~~; and automatically transfer the copy of the first file to the second client device to replace the older version of the first file stored on the second client device with the copy of the first file, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device~~.

23. (**Previously Presented**) The system of claim 21, wherein the server system is caused to:

receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and

automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device.

24. (**Previously Presented**) The system of claim 23, wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

25. (**Previously Presented**) The system of claim 23, wherein availability of the version of the first file is presented at the second client device based on the first metadata.

26. (**Currently Amended**) The system of claim 21, wherein the server system is caused to:

receive a copy of a second file from the second client device associated with the user, wherein the copy of the second file is automatically received from the second client device responsive to the user modifying a content of the second file stored on the second client device, the copy of the second file being a version of the second file that is generated from the user modifying the content of the second file;

determine that the server system is in communication with the first client device associated with the user; and

automatically transfer the copy of the second file to the first client device associated with the user to replace an older version of the second file stored on the first client device, responsive to (i) determining that the server system is in communication with the first client device and (ii) receiving the copy of the ~~first~~ second file from the first client device.

27. (**Previously Presented**) The system of claim 21, wherein the server system is caused to:

periodically perform a pull request, wherein the copy of the first file is automatically received from the first client device responsive to (i) the pull request and (ii) the user modifying a content of the first file stored on the first client device.

28. (**Previously Presented**) The system of claim 21, wherein the copy of the first file is automatically received from the first client device responsive to (i) a push request of the first client device and (ii) the user modifying a content of the first file stored on the first client device.

29. (**Previously Presented**) The system of claim 21, wherein the copy of the first file is automatically received from a first application at the first client device, and wherein the first application comprises a runtime environment for one or more mobile-agent objects.

30. (**Previously Presented**) The system of claim 29, wherein the first application is configured to create a first mobile object, and wherein the first mobile object is configured to create a proxy object at the server system.

31. (**Previously Presented**) The system of claim 30, wherein the first mobile object is configured to provide the copy of the first file to the proxy object.

32. (**Previously Presented**) The system of claim 31, wherein the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

33. (**Previously Presented**) A method being implemented by a server system comprising one or more processors executing computer program instructions that, when executed, perform the method, the method comprising:

receiving, by the server system, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first

client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

determining, by the server system, whether the server system is in communication with a second client device associated with the user; and

automatically transferring, by the server system, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) determining that the server system is in communication with the second client device and (ii) receiving the copy of the first file from the first client device.

34. (**Previously Presented**) The method of claim 33, further comprising:

initially determining, by the server system, that the server system is not in communication with the second client device associated with the user; and

automatically transferring, by the server system, the copy of the first file to the second client device to replace the older version of the first file stored on the second client device with the copy of the first file, responsive to (i) resuming communication with the second client device, (ii) determining that the server system is in communication with the second client device, (iii) and receiving the copy of the first file from the first client device.

35. (**Previously Presented**) The method of claim 33, further comprising:

storing, by the server system, the copy of the first file to a memory device associated with the server system, wherein the copy of the first file is stored on the memory device associated with the server system responsive to initially determining that the server system is not in communication with the second client device.

36. (**Previously Presented**) The method of claim 33, further comprising:

receiving, by the server system, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and

automatically transferring, by the server system, the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device.

37. (**Previously Presented**) The method of claim 36, wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

38. (**Previously Presented**) The method of claim 33, wherein the copy of the first file is automatically received from a first application at the first client device, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, and the first mobile object is configured to create a proxy object at the server system and to provide the copy of the first file to the proxy object.

39. (**Previously Presented**) The method of claim 38, wherein the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

40. (**Previously Presented**) A system comprising:

a server system comprising one or more processors programmed with computer program instructions that, when executed, cause the server system to:

receive, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

determine that the server system is not in communication with a second client device associated with the user;

store the copy of the first file on the server system; and

automatically transfer, over a network, the copy of the first file to the second client device associated with the user, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device,

wherein, responsive to transferring the copy of the first file to the second client device, an older version of the first file stored on the second client device is automatically caused to be replaced with the copy of the first file such that the copy of the first file is stored on the second client device in lieu of the older version of the first file.

41. (**Previously Presented**) The system of claim 40, wherein the server system is caused to:

receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and

automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device,

wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

42. (**Previously Presented**) The system of claim 40, wherein the copy of the first file is automatically received from a first application at the first client device, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, the first mobile object is configured to create a proxy object at the server system and to provide the copy of the first file to the proxy object, and the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

43. (**Previously Presented**) A method being implemented by a first computer system comprising one or more processors executing computer program instructions that, when executed, perform the method, the method comprising:

receiving, by the first computer system, over a network, a copy of a first file from a second computer system associated with a user, wherein the copy of the first file is automatically received from the second computer system responsive to the user modifying a content of the first file stored on the second computer system, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

determining, by the first computer system, that the first computer system is not in communication with a third computer system associated with the user;

storing, by the first computer system, the copy of the first file on the first computer system; and

automatically transferring, by the first computer system, over a network, the copy of the first file to the third computer system associated with the user to replace an older version of the first file stored on the third computer system, responsive to (i) resuming communication with the third computer system and (ii) receiving the copy of the first file from the second computer system.

44. (**Previously Presented**) The method of claim 43, further comprising:

receiving, by the first computer system, from the second computer system, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and

automatically transferring, by the first computer system, the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device,

wherein at least one of the first computer system or the second computer system comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the first computer system or the second computer system assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

45. (**Previously Presented**) The method of claim 43, wherein the copy of the first file is automatically received from a first application at the second computer system, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, the first mobile object is configured to create a proxy object at the first computer system and to provide the copy of the first file to the proxy object, and the proxy object is configured to store the copy of the first file on a memory device associated with the first computer system.

REMARKS

By this response, only claims 22 and 26 are currently amended. No claims have been cancelled or newly added. Thus, claims 21-45 are pending. In view of the following comments, allowance of all the claims pending in the application is respectfully requested.

NON-STATUTORY DOUBLE PATENTING REJECTION

Applicant respectfully notes the double patenting rejection and requests that the double patenting rejection be held in abeyance until the Examiner has indicated allowable subject matter. At such time, Applicant will determine whether the filing of a terminal disclaimer is appropriate. Furthermore, Applicant notes that the filing of a Terminal Disclaimer to obviate a rejection based on non-statutory double patenting does not constitute an admission of the propriety of the rejection.

SECTION 101 REJECTION

Applicant respectfully traverses the Section 101 rejection. The claims are patent-eligible under Step 2A of the *Alice* test, and no further analysis is necessary to find the claims eligible. Applicant submits that these claims were and remain patent-eligible under the new and previous guidance which the USPTO used when applying 35 U.S.C. § 101.[1] In accordance with the 2019 Revised Patent Subject Matter Eligibility Guidance ("Guidance")[2] which are now being made applicable by the USPTO, Applicant looks first to Prong One of Step 2A. The Guidance provides that there are "enumerated groupings of abstract ideas."[3] Those enumerated groupings are mathematical concepts, certain methods of organizing human activity (e.g., fundamental economic

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[1] The previous guidance which the USPTO applied includes, but is not limited to: (a) "Eligibility Quick Reference Sheet Identifying Abstract Ideas" (first issued in July 2015 and updated most recently in July 2018); (b) Eligibility-related guidance issued prior to the Ninth Edition, R-08.2017, of the MPEP (published Jan. 2018)(including 2106.04(II) (Eligibility Step 2A: Whether a Claim Is Directed to a Judicial Exception)); (c) USPTO Memorandum of April 19, 2018, "Changes in Examination Procedure Pertaining to Subject Matter Eligibility, Recent Subject Matter Eligibility Decision (Berkheimer v. HP, Inc.)" (Apr. 19, 2018) (*available at* https://www.uspto.gov/sites/default/files/documents/memo-berkheimer-20180419.PDF); and (d) the other examples provided by the USPTO, including but not limited to the "Abstract idea examples" issued in 2014 to 2016.

[2] 2019 Revised Patent Subject Matter Eligibility Guidance, 84 FR 50 (Jan. 7, 2019)(*available at https://www.federalregister.gov/documents/2019/01/07/2018-28282/2019-revised-patent-subject-matter-eligibility-guidance).*

[3] *Guidance* at 9-11.

principles, commercial or legal interactions, etc.), and mental processes (e.g., concepts performed in the human mind).[4] This is consistent with the case law. The Guidance is also consistent when it states: "Claims that do not recite matter that falls within these enumerated groupings of abstract ideas should not be treated as reciting abstract ideas" except "in the rare circumstance."[5] That "rare circumstance" is provided for later in the Guidance. "In the rare circumstance in which an examiner believes a claim limitation that does not fall within the enumerated groupings of abstract ideas should nonetheless be treated as reciting an abstract idea," the USPTO employee must obtain pre-approval from the Technology Center Director to treat the claim limitation as reciting an abstract idea.[6] Applicant submits that the claimed inventions are not mathematical concepts, certain methods of organizing human activity, or mental processes and therefore, are not abstract ideas.

Even assuming (and solely for the sake of argument) that the claims recite an abstract idea, the claims are nevertheless patent-eligible under Prong Two of Step 2A. Under Prong Two, a claim is not directed to an abstract idea if the claim integrates the abstract idea into a "practical application." A claim integrates an abstract idea into a practical application if the claim applies, relies on, or uses the abstract idea "in a manner that imposes a meaningful limit on the [abstract idea], such that the claim is more than a drafting effort designed to monopolize the [abstract idea]." *Guidance* at 18.

Any claim limitation that the examiner may deem to be an abstract idea here is integrated into a practical application because the claimed inventions provide a technical solution to one or more problems of conventional file transfer/syncing systems. As an example, as indicated in paragraph 13 of the Specification, conventional systems may involve a client device locally caching frequently-used files and performing synchronization by periodically backing up files that have changed. However, "because the synchronization process can be lengthy, the customer is never entirely sure if the file he is remotely accessing is the latest version of the file, versus an earlier one that has been marked to be updated." *Specification* at 13. As another example, conventional systems may require both client devices to be connected to a network at the same

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[4] *Guidance* at 9-11.
[5] *Guidance* at 11 (describing Prong One of Step 2A of the *Alice* test).
[6] *Guidance* at 25-26.

time for the transfer of files. *Specification* at 2. The foregoing problems are addressed by the claimed inventions. With respect to the user's client devices recited in claim 1, for example, a server system will automatically receive a copy of a first file from the first client device in response to the user modifying the first file. Moreover, despite a determination that the server system is not in communication with the second client device, the server system is able to perform the automatic transfer of the copy of the first file to the second client (to replace an older version of the first file stored on the second client device) by (a) storing the copy of the first file on the server system and (b) automatically transferring the copy of the first file to the second client device when communication with the second client device are properly resumed. Thus, under Prong Two of Step 2A, it is clear that the claimed inventions (which improve upon file transfer/syncing systems) is not directed to an abstract idea.

Accordingly, no further analysis is necessary to find the present claims eligible under Section 101, and Applicant respectively requests withdrawal of the Section 101 rejection.

SECTION 102 REJECTION

Applicant respectfully traverses the Section 102 rejection as allegedly being anticipated by U.S. Patent Application Publication No. 2007/0180084 to Mohanty ("Mohanty") for at least the reasons set forth below.

1. Mohanty Fails to Disclose the Independent Claims

Mohanty fails to disclose the features of the independent claims for at least each of the following three reasons.

First, there is no disclosure in Mohanty of a computer system (e.g., a server system) that receives a copy of a file from a first client device associated with a user and automatically transfers the copy of the file to a second client device associated with the user. In particular, at best, Mohanty describes the automatic backup of selected changed files on a client device to a wireless mobile device on a periodic or other timing basis, as well as the automatic back-up of files originating on the wireless mobile device to a network device (e.g., a server or other network device) in a similar fashion. *Mohanty* at Abstract, ¶¶ 28, 54. In other words, Mohanty merely describes (i) a timing-based peer-to-peer backup in the form of a file transfer from a client device to a wireless mobile device and (ii) a timing-based client-to-server backup in the form of a file transfer from the wireless

mobile device to a server. Thus, Mohanty fails to describe a server system that performs automated file transfers between at least two client devices in the manner recited in independent claims 21, 33, and 40, or a computer system that performs such automated file transfers between at least two other computer systems in the manner recited in independent claim 43.

Second, Mohanty does not disclose any device/system that (i) receives a copy of a file from a user's first client device, (ii) determines whether the device/system is in communication with the user's second client device, and, (iii) responsive to resuming communication with the second client device (or determining that the device/system is in communication with the second client device), automatically transfer the copy of the file to the second client device (e.g., to replace an older version of the file stored on the second client device). In contrast, the claimed inventions involve a device/system (e.g., a server system) that performs the foregoing receiving, determining, and automatic transferring operations (where the automatic transfer is responsive to resuming communication with the second client device or determining that the device/system is in communication with the second client device). *See* claims 21, 33, 40, and 43.

Third, as indicated above, Mohanty merely describes timing-based backups (e.g., periodic or other timing bases), where a timer triggers the transfer of changed files from a client device to a wireless device or from the wireless device to a network device.[7] *Mohanty* at ¶ 54. That is, the automated file backup process in Mohanty is merely performed on a periodic or other timing basis, as opposed to being responsive to a user modifying a content of a file stored on the client device. The claimed invention, however, involves the device/system (which performs the automatic transfer to the second client device) automatically receiving the copy of the file from the first client device responsive to the user modifying a content of the first file stored on the first client device. *See* claims 21, 33, 40, and 43.

For at least each of the foregoing reasons, Applicant respectfully requests withdrawal of the Section 102 rejection.

[7] Although Mohanty states that synchronization "may be done according to dynamic application requirements," Mohanty provides no details or examples of such application requirements.

2. Mohanty Fails to Disclose the Dependent Claims

The dependent claims are allowable because they each ultimately depend from an allowable independent claim, as well as for the further features they recite.

For example, with respect to at least claims 23-25, 36-37, 41, and 44, the claimed inventions further involve a computer system (e.g., a server system) that automatically transfers metadata associated with a copy of a file (received from a first client device) to the second client device prior to the copy of the file being transferred to the second device, where such transfer is based on the associated metadata being assigned a first priority greater than a second priority assigned to the copy the first file. Non-limiting examples of such metadata include, among other metadata, file size, file type/extension, modification time, access time, pixel dimensions, etc.

Although the Office Action alleged that "Mohanty defines rules and priorities with respect to files synchronization" (*see Office Action* at 26), Mohanty merely describes the use of rules and priorities to determine which instances of a file should prevail in the event of a conflict in the differences (e.g., changes) between the file instances. *See Mohanty* at ¶¶ 27, 28, 51, 52. Mohanty does not, however, describe the assignment of a greater priority to metadata associated with a copy of a file (as compared to the priority assigned to the copy of the file), where the associated metadata is automatically transferred to a second client device prior to the copy of the first being transferred to the second client device based on the associated metadata being assigned the greater priority, in the manner recited by the claims.

For at least the additional foregoing reasons, Applicant respectfully request withdrawal of the Section 102 rejection with respect to the dependent claims, including (but not limited to) claims 23-25, 36-37, 41, and 44.

It should be noted that, although Applicant has not addressed each rejection of the dependent claims, any rejection of a dependent claim not specifically addressed is not to be construed as an admission by Applicant of the correctness of that rejection. Applicant reserves the right to address the rejection of any dependent claim at a later time should that become warranted.

CONCLUSION

Having addressed each of the foregoing rejections, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

Date: **January 23, 2019**

PILLSBURY WINTHROP SHAW PITTMAN LLP

By: /Ngai B. Zhang/
Ngai B. Zhang
Registration No. 65,473

Customer No. 00909

P.O. Box 10500
McLean, Virginia 22102
Direct Dial: 703.770.7532
Main: 703.770.7900
Fax: 703.770.7901

Electronic Acknowledgement Receipt

EFS ID:	34937770
Application Number:	16017348
International Application Number:	
Confirmation Number:	3719
Title of Invention:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK
First Named Inventor/Applicant Name:	Michael R. Manzano
Customer Number:	909
Filer:	Ngai Bing Zhang/Miriam Nelsen Awan
Filer Authorized By:	Ngai Bing Zhang
Attorney Docket Number:	023027-0459211
Receipt Date:	23-JAN-2019
Filing Date:	25-JUN-2018
Time Stamp:	15:39:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		023027-0459211_Response.pdf	111686 d272b4aea75ffeb2b146c862f785c3ed9d050312	yes	15

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	9
	Applicant Arguments/Remarks Made in an Amendment	10	15
Warnings:			
Information:			
	Total Files Size (in bytes):	111686	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/017,348	Filing Date 06/25/2018	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $230 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	01/23/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 25	Minus	** 25	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/LAMONT N MCLAUCHLIN/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/017,348	06/25/2018	Michael R. Manzano	023027-0459211	3719

909 7590 01/10/2019

Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

EXAMINER	
CHANNAVAJJALA, SRIRAMA T	

ART UNIT	PAPER NUMBER
2157	

NOTIFICATION DATE	DELIVERY MODE
01/10/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket_ip@pillsburylaw.com

Applicant-Initiated Interview Summary	**Application No.** 16/017,348	**Applicant(s)** Manzano, Michael R.	
	Examiner Srirama T Channavajjala	**Art Unit** 2157	**AIA Status** No

All participants (applicant, applicants representative, PTO personnel):

(1) Srirama T. Channavajjala. (3) _____.

(2) Ngai Zhang, 65,473. (4) _____.

Date of Interview: 04 January 2019.

Type: ☑ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☑ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☐103 ☐Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 21,26,33,36 and 43.

Identification of prior art discussed: _____.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

See Continuation Sheet.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☑ Attachment

/Srirama Channavajjala/ Primary Examiner, Art Unit 2157	

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiners responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicants correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,-
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicants record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiners version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, Interview Record OK on the paper recording the substance of the interview along with the date and the examiners initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Per interview agenda, discussed claim 21 limitation "receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file, wherein the assignment of the first priority to the first metadata and the second priority to the copy of the first file is based on a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files";
"automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device"; and
"automatically transfer, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device",
2. Discussed claim 22 and 26 limitations

3. Discussed claim 33,36 ,43 and 46.

Applicant may further clarify claim language.

No agreement reached

Channavajjala, Srirama

From: Zhang, Ngai <ngai.zhang@pillsburylaw.com>
Sent: Thursday, January 3, 2019 5:01 PM
To: Channavajjala, Srirama
Cc: Awan, Miriam
Subject: 16017348 (023027-0459211) Examiner Interview Agenda
Attachments: 023027-0459211 Examiner's Amendment (2018-10-17).docx; 10,067,942 - Notice of Allowance.pdf; 10,067,942 - Response to 2017-12-18 Office Action.pdf

Hi Examiner Channavajjala –

Thanks again for working with us and setting up the interview for tomorrow at 11:30am ET. For the interview, attached is the proposed examiner's amendment that we previously provided. As previously indicated, the client is willing to take the amendment you suggested so that we can expedite allowance of this case.

In addition, to the extent helpful for the interview, we realized that Mohanty was the same reference used in parent application, and the notice of allowance indicated that Mohanty does not teach the specific features at issue in the current case. We also realized that we already overcame a similar 101 rejection. I've attached the relevant documents and pasted the excerpts from the allowance below for your convenience.

Page 3 of Allowance (or page 8 of PDF): "In view of applicant's amendment, remarks at page 7-10 (2/13/2018), further examiner's amendment, the rejection under 35 USC 101 is hereby withdrawn."

Page 12 of Allowance (or page 17 of PDF): "In view of the applicant's amendment to the claims, arguments at page 10-11 (2/13/2018), and further examiner amendment to the claims 1, 11 and cancel claims 2, 12, the prior art of record Mohanty, US Pub. No. 2007 /0180084 do not disclose, make obvious, or otherwise suggest the structure of the applicant's:"

- "automatically send, via the first application, the modified second electronic file copy to the second application at the second electronic device responsive to the determination that the first electronic device is in communication with the second electronic device and responsive to receiving the modified second electronic file copy from the third electronic device"
- "wherein, responsive to sending the modified second electronic file copy to the second electronic device, an older version of the second electronic file stored on the second electronic device is automatically caused to be replaced with the modified second electronic file copy such that the modified second electronic file copy is stored on the second electronic device in lieu of the older version of the second electronic file".

If you have any questions, please let us know.

Best,
Ngai

Ngai Zhang ¦ Partner
Pillsbury Winthrop Shaw Pittman LLP
1650 Tysons Blvd, 14th Floor ¦ McLean, VA 22102-4856
t +1.703.770.7532
ngai.zhang@pillsburylaw.com ¦ website bio

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The contents of this message, together with any attachments, are intended only for the use of the individual or entity to which they are addressed and may contain information that is legally privileged, confidential and exempt from disclosure. If you are not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this message, or any attachment, is strictly prohibited. If you have received this message in error, please notify the original sender or the Pillsbury Winthrop Shaw Pittman Help Desk at Tel: 800-477-0770, Option 1, immediately by telephone or by return E-mail and delete this message, along with any attachments, from your computer. Thank you.

023027-0459211 Proposed Examiner's Amendment

1-20. **(Cancelled)**

21. **(Currently Amended)** A system comprising:

a server system comprising one or more processors programmed with computer program instructions that, when executed, cause the server system to:

receive, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file, wherein the assignment of the first priority to the first metadata and the second priority to the copy of the first file is based on a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files;

determine that the server system is not in communication with a second client device associated with the user; ~~and~~

store the copy of the first file on the server system;

automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device; and

automatically transfer, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device.

22. (**Previously Presented**) The system of claim 21, wherein the server system is caused to:

store the copy of the first file to a memory device associated with the server system, wherein the copy of the first file is stored on the memory device associated with the server system responsive to determining that the server system is not in communication with the second client device; and

automatically transfer the copy of the first file to the second client device to replace the older version of the first file stored on the second client device with the copy of the first file, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device.

23. (**Cancelled**)

24. (**Currently Amended**) The system of claim 23, wherein at least one of the server system or the first client device comprises [[a]] the priority assignment configuration ~~to assign greater priority to metadata associated with files than priority assigned to the files~~ such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

25. (**Currently Amended**) The system of ~~claim 23,~~ claim 21, wherein availability of the version of the first file is presented at the second client device based on the first metadata.

26. (**Previously Presented**) The system of claim 21, wherein the server system is caused to:

receive a copy of a second file from the second client device associated with the user, wherein the copy of the second file is automatically received from the second client device responsive to the user modifying a content of the second file stored on the second client device, the copy of the second file being a version of the second file that is generated from the user modifying the content of the second file;

determine that the server system is in communication with the first client device associated with the user; and

automatically transfer the copy of the second file to the first client device associated with the user to replace an older version of the second file stored on the first client device, responsive

to (i) determining that the server system is in communication with the first client device and (ii) receiving the copy of the first file from the first client device.

27. (**Previously Presented**) The system of claim 21, wherein the server system is caused to:

periodically perform a pull request, wherein the copy of the first file is automatically received from the first client device responsive to (i) the pull request and (ii) the user modifying a content of the first file stored on the first client device.

28. (**Previously Presented**) The system of claim 21, wherein the copy of the first file is automatically received from the first client device responsive to (i) a push request of the first client device and (ii) the user modifying a content of the first file stored on the first client device.

29. (**Previously Presented**) The system of claim 21, wherein the copy of the first file is automatically received from a first application at the first client device, and wherein the first application comprises a runtime environment for one or more mobile-agent objects.

30. (**Previously Presented**) The system of claim 29, wherein the first application is configured to create a first mobile object, and wherein the first mobile object is configured to create a proxy object at the server system.

31. (**Previously Presented**) The system of claim 30, wherein the first mobile object is configured to provide the copy of the first file to the proxy object.

32. (**Previously Presented**) The system of claim 31, wherein the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

33. (**Currently Amended**) A method being implemented by a server system comprising one or more processors executing computer program instructions that, when executed, perform the method, the method comprising:

receiving, by the server system, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the

first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

receiving, by the server system, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file, wherein the assignment of the first priority to the first metadata and the second priority to the copy of the first file is based on a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files;

determining, by the server system, whether the server system is in communication with a second client device associated with the user;

automatically transferring, by the server system, the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device; and

automatically transferring, by the server system, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) determining that the server system is in communication with the second client device and (ii) receiving the copy of the first file from the first client device.

34. (**Previously Presented**) The method of claim 33, further comprising:

initially determining, by the server system, that the server system is not in communication with the second client device associated with the user; and

automatically transferring, by the server system, the copy of the first file to the second client device to replace the older version of the first file stored on the second client device with the copy of the first file, responsive to (i) resuming communication with the second client device, (ii) determining that the server system is in communication with the second client device, (iii) and receiving the copy of the first file from the first client device.

35. (**Previously Presented**) The method of claim 33, further comprising:

storing, by the server system, the copy of the first file to a memory device associated with the server system, wherein the copy of the first file is stored on the memory device associated with the server system responsive to initially determining that the server system is not in communication with the second client device.

36. (**Currently Amended**) The method of claim 33, wherein availability of the version of the first file is presented at the second client device based on the first metadata. ~~further comprising: receiving, by the server system, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and automatically transferring, by the server system, the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device.~~

37. (**Currently Amended**) The method of ~~claim 36,~~ claim 33, wherein at least one of the server system or the first client device comprises [[a]] the priority assignment configuration ~~to assign greater priority to metadata associated with files than priority assigned to the files~~ such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

38. (**Previously Presented**) The method of claim 33, wherein the copy of the first file is automatically received from a first application at the first client device, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, and the first mobile object is configured to create a proxy object at the server system and to provide the copy of the first file to the proxy object.

39. (**Previously Presented**) The method of claim 38, wherein the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

40. (**Currently Amended**) A system comprising:

a server system comprising one or more processors programmed with computer program instructions that, when executed, cause the server system to:

receive, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file, wherein the assignment of the first priority to the first metadata and the second priority to the copy of the first file is based on a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files;

determine that the server system is not in communication with a second client device associated with the user;

store the copy of the first file on the server system;

automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device; and

automatically transfer, over a network, the copy of the first file to the second client device associated with the user, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device,

wherein, responsive to transferring the copy of the first file to the second client device, an older version of the first file stored on the second client device is automatically caused to be replaced with the copy of the first file such that the copy of the first file is stored on the second client device in lieu of the older version of the first file.

41. (**Currently Amended**) The system of claim 40, ~~wherein the server system is caused to: receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device,~~ wherein at least one of the server system or the first client device comprises [[a]] the priority assignment configuration ~~to assign greater priority to metadata associated with files than priority assigned to the files~~ such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

42. (**Previously Presented**) The system of claim 40, wherein the copy of the first file is automatically received from a first application at the first client device, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, the first mobile object is configured to create a proxy object at the server system and to provide the copy of the first file to the proxy object, and the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

43. (**Currently Amended**) One or more non-transitory machine-readable media storing instructions that, when executed by ~~A method being implemented by a first computer system comprising~~ one or more processors of a first computer system, cause operations ~~executing computer program instructions that, when executed, perform the method, the method~~ comprising:

receiving, by the first computer system, over a network, a copy of a first file from a second computer system associated with a user, wherein the copy of the first file is automatically received from the second computer system responsive to the user modifying a content of the first file stored on the second computer system, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

receiving, by the first computer system, from the second computer system, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file, wherein the assignment of the first priority to the first metadata and the second priority to the copy of the first file is based on a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files;

determining, by the first computer system, that the first computer system is not in communication with a third computer system associated with the user;

storing, by the first computer system, the copy of the first file on the first computer system;

automatically transferring, by the first computer system, the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device; and

automatically transferring, by the first computer system, over a network, the copy of the first file to the third computer system associated with the user to replace an older version of the first file stored on the third computer system, responsive to (i) resuming communication with the third computer system and (ii) receiving the copy of the first file from the second computer system.

44. (**Currently Amended**) The ~~method~~ one or more non-transitory machine-readable media of claim 43, wherein availability of the version of the first file is presented at the third computer system based on the first metadata. ~~further comprising: receiving, by the first computer system, from the second computer system, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and automatically transferring, by the first computer system, the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device, wherein at least one of the first computer system or the second computer system comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the first computer system or the second~~

~~computer system assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.~~

45. (**Currently Amended**) The ~~method~~ one or more non-transitory machine-readable media of claim 43, wherein the copy of the first file is automatically received from a first application at the second computer system, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, the first mobile object is configured to create a proxy object at the first computer system and to provide the copy of the first file to the proxy object, and the proxy object is configured to store the copy of the first file on a memory device associated with the first computer system.

46. (**New**) The one or more non-transitory machine-readable media of claim 43, wherein the first computer system is a server system, the second computer system is a first client device, and the third computer system is a second client device.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/017,348	06/25/2018	Michael R. Manzano	023027-0459211	3719

909 7590 11/15/2018

Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

EXAMINER	
CHANNAVAJJALA, SRIRAMA T	

ART UNIT	PAPER NUMBER
2157	

NOTIFICATION DATE	DELIVERY MODE
11/15/2018	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket_ip@pillsburylaw.com

Office Action Summary	Application No. 16/017,348	Applicant(s) Manzano, Michael R.	
	Examiner Srirama T Channavajjala	Art Unit 2157	AIA Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 9/20/2018.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 21-45 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 21-45 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 6/25/2018 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

In view of "preliminary amendment claims 21-45, canceled claims 1-20, filed on 8/20/2018, and response filed on 10/17/2018, examiner hereby issues "non-final" office action.

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

This application is a CON of 14860289 filed on 09/21/2015 is now US PAT 10067942 14860289 is a CON of 12267852 filed on 11/10/2008 is now PAT 9143561, and 12267852 has PRO of 60986896 11/09/2007.

DETAILED ACTION

1. Examiner acknowledges applicant's response filed on 10/17/2018.

2. Examiner acknowledges applicant's preliminary amendment canceled claims 1-20 and new claims 21-45 filed on 8/20/2018.

3. Examiner acknowledges ***Track 1*** granted on 8/1/2018.

Drawings

4. The Drawings filed on 6/25/2018 are acceptable for examination purpose.

Priority

5. Applicant's claim for the benefit of a US Provisional application **60/986,896** filed 11/9/2007 under 35 U.S.C. 119(e) is acknowledged.

Information Disclosure Statement

6. The information disclosure statement filed on 10/12/2018 is in compliance with the provisions of 37 CFR 1.97, a copy of PTO-1449 is herewith the office action..

Remarks

At page 10, examiner noted remarks on double patent rejection, however, applicant may consider filing terminal disclaimer to overcome the double patent rejection subject to approval

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit http://www.uspto.gov/forms/. The filing date of the application will determine what form should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all

requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

Claims 21-45 (as filed on 8/20/2018) are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-13 of U.S. Patent No. 9,143,561. Although the claims at issue are not identical, they are not patentably distinct from each other because the patented claims perform the same steps as the claims in the instant application.

US application:**16/017,348**	US Patent No. **9,143,561**
Claim 21,33,40,43 A system comprising: a server system comprising one or more processors programmed with computer program instructions that, when executed, cause the server system to: receive, over a network, a copy of a first file from a first client device associated with a user, <u>wherein the copy of the first file is automatically received</u>	Claim 1 A system, comprising: a first electronic device configured to selectively execute a first application, the first electronic device being in communication with a second electronic device and a third electronic device, each associated with a user wherein the first electronic device is configured to: receive from a second application executable on the second electronic device a copy of a first electronic file automatically transferred from the second

from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file; determine that the server system is not in communication with a second client device associated with the user; and store the copy of the first file on the server system; automatically transfer, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) resuming communication with the second client device and (u) receiving the copy of the first file from the first client device.	application when the user modifies a content of the first electronic file; and wherein the first electronic device is further configured to receive from a third application executable on the third electronic device a copy of a second electronic file automatically transferred from the third application when the user modifies a content of the second electronic file; and wherein the first application is further configured to automatically transfer the modified first electronic file copy to the third electronic device to replace an older version of the first electronic file stored on the third electronic device with the modified first electronic file copy having the content modified by the user; and automatically transfer the modified second electronic file copy to the second electronic device to replace an older version of the second electronic file stored on the second electronic device

	with the modified second electronic file copy having the content modified by the user; wherein the second application automatically transfers the copy of the modified first electronic file to the first electronic device upon determining that a save operation has been performed on the modified first electronic file. Claim 2,9 wherein at least one of the first and second electronic devices includes a runtime environment for mobile-agent objects.
Claim 29,38: wherein the copy of the first file is automatically received from a first application at the first client device, and wherein the first application comprises a runtime environment for one or more mobile-agent objects Claim 30 wherein the first application is configured to create a first mobile object, and wherein the first mobile object js configured to create a proxy object at the server system	Claim 5,12 wherein the second application is operable to create a first mobile object, the first mobile object being operable to create a proxy object at the first electronic device.

It would have been obvious to a person of ordinary skill was made to modify and/or to omit the additional elements of claim 1-13 of US Patent No. **9,143,561** to arrive at the claims 21-45 of the instant application **16/017,348** because the ordinary skilled person would have realized that the remaining element(s) would perform the same function as before, addition and/or omission of elements and its function in combination is obvious expedient if the remaining elements perform same functions as before and instant application claims are broader.

8. Claims 1- 20 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 10,067,942. Although the claims at issue are not identical, they are not patentably distinct from each other because the patented claims perform the same steps as the claims in the instant application.

US application:**16/017,348**	US Patent No. **10,067,942**
Claim 21,33,40,43 A system comprising:	Claim 1 A system, comprising:

a server system comprising one or more processors programmed with computer program instructions that, when executed, cause the server system to:	a first electronic device, associated with a user, configured to: receive, via a first application at the first electronic device, a copy of a modified first electronic file from a second application at a second electronic device associated with the user, wherein the modified first electronic file copy is automatically
receive, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;	received from the second application responsive to the user modifying a content of the first electronic file;
determine that the server system is not in communication with a second client device associated with the user; and	determine whether the first electronic device is in communication with a third electronic device;
store the copy of the first file on the server system;	

automatically transfer, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) resuming communication with the second client device and (u) receiving the copy of the first file from the first client device.	automatically send, via the first application, the modified first electronic file copy to a third application at the third electronic device responsive to the determination that the first electronic device is in communication with the third electronic device and responsive to receiving the modified first electronic file copy from the second electronic device; receive, via the first application, a copy of a modified second electronic file from the third application at the third electronic device associated with the user, wherein the modified second electronic file copy is automatically received from the third application responsive to the user modifying a content of the second electronic file; determine whether the first electronic device is in communication with the second electronic device; and automatically send, via the first application, the modified second

	electronic file copy to the second application at the second electronic device responsive to the determination that the first electronic device is in communication with the second electronic device and responsive to receiving the modified second electronic file copy from the third electronic device, wherein, responsive to sending the modified first electronic file copy to the third electronic device, an older version of the first electronic file stored on the third electronic device is automatically caused to be replaced with the modified first electronic file copy such that the modified first electronic file copy is stored on the third electronic device in lieu of the older version of the first electronic file, and wherein, responsive to sending the modified second electronic file copy to the second electronic device, an older version of the second electronic file stored on the second electronic device is

	automatically caused to be replaced with the modified second electronic file copy such that the modified second electronic file copy is stored on the second electronic device in lieu of the older version of the second electronic file
Claim 29,38: wherein the copy of the first file is automatically received from a first application at the first client device, and wherein the first application comprises a runtime environment for one or more mobile-agent objects	Claim 2,11 wherein at least one of the first and second electronic devices includes a runtime environment for mobile-agent objects.
Claim 22,34: store the copy of the first file to a memory device associated with the server system, wherein the copy of the first file is stored on the memory device associated with the server system responsive to determining that the server system is not in	Claim 4,13 wherein the modified first electronic file copy is stored on the memory device associated with the first electronic device in lieu of an older version of the first electronic file copy that was stored on the memory device associated with the first electronic device

communication with the second client device; and automatically transfer the copy of the first file to the second client device to replace the older version of the first file stored on the second client device with the copy of the first file, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device	
Claim 30 wherein the first application is configured to create a first mobile object, and wherein the first mobile object js configured to create a proxy object at the server system	Claim 7,16 wherein the second application is operable to create a first mobile object, and wherein the first mobile object is operable to create a proxy object at the first electronic device

It would have been obvious to a person of ordinary skill was made to modify and/or to omit the additional elements of claim 1-18 of US Patent No. **10,067,942** to arrive at the claims 21-45 of the instant application **16/017,348** because the ordinary skilled person would have realized that the remaining element(s) would perform the same function as before. addition and/or Omission of elements and its function in combination is obvious expedient if the remaining elements perform same functions as before.

Claim Rejections – 35 USC § 101

35 USC 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture and composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 21-45 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 21,26,33,40,43 are rejected under 35 USC 101 because the claimed invention is directed to a judicial exception (i.e, a law of nature, a natural phenomenon, or an abstract idea) without significantly more. The claim(s) 1,10,17,19 do not include additional elements that are sufficient to amount to "significantly more" than the judicial exception because the additional elements, which are recited at a high level of generality, provide conventional computer applications copy files in a network environment

Claim 21,33,40,43, recites, in part receive, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

determine that the server system is not in communication with a second client device associated with the user; and

store the copy of the first file on the server system;

automatically transfer, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) resuming communication with the second client device and (u) receiving the copy of the first file from the first client device - as abstract ideas by the courts, such as in *Electric Power Group, LLC.* All of these concepts relate to receiving, collection, copy files, and analyzing, modify content, presenting and/or generating information of a specified content and not any particular assertedly inventive technology for performing file management. The concept described in claims 21,33,40,43 are not meaningfully different than those concepts found by the courts to be abstract idea for example in *Electric Power Group, LLC.* As such, the description in claim 21,33,40,43 merely performing receiving a copy of file, determine step, automatically send over network, automatically receive multiple applications, file versions is considered as workflow process is an abstract idea. They are therefore directed to an abstract idea.

The claim(s) 21,33,40,43 do not include additional elements that are sufficient to amount to significantly more than the judicial exception because the additional elements when considered both individually and as an ordered combination do not amount to significantly more than the abstract idea and claim(s) 21,33,40,43 at issue are directed to a patent-ineligible concept, *Alice,*134 S.Ct. at 2355. The claim(s) 1,10,17,19 recites the additional limitations "user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file", "automatically transfer, over a network, the copy of the first file to the second client device associated with the user to

replace an older version of the first file stored on the second client device" is simply implementing workflow file version(s) routines is abstract idea.

Examiner notes the following on "significantly more"

The Supreme Court has identified a number of considerations for determining whether a claim with additional elements amounts to significantly more than the judicial exception itself. The following are examples of these considerations, which are not intended to be exclusive or limiting. Limitations that may be enough to qualify as "significantly more" when recited in a claim with a judicial exception include:

- Improvements to another technology or technical field:
- Improvements to the functioning of the computer itself;
- Applying the judicial exception with, or by use of, a particular machine;
- Effecting a transformation or reduction of a particular article to a different state or thing;

Thus, taken alone, the additional elements do not amount to significantly more than the above-identified judicial exception implementing "receive, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

determine that the server system is not in communication with a second client device associated with the user; and

store the copy of the first file on the server system;

automatically transfer, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) resuming communication with the second client device and (u) receiving the copy of the first file from the first client device", representing routine file management and/or version control (abstract idea). *MPEP 2106.05(f).* Looking at the limitations as an ordered combination adds nothing that is not already present when looking at the elements taken individually. There is no indication that the combination of elements improves the neither distributed file management workflow nor file version(s) modifying the content of the file(s). Electric *Power Group, LLC* and *Int. Ventures v. Erie Indemnity*.

As to Claim 22,34, depend on claim 21,33 and includes all the limitations of claim 21, 33. Therefore, claim 22,34 recites the same abstract idea of "store the copy of the first file to a memory device associated with the server system, wherein the copy of the first tile is stored on the memory device associated with the server system responsive to determining that the server system is not in communication with the second client device; and

automatically transfer the copy of the first file to the second client device to replace the older version of the first file stored on the second client device with the copy of the first file, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 22,34 are not drawn to eligible subject matter as they are directed to an abstract idea without significantly more.

As to Claim 23,36, depend on claim 21,33 and includes all the limitations of claim 21, 33. Therefore, claim 23,36 recites the same abstract idea of "receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and

automatically transfer the first metadata to the second client device basal on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device" - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 23,36 are not drawn to eligible subject matter as they are directed to an abstract idea without significantly more.

As to Claim 24,37, depend on claim 21,33 and includes all the limitations of claim 21, 33. Therefore, claim 24,37 recites the same abstract idea of "wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration" - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 24,37 are not drawn to eligible subject matter as they are directed to an abstract idea without significantly more

As to Claim 25, depend on claim 21 and includes all the limitations of claim 21, Therefore, claim 25 recites the same abstract idea of "wherein availability of the version of the first file is presented at the second client device based on the first metadata" - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 25 is not drawn to eligible subject matter as they are directed to an abstract idea without significantly more.

As to Claim 27-28, 3838depend on claim 21 and includes all the limitations of claim 21, Therefore, claim 27-28 recites the same abstract idea of "periodically perform a pull request, wherein the copy of the first file is automatically

received from the first client device responsive to (i) the pull request and (ii) the user modifying a content of the first file stored on the first client device" - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 27-28 is not drawn to eligible subject matter as they are directed to an abstract idea without significantly more.

As to Claim 29-30, depend on claim 21,33 and includes all the limitations of claim 21, 33. Therefore, claim 29-30,38 recites the same abstract idea of "wherein the copy of the first file is automatically received from a first application at the first client device, and wherein the first application comprises a runtime environment for one or more mobile-agent objects" - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 29-30,38 is not drawn to eligible subject matter as they are directed to an abstract idea without significantly more.

As to Claim 31-32,39, 42,45 depend on claim 21,33,40,43 and includes all the limitations of claim 21,33. Therefore, claim 31-32,39,42,45 recites the same abstract idea of "wherein the first mobile object is configured to provide the copy of the first file to the proxy object" - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 31-32,39,42,45 is not drawn to eligible subject matter as they are directed to an abstract idea without significantly more.

As to Claim 35 depend on claim 33 and includes all the limitations of claim 33. Therefore, claim 35 recites the same abstract idea of "storing, by the server system, the copy of the first file to a memory device associated with the server system, wherein the copy of the first file is stored on the memory device associated with the server system responsive to initially determining that the server system is nor in communication with the second client device" - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 35 is not drawn to eligible subject matter as they are directed to an abstract idea without significantly more.

As to Claim 41,44 depend on claim 43 and includes all the limitations of claim 41,43. Therefore, claim 41,44 recites the same abstract idea of "receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file: and

automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device,

wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration" - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 41,44 is not drawn to eligible subject matter as they are directed to an abstract idea without significantly more

Claim Rejections - 35 USC § 102

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (**pre-AIPA** 35 U.S.C. 102(e)).

10. ***Claim(s) 21-45 is/are rejected under pre-AIA 35 U.S.C. 102(e,a) as being anticipated by Mohanty, US Pub. No. 2007/0180084 filed on Feb 2006, published Aug 2007***.

11. Claims 1-20. (Cancelled)

12. As to Claim 21,33,40,43,(New) Mohantry teaches a system which including A system comprising: (fig 1)

"a server system comprising one or more processors programmed with computer program instructions that, when executed, cause the server system to" (fig 1A –

Mohanty teaches computer, storage devices, files stored supporting both hardware and software in a network environment, server corresponds to fig 1A, element 22);

"receive, over a network, a copy of a first file from a first client device associated with a user" (fig 1A-1B, element 18, network element 20, element 12,14,16 – mobile devices connected in a network environment, and first client device associated with a user corresponds to user mobile device element 12), "wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device"(page 3, 0029, 0030,0032, page 4, 0034-0035, page 5, 0044, fig 1B-1C – Mohanty teaches multiple mobile devices sharing files in a network environment particularly over a communication network, further files of particular changes are sent as notification in synchronize files environment as detailed in fig 2, element 129,131), the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file (fig 2, element 140, page 5, 0047, fig 5, page 6, 0054, line 18-23 – Mohanty teaches maintaining file version(s), particularly notifying changes and/or updates to the file);

determine that the server system is not in communication with a second client device associated with the user; (page 8, 0066-0067 – Mohanty teaches access rights associated with the files, mobile computing devices thereby performing specific file(s) transfer and/or communication among selected mobile computing device(s) and target device(s) particularly with predefined access rights, while in the absence of predefined access rights, it is determined that specific mobile device may not access server files because mobile identification and public key may not have registered or not identified) and

"store the copy of the first file on the server system" (page 3, 0027 – Mohanty teaches store and manage files or documents including past versions);

automatically transfer, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) resuming communication with the second client device and (u) receiving the copy of the first file from the first client device (fig 1A-1B, page 2, 0024, page 3, 0025 – Mohanty teaches multiple mobile computing devices connected in a network environment configured to perform logical document management particularly logical documents are distributed that enable mobile computing devices to have access to required files for example sharing a copy of the first file to other mobile computing device(s)) including maintaining past versions (page 6, 0050).

13. As to Claim 22,34 (New) Mohanty disclosed:

"store the copy of the first file to a memory device associated with the server system, wherein the copy of the first file is stored on the memory device (page 3, 0027 – Mohanty teaches store and manage files or documents including past versions associated with the server system) responsive to determining that the server system is not in communication with the second client device (page 8, 0066-0067 – Mohanty teaches access rights associated with the files, mobile computing devices thereby performing specific file(s) transfer and/or communication among selected mobile computing device(s) and target device(s) particularly with predefined access rights, while in the absence of predefined access rights, it is determined that specific mobile

device may not access server files because mobile identification and public key may not have registered or not identified); and

"automatically transfer the copy of the first file to the second client device to replace the older version of the first file stored on the second client device with the copy of the first file, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device(fig 1A-1B, page 2, 0024, page 3, 0025 – Mohanty teaches multiple mobile computing devices connected in a network environment configured to perform logical document management particularly logical documents are distributed that enable mobile computing devices to have access to required files for example sharing a copy of the first file to other mobile computing device(s)) including maintaining past versions (page 6, 0050)..

14. As to Claim 23,36 (New) Mohanty disclosed:

"receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file" (fig 1A-1B,page 3, 0027, fig 4, page 6, 0051); and

"automatically transfer the first metadata to the second client device basal on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device" (page 6, 0051 – Mohanty defines rules and priority with respect to files synchronization including notification of the previous changes).

15. As to Claim 24,37 (New) Mohanty disclosed:

"wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration" (page 6, 0051-0052).

16. As to Claim 25 (New) Mohanty disclosed: "wherein availability of the version of the first file is presented at the second client device based on the first metadata" (fig 1A-1B, page 3, 0028).

17. As to Claim 26 (New) Mohanty disclosed:

"receive a copy of a second file from the second client device associated with the user, wherein the copy of the second file is automatically received from the second client device (fig 1A-1B, element 18, network element 20, element 12,14,16 – mobile devices connected in a network environment, and first client device associated with a corresponding mobile devices) "responsive to the user modifying a content of the second file stored on the second client device, the copy of the second file being a version of the second file that is generated from the user modifying the content of the second file" (page 3, 0032);

"determine that the server system is in communication with the first client device associated with the user" (fig 1A-1B, page 2, 0023-0024 – Mohanty teaches multiple

mobile devices connected in a distributed computer network environment, particularly associated with sharing files); and

automatically transfer the copy of the second file to the first client device associated with the user to replace an older version of the second file stored on the first client device, responsive to (i) determining that the server system is in communication with the first client device and (ii) receiving the copy of the first file from the first client device. (fig 1A-1B, page 2, 0024, page 3, 0025).

As to Claim 27-28, (New) Mohanty disclosed, "wherein the server system is caused to: periodically perform a pull request, wherein the copy of the first file is automatically received from the first client device responsive to (i) the pull request and (ii) the user modifying a content of the first file stored on the first client device(fig 1A-1B, fig 5, page 6, 0054).

18. As to Claim 29,38 (New) Mohanty disclosed, "wherein the copy of the first file is automatically received from a first application at the first client device, and wherein the first application comprises a runtime environment for one or more mobile-agent objects" (fig 1A-1C, page 3, 0025 – Mohanty teaches distributed file management among multiple mobile computing devices sharing files, further files or objects from the mobile devices migrating from one host to another in a distributed system to perform actions)

19. As to Claim 30 (New) Mohanty disclosed, "wherein the first application is configured to create a first mobile object, and wherein the first mobile object js configured to create a proxy object at the server system" (page 3, 0025-0026).

20. As to Claim 31,39, (New) Mohanty disclosed, "wherein the first mobile object is configured to provide the copy of the first file to the proxy object" (page 5, 0044-0045).

21. As to Claim 32. (New) Mohanty disclosed, wherein the proxy object is configured to store the copy of the first file on a memory device associated with the server system" (page 3, 0025-0026, fig 1A-1C).

22. As to Claim 35. (New) Mohanty disclosed:

"storing, by the server system, the copy of the first file to a memory device associated with the server system, wherein the copy of the first file is stored on the memory device associated with the server system responsive to initially determining that the server system is nor in communication with the second client device" (page 8, 0066 – Mohanty teaches access rights associated with the files, mobile computing devices thereby performing specific file(s) transfer and/or communication among selected mobile computing device(s) and target device(s)).

23. As to Claim 41,44 (New) Mohanty disclosed

receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file (fig 1A-1B,page 3, 0027, fig 4, page 6, 0051): and

automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device (page 6, 0051 – Mohanty defines rules and priority with respect to files synchronization including notification of the previous changes),

wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration (page 6, 0051-0052).

24. As to Claim 42,45 (New) The system of claim 40, wherein the copy of the first file is automatically received from a first application at the first client device, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein die first application is configured to create a first mobile object, the first mobile object is configured to create a proxy object at the server system and to provide the copy of the first file to the proxy object, and the proxy object is configured to store

the copy of the first file on a memory device associated with the server system (fig 1A-1C, page 3, 0025-0026, page 5, 0044-0045)

Conclusion

The prior art made of record

a. US Pub No. 20070180084

Examiner's Note: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

SEE MPEP 2141.02 [R-5] VI. PRIOR ART MUST BE CONSIDERED IN ITS ENTIRETY, INCLUDING DISCLOSURES THAT TEACH AWAY FROM THE CLAIMS: A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984) In re Fulton, 391 F.3d 1195, 1201,73 USPQ2d 1141, 1146 (Fed. Cir. 2004). >See also MPEP §2123.

In the case of amending the Claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

The prior art made of record, listed on form PTO-892, and not relied upon, if any, is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Srirama Channavajjala whose telephone number is 571-272-4108. The examiner can normally be reached on Monday-Friday from 8:00 AM to 5:30 PM Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Trujillo James, can be reached on (571) 272- 3677. The fax phone numbers for the organization where the application or proceeding is assigned is 571-273-8300 Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)

/Srirama Channavajjala/
Primary Examiner, Art Unit 2157

Notice of References Cited	Application/Control No. 16/017,348	Applicant(s)/Patent Under Reexamination	
	Examiner Srirama T Channavajjala	Art Unit 2157	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20070180084-A1	08-2007	Mohanty; Subhashis	G06F11/1451	709/223
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/017,348	Manzano, Michael R.
	Examiner	**Art Unit**
	Srirama T Channavajjala	2157

CPC - Searched*		
Symbol	**Date**	**Examiner**
G06F 17/30082;30067;3023;30194;30082;30174;30362	09/07/2018	sc

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
Inventor searched	09/06/2018	sc
PLUS search	09/06/2018	sc
IP.COM search attached	09/06/2018	sc
EAST search attached	09/06/2018	sc
EAST search updated	09/20/2018	sc

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**

/Srirama Channavajjala/ Primary Examiner, Art Unit 2157	

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/017,348	Manzano, Michael R.
	Examiner	**Art Unit**
	Srirama T Channavajjala	2157

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/06/2018								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
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	11	✓								
	12	✓								
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	14	✓								
	15	✓								
	16	✓								
	17	✓								
	18	✓								
	19	✓								
	20	✓								

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.C./

FORM PTO-1449 (modified)
To: U.S. Department of Commerce
(PW FORM PAT-1449)
Patent and Trademark Office

Atty. Dkt. No.	M#	
023027	0459211	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Inventor(s): Michael R. MANZANO

Appln. No.: 16/017,348

Filing Date: June 25, 2018

Date: October 12, 2018 Page 1 of 1

Examiner: CHANNAVAJJALA, SRIRAMA T | Group Art Unit: 2157

U.S. PATENT DOCUMENTS

Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	Sub Class	Filing Date (if appropriate)
	AR	8,565,729	10/2013	MOSELER et al.			
	BR	7,415,588	08/2008	HONG et al.			
	CR	2009/0282050	11/2009	THOMAS et al.			
	DR						
	ER						
	FR						
	GR						
	HR						
	IR						
	JR						
	KR						

FOREIGN PATENT DOCUMENTS

		Document Number	Date MM/YYYY	Country	Inventor Name	English Abstract		Translation Readily Available	
						Enclosed	No	Enclose	No
	LR								
	MR								
	NR								
	OR								
	PR								
	QR								
	RR								
	SR								
	TR								

OTHER (Including in this order Author, Title, Periodical Name, Date, Pertinent Pages, etc.)

	UR	MARSHALL, M., "The Y Combinator List," Venture Beat, August 2007, Retrieved from the Internet: URL: <https://venturebeat.com/2007/08/16/the-y-combinator-list/>, 4 pages.
	VR	JARVIS, A., "Dropbox pitch deck to raise seed capital investment, " Medium, March 2018, Retrieved from the Internet: URL: <https://medium.com/@adjblog/dropbox-pitch-deck-to-raise-seed-capital-investment-6a6cd6517e56>, 12 pages.
	WR	
	XR	

Examiner /Srirama Channavajjala/ Date Considered: 10/31/2018

*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/017,348	06/25/2018	Michael R. Manzano	023027-0459211

CONFIRMATION NO. 3719

909
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

PUBLICATION NOTICE

OC000000103352938

Title:ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

Publication No.US-2018-0307698-A1
Publication Date:10/25/2018

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently https://portal.uspto.gov/pair/PublicPair. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Inventor(s):	Michael R. MANZANO *et al.*	**Attorney Docket No.:**	023027-0459211
Serial No.:	16/017,348	**Confirmation No.:**	3719
Filing Date:	June 25, 2018	**Examiner:**	Srirama T. CHANNAVAJJALA
		Art Unit:	2157

For: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

RESPONSE TO OFFICE ACTION MAILED 13 SEPTEMBER 2018

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22313-1450

Dear Commissioner:

In response to the Office Action mailed **September 13, 2018**, please reconsider the above-identified application as follows:

A listing of the Claims begins on page **2** of this paper.

Remarks begin on page **10** of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a), and any fees required therefore (including fees for net addition of claims) are hereby authorized to be charged to Deposit Account No. 033975 (**Ref. No. 023027-0459211**).

This listing of claims will replace all prior versions and listings of claims in the Application.

LISTING OF CLAIMS:

1-20. (**Cancelled**)

21. (**Previously Presented**) A system comprising:

a server system comprising one or more processors programmed with computer program instructions that, when executed, cause the server system to:

receive, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

determine that the server system is not in communication with a second client device associated with the user; and

store the copy of the first file on the server system;

automatically transfer, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device.

22. (**Previously Presented**) The system of claim 21, wherein the server system is caused to:

store the copy of the first file to a memory device associated with the server system, wherein the copy of the first file is stored on the memory device associated with the server system responsive to determining that the server system is not in communication with the second client device; and

automatically transfer the copy of the first file to the second client device to replace the older version of the first file stored on the second client device with the copy of the first file, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device.

23. (**Previously Presented**) The system of claim 21, wherein the server system is caused to:

receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and

automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device.

24. (**Previously Presented**) The system of claim 23, wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

25. (**Previously Presented**) The system of claim 23, wherein availability of the version of the first file is presented at the second client device based on the first metadata.

26. (**Previously Presented**) The system of claim 21, wherein the server system is caused to:

receive a copy of a second file from the second client device associated with the user, wherein the copy of the second file is automatically received from the second client device responsive to the user modifying a content of the second file stored on the second client device, the copy of the second file being a version of the second file that is generated from the user modifying the content of the second file;

determine that the server system is in communication with the first client device associated with the user; and

automatically transfer the copy of the second file to the first client device associated with the user to replace an older version of the second file stored on the first client device, responsive to (i) determining that the server system is in communication with the first client device and (ii) receiving the copy of the first file from the first client device.

27. (**Previously Presented**) The system of claim 21, wherein the server system is caused to:

periodically perform a pull request, wherein the copy of the first file is automatically received from the first client device responsive to (i) the pull request and (ii) the user modifying a content of the first file stored on the first client device.

28. (**Previously Presented**) The system of claim 21, wherein the copy of the first file is automatically received from the first client device responsive to (i) a push request of the first client device and (ii) the user modifying a content of the first file stored on the first client device.

29. (**Previously Presented**) The system of claim 21, wherein the copy of the first file is automatically received from a first application at the first client device, and wherein the first application comprises a runtime environment for one or more mobile-agent objects.

30. (**Previously Presented**) The system of claim 29, wherein the first application is configured to create a first mobile object, and wherein the first mobile object is configured to create a proxy object at the server system.

31. (**Previously Presented**) The system of claim 30, wherein the first mobile object is configured to provide the copy of the first file to the proxy object.

32. (**Previously Presented**) The system of claim 31, wherein the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

33. (**Previously Presented**) A method being implemented by a server system comprising one or more processors executing computer program instructions that, when executed, perform the method, the method comprising:

receiving, by the server system, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first

client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

determining, by the server system, whether the server system is in communication with a second client device associated with the user; and

automatically transferring, by the server system, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) determining that the server system is in communication with the second client device and (ii) receiving the copy of the first file from the first client device.

34. (**Previously Presented**) The method of claim 33, further comprising:

initially determining, by the server system, that the server system is not in communication with the second client device associated with the user; and

automatically transferring, by the server system, the copy of the first file to the second client device to replace the older version of the first file stored on the second client device with the copy of the first file, responsive to (i) resuming communication with the second client device, (ii) determining that the server system is in communication with the second client device, (iii) and receiving the copy of the first file from the first client device.

35. (**Previously Presented**) The method of claim 33, further comprising:

storing, by the server system, the copy of the first file to a memory device associated with the server system, wherein the copy of the first file is stored on the memory device associated with the server system responsive to initially determining that the server system is not in communication with the second client device.

36. (**Previously Presented**) The method of claim 33, further comprising:

receiving, by the server system, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and

automatically transferring, by the server system, the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device.

37. (**Previously Presented**) The method of claim 36, wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

38. (**Previously Presented**) The method of claim 33, wherein the copy of the first file is automatically received from a first application at the first client device, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, and the first mobile object is configured to create a proxy object at the server system and to provide the copy of the first file to the proxy object.

39. (**Previously Presented**) The method of claim 38, wherein the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

40. (**Previously Presented**) A system comprising:

a server system comprising one or more processors programmed with computer program instructions that, when executed, cause the server system to:

receive, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

determine that the server system is not in communication with a second client device associated with the user;

store the copy of the first file on the server system; and

automatically transfer, over a network, the copy of the first file to the second client device associated with the user, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device,

wherein, responsive to transferring the copy of the first file to the second client device, an older version of the first file stored on the second client device is automatically caused to be replaced with the copy of the first file such that the copy of the first file is stored on the second client device in lieu of the older version of the first file.

41. (**Previously Presented**) The system of claim 40, wherein the server system is caused to:

receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and

automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device,

wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

42. (**Previously Presented**) The system of claim 40, wherein the copy of the first file is automatically received from a first application at the first client device, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, the first mobile object is configured to create a proxy object at the server system and to provide the copy of the first file to

the proxy object, and the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

43. (**Previously Presented**) A method being implemented by a first computer system comprising one or more processors executing computer program instructions that, when executed, perform the method, the method comprising:

receiving, by the first computer system, over a network, a copy of a first file from a second computer system associated with a user, wherein the copy of the first file is automatically received from the second computer system responsive to the user modifying a content of the first file stored on the second computer system, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

determining, by the first computer system, that the first computer system is not in communication with a third computer system associated with the user;

storing, by the first computer system, the copy of the first file on the first computer system; and

automatically transferring, by the first computer system, over a network, the copy of the first file to the third computer system associated with the user to replace an older version of the first file stored on the third computer system, responsive to (i) resuming communication with the third computer system and (ii) receiving the copy of the first file from the second computer system.

44. (**Previously Presented**) The method of claim 43, further comprising:

receiving, by the first computer system, from the second computer system, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and

automatically transferring, by the first computer system, the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device,

wherein at least one of the first computer system or the second computer system comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the first computer system or the second computer system assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

45. (**Previously Presented**) The method of claim 43, wherein the copy of the first file is automatically received from a first application at the second computer system, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, the first mobile object is configured to create a proxy object at the first computer system and to provide the copy of the first file to the proxy object, and the proxy object is configured to store the copy of the first file on a memory device associated with the first computer system.

REMARKS

By this response, no claims have been amended, cancelled, or newly added. Thus, claims 21-45 are pending. In view of the following comments, allowance of all the claims pending in the application is respectfully requested.

NON-STATUTORY DOUBLE PATENTING REJECTION

Applicant respectfully notes the double patenting rejection and requests that the double patenting rejection be held in abeyance until the Examiner has indicated allowable subject matter. At such time, Applicant will determine whether the filing of a terminal disclaimer is appropriate. Furthermore, Applicant notes that the filing of a Terminal Disclaimer to obviate a rejection based on non-statutory double patenting does not constitute an admission of the propriety of the rejection. *See Quad Environmental Technologies Corp. v. Union Sanitary District*, 946 F.2d 870 (Fed. Cir. 1991).

EXAMINER INTERVIEW AND PRIOR ART REJECTIONS

Applicant thanks the Examiner for the telephonic interview on September 19, 2018. As discussed, in the Preliminary Amendment dated August 20, 2018, claims 1-20 were cancelled without prejudice or disclaimer and claims 21-45 were newly added. Given the foregoing prior amendments, Applicant respectfully traverses the rejections in the Office Action for being based on cancelled claims 1-20, as opposed to being based on pending claims 21-45. Accordingly, Applicant respectfully request withdrawal of the rejections.

CONCLUSION

Having addressed each of the foregoing rejections, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

Date: **October 17, 2018**

PILLSBURY WINTHROP SHAW PITTMAN LLP

By: /Ngai B. Zhang/
Ngai B. Zhang
Registration No. 65,473

Customer No. 00909

P.O. Box 10500
McLean, Virginia 22102
Direct Dial: 703.770.7522
Main: 703.770.7900
Fax: 703.770.7901

Electronic Acknowledgement Receipt

EFS ID:	34036917
Application Number:	16017348
International Application Number:	
Confirmation Number:	3719
Title of Invention:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK
First Named Inventor/Applicant Name:	Michael R. Manzano
Customer Number:	909
Filer:	Ngai Bing Zhang/Miriam Nelsen Awan
Filer Authorized By:	Ngai Bing Zhang
Attorney Docket Number:	023027-0459211
Receipt Date:	17-OCT-2018
Filing Date:	25-JUN-2018
Time Stamp:	14:50:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		023027-0459211_Response.pdf	85007 3128d40ee7b4a6a5ca675368cd75afdf4ae928c2	yes	11

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	9
	Applicant Arguments/Remarks Made in an Amendment	10	11
Warnings:			
Information:			
	Total Files Size (in bytes):	85007	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/017,348	Filing Date 06/25/2018	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **10/17/2018**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 25	Minus	** 25	= 0	X $50 =	0
Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $230 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
LAVINIA JOHNSON

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

FORM PTO-1449 (modified)
To: U.S. Department of Commerce
(PW FORM PAT-1449)
Patent and Trademark Office

Atty. Dkt. No.	M#	
023027	0459211	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Inventor(s): Michael R. MANZANO

Appln. No.: 16/017,348

Filing Date: June 25, 2018

Date: October 12, 2018 Page 1 of 1

Examiner: CHANNAVAJJALA, SRIRAMA T | Group Art Unit: 2157

U.S. PATENT DOCUMENTS

Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	Sub Class	Filing Date (if appropriate)
	AR	8,565,729	10/2013	MOSELER et al.			
	BR	7,415,588	08/2008	HONG et al.			
	CR	2009/0282050	11/2009	THOMAS et al.			
	DR						
	ER						
	FR						
	GR						
	HR						
	IR						
	JR						
	KR						

FOREIGN PATENT DOCUMENTS

		Document Number	Date MM/YYYY	Country	Inventor Name	English Abstract		Translation Readily Available	
						Enclosed	No	Enclose	No
	LR								
	MR								
	NR								
	OR								
	PR								
	QR								
	RR								
	SR								
	TR								

OTHER (Including in this order Author, Title, Periodical Name, Date, Pertinent Pages, etc.)

	UR	MARSHALL, M., "The Y Combinator List," Venture Beat, August 2007, Retrieved from the Internet: URL: <https://venturebeat.com/2007/08/16/the-y-combinator-list/>, 4 pages.
	VR	JARVIS, A., "Dropbox pitch deck to raise seed capital investment, " Medium, March 2018, Retrieved from the Internet: URL: <https://medium.com/@adjblog/dropbox-pitch-deck-to-raise-seed-capital-investment-6a6cd6517e56>, 12 pages.
	WR	
	XR	

Examiner | Date Considered:

*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

Electronic Acknowledgement Receipt

EFS ID:	33995087
Application Number:	16017348
International Application Number:	
Confirmation Number:	3719
Title of Invention:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK
First Named Inventor/Applicant Name:	Michael R. Manzano
Customer Number:	909
Filer:	Ngai Bing Zhang/Margaret Barham
Filer Authorized By:	Ngai Bing Zhang
Attorney Docket Number:	023027-0459211
Receipt Date:	12-OCT-2018
Filing Date:	25-JUN-2018
Time Stamp:	13:53:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	023027-0459211_IDS_Transmittal.pdf	95081 ad7b15411806107f49c1173a20695681529f15b4	no	1

Warnings:

Information:					
2	Non Patent Literature	NPL_JARVIS.pdf	4654773 711603324a2619c42873bf5ea93ab98f19e1ad53	no	12
Warnings:					
Information:					
3	Non Patent Literature	NPL_MARSHALL.pdf	103545 74788c8b9473b61c4e430de1501d167b95bc76a9	no	4
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Form (SB08)	023027-0459211_PTO-1449.pdf	102724 5f26c672371c7344e44b4a760ecfaff237269fd4	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
		Total Files Size (in bytes):	4956123		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Docket Number: 023027-0459211 PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

Michael R. MANZANO Group Art Unit: 2157

Application No.: 16/017,348 Examiner: CHANNAVAJJALA, SRIRAMA T

Filed: June 25, 2018 Confirmation No.: 3719

For: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Pursuant to 37 CFR 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO-1449. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom. Applicant respectfully requests the Examiner return an initialed copy of the enclosed Form PTO-1449 to Applicant with the next Office communication to indicate that the references have been considered, per MPEP § 609.

This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection or Notice of Allowance.

I hereby certify that no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

Respectfully Submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP

/Ngai B. Zhang/

Ngai B. Zhang
Registration Number 65,473
Customer Number: 00909

Date: October 12, 2018
Telephone: (703) 770-7900
Facsimile: (703) 770-7901
P.O. Box 10500
McLean, VA 22102

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/017,348	06/25/2018	Michael R. Manzano	023027-0459211	3719

909 7590 09/25/2018

Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

EXAMINER	
CHANNAVAJJALA, SRIRAMA T	

ART UNIT	PAPER NUMBER
2157	

NOTIFICATION DATE	DELIVERY MODE
09/25/2018	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket_ip@pillsburylaw.com

Applicant-Initiated Interview Summary	**Application No.** 16/017,348	**Applicant(s)** Manzano, Michael R.	
	Examiner Srirama T Channavajjala	**Art Unit** 2157	**AIA Status** No

All participants (applicant, applicants representative, PTO personnel):

(1) Srirama T. Channavajjala. (3) _____.

(2) Ngai B. Zhang, Reg. No. 65,473. (4) _____.

Date of Interview: 19 September 2018.

Type: ☑ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☑ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☐103 ☐Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 21,24,41 and 44.

Identification of prior art discussed: _____.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

See Continuation Sheet.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☑ Attachment

/Srirama Channavajjala/ Primary Examiner, Art Unit 2157	

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiners responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicants correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,-
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicants record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiners version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, Interview Record OK on the paper recording the substance of the interview along with the date and the examiners initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments:

Examiner agreed to send another non-final office action for the preliminary amendment filed on 8/20/2018.

discussed claim 21, "receive, ...wherein the copy of the first file is automatically received from .....; ' determine that the server system is not communication with a second client...."'automatically transfer , ...replace an older version of the first file stored on the second client device.....";

claim 41, "receive,.....version of the first file that is generated from the user modifying the content of the first file.....' "automatically transfer the first metadata to the second client deice....."; "wherein at least one of the .....assign greater priority to metadata associated with files than priority assigned to the files....."

discussed non-statutory double patent with US Patent 9,143,561 and US Patent 10,067,942.

discussed instant application specification page 14-15, para 0043-0045.

Applicant may further clarify claim 21,33,40,43 language and may file terminal disclaimer to overcome the double patent rejection.

Channavajjala, Srirama

From: Zhang, Ngai <ngai.zhang@pillsburylaw.com>
Sent: Wednesday, September 19, 2018 3:28 PM
To: Channavajjala, Srirama
Cc: Awan, Miriam
Subject: 16/017,348 (023027-0459211) Examiner Interview Request
Attachments: 023027-0459211 Examiner Interview Request.pdf

Hi Examiner Channavajjala,

Per our call, attached is the request for an examiner interview. I hereby authorize you to communicate with me regarding the above-identified application via email.

Best,
Ngai

Ngai Zhang ¦ Counsel
Pillsbury Winthrop Shaw Pittman LLP
1650 Tysons Blvd, 14th Floor ¦ McLean, VA 22102-4856
t 703.770.7532
ngai.zhang@pillsburylaw.com ¦ website bio

AUSTIN BEIJING HONG KONG HOUSTON LONDON LOS ANGELES MIAMI
NASHVILLE NEW YORK NORTHERN VIRGINIA PALM BEACH SACRAMENTO
SAN DIEGO SAN DIEGO NORTH COUNTY SAN FRANCISCO SHANGHAI
SILICON VALLEY TAIPEI TOKYO WASHINGTON, DC

pillsbury

The contents of this message, together with any attachments, are intended only for the use of the individual or entity to which they are addressed and may contain information that is legally privileged, confidential and exempt from disclosure. If you are not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this message, or any attachment, is strictly prohibited. If you have received this message in error, please notify the original sender or the Pillsbury Winthrop Shaw Pittman Help Desk at Tel: 800-477-0770, Option 1, immediately by telephone or by return E-mail and delete this message, along with any attachments, from your computer. Thank you.

PTOL-413A (07-16)
Approved for use through 08/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Applicant Initiated Interview Request Form

Application No.: 16/017,348 First Named Applicant: Topia Technology, Inc.
Examiner: Srirama Channavajjala Art Unit: 2157 Status of Application: Pending

Tentative Participants:
(1) Ngai Zhang (2) _____
(3) _____ (4) _____

Proposed Date of Interview: 09/19/2018 **Proposed Time:** _____ (◎AM◎PM)

Type of Interview Requested:
(1) ☑ Telephonic (2) ☐ Personal (3) ☐ Video Conference

Exhibit To Be Shown or Demonstrated: ☐ YES ☑ NO
If yes, provide brief description: _____

Issues To Be Discussed

Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1) 102	21	N/A	☐	☐	☐
(2)			☐	☐	☐
(3)			☐	☐	☐
(4)			☐	☐	☐

☐ Continuation Sheet Attached ☐ Proposed Amendment or Arguments Attached

Brief Description of Arguments to be Presented: _____

An interview was conducted on the above-identified application on _____

NOTE: This form should be completed and filed by applicant in advance of the interview (see MPEP § 713.01). If this form is signed by a registered practitioner not of record, the Office will accept this as an indication that he or she is authorized to conduct an interview on behalf of the principal (37 CFR 1.32(a)(3)) pursuant to 37 CFR 1.34. This is not a power of attorney to any above named practitioner. See the Instruction Sheet for this form, which is incorporated by reference. By signing this form, applicant or practitioner is certifying that he or she has read the Instruction Sheet. After the interview is conducted, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible. This application will not be delayed from issue because of applicant's failure to submit a written record of this interview.

/Ngai B. Zhang/
Applicant/Applicant's Representative Signature

Examiner/SPE Signature

Ngai B. Zhang
Typed/Printed Name of Applicant or Representative

703-770-7532
Applicant's/Applicant's Representative's Telephone Number

65,473
Registration Number, if applicable

This collection of information is required by 37 CFR 1.133. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 24 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/017,348	06/25/2018	Michael R. Manzano	023027-0459211	3719

909 7590 09/13/2018

Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

EXAMINER	
CHANNAVAJJALA, SRIRAMA T	

ART UNIT	PAPER NUMBER
2157	

NOTIFICATION DATE	DELIVERY MODE
09/13/2018	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket_ip@pillsburylaw.com

Office Action Summary	Application No. 16/017,348	Applicant(s) Manzano, Michael R.	
	Examiner Srirama T Channavajjala	Art Unit 2157	AIA Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 6/25/2018.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-20 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 6/25/2018 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date 8/22/2018.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

This application is a CON of 14860289 filed on 09/21/2015 is now US PAT 10067942 14860289 is a CON of 12267852 filed on 11/10/2008 is now PAT 9143561, and 12267852 has PRO of 60986896 11/09/2007

DETAILED ACTION

1. Claims 1-20 are pending in this application.

2. Examiner acknowledges ***Track 1*** granted on 8/1/2018.

Drawings

3. The Drawings filed on 6/25/2018 are acceptable for examination purpose.

Information Disclosure Statement

4. The information disclosure statement filed on 8/22/2018 is in compliance with the provisions of 37 CFR 1.97, and has been considered and a copy is enclosed with the Office Action.

Priority

5. Applicant's claim for the benefit of a US Provisional application **60/986,896** filed 11/9/2007 under 35 U.S.C. 119(e) is acknowledged.

Claim Rejections - 35 USC § 112

> The following is a quotation of 35 U.S.C. 112(b):
> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.
>
> The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 4,6,8-9 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

7. Regarding claim 4,6,8-9 depend from 4,6,8-9 respectively, for compact prosecution, examiner assumed, and treated claim 4,6,8-9 depend from independent claim 1 in the office action.

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit http://www.uspto.gov/forms/. The filing date of the application will determine what form should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all

requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

9. Claims 1- 20 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-13 of U.S. Patent No. 9,143,561. Although the claims at issue are not identical, they are not patentably distinct from each other because the patented claims perform the same steps as the claims in the instant application.

US application:**16/017,348**	US Patent No. **9,143,561**
Claim 1,11 A system comprising: a first computer system comprising one or more processors programmed with computer program instructions that, when executed, cause the first computer system to: receive, over a network via a first application at the first computer system, a copy of a first file from a second application at a second computer	Claim 1 A system, comprising: a first electronic device configured to selectively execute a first application, the first electronic device being in communication with a second electronic device and a third electronic device, each associated with a user wherein the first electronic device is configured to: receive from a second application executable on the second electronic device a copy of a first electronic file automatically transferred from the second

system associated with a user, wherein the copy of the first file is automatically received from the second application responsive to the user modifying a content of the first file stored on the second computer system, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file; determine whether the first computer system is in communication with a third computer system associated with the user; automatically send, over a network via the first application, the copy of the first file to a third application at the third computer system responsive to the determination that the first computer system is in communication with the third computer system and responsive to receiving the copy of the first file from the second computer system;	application when the user modifies a content of the first electronic file; and wherein the first electronic device is further configured to receive from a third application executable on the third electronic device a copy of a second electronic file automatically transferred from the third application when the user modifies a content of the second electronic file; and wherein the first application is further configured to automatically transfer the modified first electronic file copy to the third electronic device to replace an older version of the first electronic file stored on the third electronic device with the modified first electronic file copy having the content modified by the user; and automatically transfer the modified second electronic file copy to the second electronic device to replace an older version of the second electronic file stored on the second electronic device

receive, over a network via the first application, a copy of a second file from the third application at the third computer system, wherein the copy of the second file is automatically received from the third application responsive to the user modifying a content of the second file stored on the third computer system, the copy of the second file being a version of the second file that is generated from the user modifying the content of the second file; determine whether the first computer system is in communication with the second computer system; and automatically send, over a network via the first application, the copy of the second file to the second application at the second computer system responsive to the determination that the first computer system is in communication with the second computer system and responsive to receiving the copy of the	with the modified second electronic file copy having the content modified by the user;

second file from the computer third computer system, wherein, responsive to sending the copy of the first file to the third computer system, an older version of the first file stored on the third computer system is automatically caused to be replaced with the copy of the first file such that the copy of the first file is stored on the third computer system in lieu of the older version of the first file, and wherein, responsive to sending the copy of the second file to the second computer system, an older version of the second file stored on the second computer system is automatically caused to be replaced with the copy of the second file such that the copy of the second file is stored on the second computer system in lieu of the older version of the second file	wherein the second application automatically transfers the copy of the modified first electronic file to the first electronic device upon determining that a save operation has been performed on the modified first electronic file.

Claim 2,11: wherein at least one of the second application or the third application comprises a runtime environment for mobile-agent objects. Claim 7,14 wherein the second application is operable to create a first mobile object, and wherein the first mobile object is operable to create a proxy object at the first computer system.	Claim 2,9 wherein at least one of the first and second electronic devices includes a runtime environment for mobile-agent objects. Claim 5,12 wherein the second application is operable to create a first mobile object, the first mobile object being operable to create a proxy object at the first electronic device.

It would have been obvious to a person of ordinary skill was made to modify and/or to omit the additional elements of claim 1-13 of US Patent No. **9,143,561** to arrive at the claims 1-20 of the instant application **16/017,348** because the ordinary skilled person would have realized that the remaining element(s) would perform the same function as before, addition and/or omission of elements and its function in combination is obvious expedient if the remaining elements perform same functions as before.

10. Claims 1- 20 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 10,067,942. Although the claims at issue are not identical, they are not patentably distinct from each other because the patented claims perform the same steps as the claims in the instant application.

US application:**16/017,348**	US Patent No. **10,067,942**
Claim 1,11 A system comprising: a first computer system comprising one or more processors programmed with computer program instructions that, when executed, cause the first computer system to: receive, over a network via a first application at the first computer system, a copy of a first file from a second application at a second computer system associated with a user, <u>wherein the copy of the first file is automatically received from the second application</u>	Claim 1 A system, comprising: a first electronic device, associated with a user, configured to: receive, via a first application at the first electronic device, a copy of a modified first electronic file from a second application at a second electronic device associated with the user, wherein the modified first electronic file copy is automatically received from the second application responsive to the user modifying a content of the first electronic file; determine whether the first electronic device is in communication with a third electronic device;

responsive to the user modifying a content of the first file stored on the second computer system, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file; determine whether the first computer system is in communication with a third computer system associated with the user; automatically send, over a network via the first application, the copy of the first file to a third application at the third computer system responsive to the determination that the first computer system is in communication with the third computer system and responsive to receiving the copy of the first file from the second computer system; receive, over a network via the first application, a copy of a second file from the third application at the third computer system, wherein the copy of the second	automatically send, via the first application, the modified first electronic file copy to a third application at the third electronic device responsive to the determination that the first electronic device is in communication with the third electronic device and responsive to receiving the modified first electronic file copy from the second electronic device; receive, via the first application, a copy of a modified second electronic file from the third application at the third electronic device associated with the user, wherein the modified second electronic file copy is automatically received from the third application responsive to the user modifying a content of the second electronic file;

file is automatically received from the third application responsive to the user modifying a content of the second file stored on the third computer system, the copy of the second file being a version of the second file that is generated from the user modifying the content of the second file; determine whether the first computer system is in communication with the second computer system; and automatically send, over a network via the first application, the copy of the second file to the second application at the second computer system responsive to the determination that the first computer system is in communication with the second computer system and responsive to receiving the copy of the second file from the computer third computer system, wherein, responsive to sending the copy of the first file to the third computer	determine whether the first electronic device is in communication with the second electronic device; and automatically send, via the first application, the modified second electronic file copy to the second application at the second electronic device responsive to the determination that the first electronic device is in communication with the second electronic device and responsive to receiving the modified second electronic file copy from the third electronic device, wherein, responsive to sending the

system, an older version of the first file stored on the third computer system is automatically caused to be replaced with the copy of the first file such that the copy of the first file is stored on the third computer system in lieu of the older version of the first file, and wherein, responsive to sending the copy of the second file to the second computer system, an older version of the second file stored on the second computer system is automatically caused to be replaced with the copy of the second file such that the copy of the second file is stored on the second computer system in lieu of the older version of the second file	modified first electronic file copy to the third electronic device, an older version of the first electronic file stored on the third electronic device is automatically caused to be replaced with the modified first electronic file copy such that the modified first electronic file copy is stored on the third electronic device in lieu of the older version of the first electronic file, and wherein, responsive to sending the modified second electronic file copy to the second electronic device, an older version of the second electronic file stored on the second electronic device is automatically caused to be replaced with the modified second electronic file copy such that the modified second electronic file copy is stored on the second electronic device in lieu of the older version of the second electronic file
Claim 2,11: wherein at least one of the second application or the third application	Claim 2,11 wherein at least one of the first and second electronic devices includes a

comprises a runtime environment for mobile-agent objects.	runtime environment for mobile-agent objects.
Claim 3: wherein the first computer system is caused to: store, via the first application, the copy of the first file to a memory device associated with the first computer system	Claim 3,12 wherein the first electronic device is configured to: store, via the first application, the modified first electronic file copy to a memory device associated with the first electronic device
Claim 4: wherein the copy of the first file is stored on the memory device associated with the first computer system in lieu of an older version of the first file copy that was stored on the memory device associated with the first computer system	Claim 4,13 wherein the modified first electronic file copy is stored on the memory device associated with the first electronic device in lieu of an older version of the first electronic file copy that was stored on the memory device associated with the first electronic device
Claim 5 wherein the copy of the first file is stored on the memory device associated with the first computer system responsive to a determination that the first computer	Claim 5,14 wherein the modified first electronic file copy is stored on the memory device associated with the first electronic device responsive to a determination that the

system is not in communication with the third computer system	first electronic device is not in communication with the third electronic device
Claim 6,13 wherein the first computer system is caused to: responsive to resuming communication with the third computer system, automatically send, over a network via the first application, the copy of the first file to the third computer system to cause the older version of the first file stored on the third computer system to be replaced with the copy of the first file	Claim 6,15 wherein the first electronic device is configured to: responsive to resuming communication with the third electronic device, automatically transfer, via the first application, the modified first electronic file copy to the third electronic device to cause the older version of the first electronic file stored on the third electronic device to be replaced with the modified first electronic file copy
Claim 7,14 wherein the second application is operable to create a first mobile object, and wherein the first mobile object is operable to create a proxy object at the first computer system.	Claim 7,16 wherein the second application is operable to create a first mobile object, and wherein the first mobile object is operable to create a proxy object at the first electronic device

It would have been obvious to a person of ordinary skill was made to modify and/or to omit the additional elements of claim 1-18 of US Patent No. **10,067,942** to arrive at the claims 1-20 of the instant application **16/017,348** because the ordinary skilled person would have realized that the remaining element(s) would perform the same function as before. addition and/or Omission of elements and its function in combination is obvious expedient if the remaining elements perform same functions as before.

Claim Rejections – 35 USC § 101

35 USC 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture and composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

11. Claims 1-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 1,10,17,19 are rejected under 35 USC 101 because the claimed invention is directed to a judicial exception (i.e, a law of nature, a natural phenomenon, or an abstract idea) without significantly more. The claim(s) 1,10,17,19 do not include additional elements that are sufficient to amount to "significantly more" than the judicial exception because the additional elements, which are recited at a high level of generality, provide conventional computer applications copy files in a network environment

Claim 1,10,17,19, recites, in part a copy of a first file from a second application at a second computer system associated with a user, wherein the copy of the first file is automatically received from the second application responsive to the user modifying a content of the first file stored on the second computer system, determine whether the first computer system is in communication with a third computer system associated with the user;

automatically send, over a network via the first application, the copy of the first file to a third application at the third computer system responsive to the determination, an older version of the first file stored on the third computer system - as abstract ideas by the courts, such as in *Electric Power Group, LLC*. All of these concepts relate to

receiving, collection, copy files, and analyzing, modify content, presenting and/or generating information of a specified content and not any particular assertedly inventive technology for performing workflow. The concept described in claims 1,10,17,19 are not meaningfully different than those concepts found by the courts to be abstract idea for example in *Electric Power Group, LLC*. As such, the description in claim 1,10,17,19 merely performing receiving a copy of file, determing step, automatically send over network, automatically receive multiple applications, file versions is considered as workflow process is an abstract idea. They are therefore directed to an abstract idea.

The claim(s) 1,10,17,19 do not include additional elements that are sufficient to amount to significantly more than the judicial exception because the additional elements when considered both individually and as an ordered combination do not amount to significantly more than the abstract idea and claim(s) 1,10,17,19 at issue are directed to a patent-ineligible concept, *Alice,*134 S.Ct. at 2355. The claim(s) 1,10,17,19 recites the additional limitations "responsive to sending the copy of the first file to the third computer system, an older version of the first file stored on the third computer system is automatically caused to be replaced with the copy of the first file such that the copy of the first file is stored on the third computer system in lieu of the older version of the first file, responsive to sending the copy of the second file to the second computer system, an older version of the second file stored on the second computer system is automatically caused to be replaced with the copy of the second file such that the copy of the second file is stored on the second computer system in lieu of the older version of the second file" is simply implementing workflow file version(s) routines is abstract idea.

Examiner notes the following on "significantly more"

The Supreme Court has identified a number of considerations for determining whether a claim with additional elements amounts to significantly more than the judicial exception itself. The following are examples of these considerations, which are not intended to be exclusive or limiting. Limitations that may be enough to qualify as "significantly more" when recited in a claim with a judicial exception include:

- Improvements to another technology or technical field:
- Improvements to the functioning of the computer itself;
- Applying the judicial exception with, or by use of, a particular machine;
- Effecting a transformation or reduction of a particular article to a different state or thing;

Thus, taken alone, the additional elements do not amount to significantly more than the above-identified judicial exception implementing copy of a first file,….copy of a second file from the third application….generated from the user modifying the content of the second file…..representing routine workflow……(the abstract idea). *MPEP 2106.05(f)*. Looking at the limitations as an ordered combination adds nothing that is not already present when looking at the elements taken individually. There is no indication that the combination of elements improves the neither distributed file management workflow nor file version(s) modifying the content of the file(s). Electric *Power Group, LLC* and *Int. Ventures v. Erie Indemnity*.

As to Claim 2,11, depend on claim 1,10 and includes all the limitations of claim 1,13. Therefore, claim 2,11 recites the same abstract idea of "wherein at least one of the second application or the third application comprises a runtime environment for mobile-agent objects" - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 2,11 are not drawn to eligible subject matter as they are directed to an abstract idea without significantly more.

As to Claim 3 depend on claim 1, and includes all the limitations of claim 1. Therefore, claim 3 recites the same abstract idea of "wherein the first computer system is caused to: store, via the first application, the copy of the first file to a memory device associated with the first computer system" - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 3 is not drawn to eligible subject matter as they are directed to an abstract idea without significantly more

As to Claim 4 depend on claim 1, and includes all the limitations of claim 1. Therefore, claim 4 recites the same abstract idea of wherein the copy of the first file is stored on the memory device associated with the first computer system in lieu of an older version of the first file copy that was stored on the memory device associated with the first computer system - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 4 is not drawn to eligible subject matter as they are directed to an abstract idea without significantly more

Claim 12 is rejected in the analysis of claim 3-4 above and claim 12 is rejected on that basis.

As to Claim 5 depend on claim 4, and includes all the limitations of claim 4. Therefore, claim 5 recites the same abstract idea of wherein the copy of the first file is stored on the memory device associated with the first computer system responsive to a determination that the first computer system is not in communication with the third computer system - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 5 is not drawn to eligible subject matter as they are directed to an abstract idea without significantly more

As to Claim 6,13, depend on claim 1,10 and includes all the limitations of claim 6,13. Therefore, claim 6,13 recites the same abstract idea of "wherein the first computer system is caused to: responsive to resuming communication with the third computer system, automatically send, over a network via the first application, the copy of the first file to the third computer system to cause the older version of the first file stored on the third computer system to be replaced with the copy of the first file" - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 6,13 are not drawn to eligible subject matter as they are directed to an abstract idea without significantly more.

As to Claim 7,14, depend on claim 1,10 and includes all the limitations of claim 7,14. Therefore, claim 7,14 recites the same abstract idea of "wherein the second application is operable to create a first mobile object, and wherein the first mobile object

is operable to create a proxy object at the first computer system" - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 7,14 are not drawn to eligible subject matter as they are directed to an abstract idea without significantly more

As to Claim 8,15, depend on claim 1,10 and includes all the limitations of claim 8,15. Therefore, claim 8,15 recites the same abstract idea of "wherein the first mobile object is operable to provide the copy of the first file to the proxy object" - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 8,15 are not drawn to eligible subject matter as they are directed to an abstract idea without significantly more

As to Claim 9,16, depend on claim 1,10 and includes all the limitations of claim 9,16. Therefore, claim 9,16 recites the same abstract idea of "wherein the proxy object is operable to store the copy of the first file on a memory device associated with the first computer system" - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 9,16 are not drawn to eligible subject matter as they are directed to an abstract idea without significantly more

As to Claim 18,20, depend on claim 17,19 and includes all the limitations of claim 18,20. Therefore, claim 18,20 recites the same abstract idea of "store, via the first application, the copy of the first file to a memory device associated with the first computer system, wherein the copy of the first file is stored on the memory device associated with the first computer system responsive to a determination that the first computer system is not in communication with the third computer system; and

responsive to resuming communication with the third computer system, automatically transfer, over a network via the first application, the copy of the first file to the third computer system to cause the older version of the first file stored on the third computer system to be replaced with the copy of the first file" - is merely extra solution activity and does not meaningfully limit the claim and is not an inventive concept meaningfully limits the abstract idea, therefore, claim 18,20 are not drawn to eligible subject matter as they are directed to an abstract idea without significantly more.

See MPEP 2106 - Electric Power Group: "Information as such is an intangible. See Microsoft Corp. v. AT & T Corp., 550 U.S. 437, 451 n.12 (2007); Bayer AG v. Housey Pharm., Inc., 340 F.3d 1367, 1372 (Fed. Cir. 2003).

Claim Rejections - 35 USC § 102

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (**pre-AIPA** 35 U.S.C. 102(e)).

12. ***Claim(s) 1-20 is/are rejected under pre-AIA 35 U.S.C. 102(e,a) as being anticipated by Mohanty, US Pub. No. 2007/0180084 filed on Feb 2006, published Aug 2007***.

13. As to Claim 1,10,17,19, Mohanty teaches a system which including A system comprising: (fig 1A)

"a first computer system comprising one or more processors programmed with computer program instructions that, when executed, cause the first computer system to:" (fig 1A – Mohanty teaches computer, storage devices, files stored supporting both hardware and software)

"receive, over a network via a first application at the first computer system" (fig 1A-1B, element 18, network element 20) , a copy of a first file from a second application at a second computer system associated with a user(fig 1A-1B, copy of a first file corresponds to files, element 25), "wherein the copy of the first file is automatically received from the second application responsive to the user modifying a content of the first file stored on the second computer system" (page 3, 0029, 0030,0032, page 4, 0034-0035, page 5, 0044, fig 1B-1C – Mohanty teaches multiple mobile devices sharing files in a network environment particularly over a communication network, further files of particular changes are sent as notification in synchronize files environment as detailed in fig 2, element 129,131), "the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file" (fig 2, element 140, page 5, 0047, fig 5, page 6, 0054, line 18-23 – Mohanty teaches maintaining file version(s), particularly notifying changes and/or updates to the file) ;

"determine whether the first computer system is in communication with a third computer system associated with the user" (fig 1A-1B, page 2, 0023-0024 – Mohanty teaches multiple mobile devices connected in a distributed computer network environment, particularly associated with sharing files);

"automatically send, over a network via the first application, the copy of the first file to a third application at the third computer system responsive to the determination that the first computer system is in communication with the third computer system and responsive to receiving the copy of the first file from the second computer system" (fig 1A-1B, page 2, 0024, page 3, 0025 – Mohanty teaches multiple mobile computing devices connected in a network environment configured to perform logical document

management particularly logical documents are distributed that enable mobile computing devices to have access to required files for example sharing a copy of the first file to other mobile computing device(s));

"receive, over a network via the first application, a copy of a second file from the third application at the third computer system, wherein the copy of the second file is automatically received from the third application responsive to the user modifying a content of the second file stored on the third computer system, the copy of the second file being a version of the second file that is generated from the user modifying the content of the second file" (fig 1A-1B, fig 3-4, page 6, 0050-0051 – Mohanty teaches file management system on mobile computing devices sharing files in a network environment particularly including identifying and tracking versions reflecting changes to a specific file as detailed in fig 3-4);

"determine whether the first computer system is in communication with the second computer system" (fig 1A-1B – Mohanty teaches multiple mobile computing devices connected in a network environment); and

"automatically send, over a network via the first application, the copy of the second file to the second application at the second computer system responsive to the determination that the first computer system is in communication with the second computer system and responsive to receiving the copy of the second file from the computer third computer system" (fig 1A-1C, page 2, 0024, page 3, 0027-0028 – Mohanty teaches multiple mobile computing devices connected in a network in sharing digital files particularly files distributed or synchronized on the associated mobile computing devices that both sends, and receives respective copy of the file(s));

"wherein, responsive to sending the copy of the first file to the third computer system, an older version of the first file stored on the third computer system is automatically caused to be replaced with the copy of the first file such that the copy of the first file is stored on the third computer system in lieu of the older version of the first file" (fig 3, page 6, 0050, 0052 – Mohanty teaches not only maintaining file versions, but also provides tracking versions thereby identifying, individual file versions and captures changes made to all files including updates transferred to local devices) and

"wherein, responsive to sending the copy of the second file to the second computer system, an older version of the second file stored on the second computer system is automatically caused to be replaced with the copy of the second file such that the copy of the second file is stored on the second computer system in lieu of the older version of the second file" (page 3, 0027, page 5, 0047, page 6, 0050, 0054, fig 3, fig 5 – Mohanty teaches file management system on mobile computing devices maintaining file versions of particular changes to the files, including tracking file changes ever made to each single file, further Mohanty supports files version control tracking not only change(s) and/or updates to the files, but also maintains file versions in the local devices, while resolving file conflicts between mobile computing devices.

14. As to Claim 2,11, Mohanty disclosed "wherein at least one of the second application or the third application comprises a runtime environment for mobile-agent objects" (fig 1A-1C, page 3, 0025 – Mohanty teaches distributed file management among multiple mobile computing devices sharing files, further files or objects from the mobile devices migrating from one host to another in a distributed system to perform actions)

15. As to Claim 3, Mohanty disclosed "wherein the first computer system is caused to: store, via the first application, the copy of the first file to a memory device associated with the first computer system" (page 3, 0025-0026, fig 1A-1C).

16. As to Claim 4, Mohanty disclosed "wherein the copy of the first file is stored on the memory device associated with the first computer system in lieu of an older version of the first file copy that was stored on the memory device associated with the first computer system" (page 3, 0027, page 5, 0047, page 6, 0050, 0054, fig 3, fig 5).

17. As to Claim 5, Mohanty disclosed "wherein the copy of the first file is stored on the memory device associated with the first computer system responsive to a determination that the first computer system is not in communication with the third computer system" (page 8, 0066 – Mohanty teaches access rights associated with the files, mobile computing devices thereby performing specific file(s) transfer and/or communication among selected mobile computing device(s) and target device(s)).

18. As to Claim 6, 13, Mohanty disclosed "wherein the first computer system is caused to: responsive to resuming communication with the third computer system, automatically send, over a network via the first application, the copy of the first file to the third computer system to cause the older version of the first file stored on the third computer system to be replaced with the copy of the first file" (fig 1A-1C, page 3, 0031-0032).

19. As to Claim 7,14, Mohanty disclosed "wherein the second application is operable to create a first mobile object, and wherein the first mobile object is operable to create a proxy object at the first computer system" (page 3, 0025-0026).

20. As to Claim 8,15, Mohanty disclosed "wherein the first mobile object is operable to provide the copy of the first file to the proxy object" (page 5, 0044-0045).

21. As to Claim 9,16, Mohanty disclosed "wherein the proxy object is operable to store the copy of the first file on a memory device associated with the first computer system" (page 4, 0042,0045).

22. As to Claim 18,20, Mohanty disclosed "wherein the first computer system is caused to:

store, via the first application, the copy of the first file to a memory device associated with the first computer system, wherein the copy of the first file is stored on the memory device associated with the first computer system responsive to a determination that the first computer system is not in communication with the third computer system" (fig 1A-1C, page 8, 0066 – Mohanty teaches access rights associated with the files, mobile computing devices thereby performing specific file(s) transfer and/or communication among selected mobile computing device(s) and target device(s).; and

responsive to resuming communication with the third computer system, automatically transfer, over a network via the first application, the copy of the first file

to the third computer system to cause the older version of the first file stored on the third computer system to be replaced with the copy of the first file (fig 1A-1C, fig 3, page 6, 0050, 0052) .

Conclusion

The prior art made of record

a. US Pub No. 20070180084

Examiner's Note: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

SEE MPEP 2141.02 [R-5] VI. PRIOR ART MUST BE CONSIDERED IN ITS ENTIRETY, INCLUDING DISCLOSURES THAT TEACH AWAY FROM THE CLAIMS: A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984) In re Fulton, 391 F.3d 1195, 1201,73 USPQ2d 1141, 1146 (Fed. Cir. 2004). >See also MPEP §2123.

In the case of amending the Claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

The prior art made of record, listed on form PTO-892, and not relied upon, if any, is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Srirama Channavajjala whose telephone number is 571-272-4108. The examiner can normally be reached on Monday-Friday from 8:00 AM to 5:30 PM Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Trujillo James, can be reached on (571) 272- 3677. The fax phone numbers for the organization where the application or proceeding is assigned is 571-273-8300 Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)

/Srirama Channavajjala/
Primary Examiner, Art Unit 2157

Notice of References Cited	Application/Control No. 16/017,348	Applicant(s)/Patent Under Reexamination	
	Examiner Srirama T Channavajjala	Art Unit 2157	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20070180084-A1	08-2007	Mohanty; Subhashis	G06F11/1451	709/223
*	B	US-10067942-B2	09-2018	Manzano; Michael R.	G06F17/30082	1/1
*	C	US-9143561-B2	09-2015	Manzano; Michael R.	G06F17/30174	1/1
*	D	US-20070022158-A1	01-2007	Vasa; Yojak	H04M1/72522	709/204
*	E	US-20120192064-A1	07-2012	Antebi; Oudi	G06F17/2288	715/255
*	F	US-20130226872-A1	08-2013	Barefoot; Christopher B.	G06F17/30575	707/638
*	G	US-7325038-B1	01-2008	Wang; James Y.	G06F9/543	707/999.01
*	H	US-5675802-A	10-1997	Allen; Larry W.	G06F8/71	707/999.202
*	I	US-6526418-B1	02-2003	Midgley; Christopher	G06F11/1451	707/640
*	J	US-6757893-B1	06-2004	Haikin; John S.	G06F8/71	717/170
*	K	US-5920867-A	07-1999	Van Huben; Gary Alan	G06F17/30362	1/1
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FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/017,348	Manzano, Michael R.
	Examiner	**Art Unit**
	Srirama T Channavajjala	2157

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/06/2018								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
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	15	✓								
	16	✓								
	17	✓								
	18	✓								
	19	✓								
	20	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/017,348	Manzano, Michael R.
	Examiner	**Art Unit**
	Srirama T Channavajjala	2157

CPC - Searched*		
Symbol	**Date**	**Examiner**
G06F 17/30082;30067;3023;30194;30082;30174;30362	09/07/2018	sc

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
Inventor searched	09/06/2018	sc
PLUS search	09/06/2018	sc
IP.COM search attached	09/06/2018	sc
EAST search attached	09/06/2018	sc

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**

/Srirama Channavajjala/ Primary Examiner, Art Unit 2157	

Last Modified: 20180906

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	5	L1 AND ((G06F17/30132 OR G06F8/61 OR G06F8/65 OR G06F17/30176 OR G06F17/3023 OR G06F8/71).CPC.) and file$1 and transfer$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/09/07 12:56
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L8	1	"20060062426".PN.	US-PGPUB	OR	OFF	2018/09/07 12:56
L9	1	"20060075225".PN.	US-PGPUB	OR	OFF	2018/09/07 12:56
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L12	1	"20070265977".PN.	US-PGPUB	OR	OFF	2018/09/07 12:56
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EAST Search History (Prior Art)

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EAST Search History (Prior Art)

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EAST Search History (Prior Art)

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EAST Search History (Prior Art)

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L47	1	15 and (old near5 version$1)	USPAT	OR	OFF	2018/09/07 13:23
L49	39	48 and (file adj5 copy)	USPAT	OR	OFF	2018/09/07 13:24

EAST Search History (Prior Art)

L51	18	49 AND ((Y10S707/99953 OR G06F8/71 OR Y10S707/99955 OR Y10S707/99954 OR Y10S707/99938 OR Y10S707/99942 OR Y10S707/99939 OR G06F11/1461 OR G06F11/2071 OR G06F17/30067 OR G06F11/1451 OR G06F11/1464 OR G06F11/2058 OR G06F11/2082 OR G06F2201/855 OR G06F3/0689 OR Y10S707/99943 OR Y10S707/99952 OR G06F11/1435 OR G06F11/1471 OR G06F11/2064 OR G06F11/2094 OR G06F17/30165 OR G06F17/30233 OR G06F21/6218 OR G06F3/0659 OR G06F9/542 OR Y10S707/99931 OR Y10S707/99933 OR G06F11/1076 OR G06F11/1458 OR G06F11/1466 OR G06F11/1469 OR G06F11/1662 OR G06F11/201 OR G06F11/2056 OR G06F11/2069 OR G06F11/2097 OR G06F12/0284 OR G06F12/109 OR G06F13/1657 OR G06F17/30082 OR G06F17/30088 OR G06F17/30171 OR G06F17/30194 OR G06F17/30212 OR G06F17/3023 OR G06F17/30362 OR G06F2003/0697 OR G06F2201/80 OR G06F2211/105 OR G06F2212/656 OR G06F3/0601 OR G06F3/0607 OR G06F3/061 OR G06F3/0611 OR G06F3/0614 OR G06F3/0619 OR G06F3/064 OR G06F3/0644 OR G06F8/65 OR G06F9/3844 OR G06F9/4488).CPC.) and (modify$3 near5 file$1)	USPAT	OR	OFF	2018/09/07 13:26

EAST Search History (Prior Art)

L53	1	49 AND ((Y10S707/99953 OR G06F8/71 OR Y10S707/99955 OR Y10S707/99954 OR Y10S707/99938 OR Y10S707/99942 OR Y10S707/99939 OR G06F11/1461 OR G06F11/2071 OR G06F17/30067 OR G06F11/1451 OR G06F11/1464 OR G06F11/2058 OR G06F11/2082 OR G06F2201/855 OR G06F3/0689 OR Y10S707/99943 OR Y10S707/99952 OR G06F11/1435 OR G06F11/1471 OR G06F11/2064 OR G06F11/2094 OR G06F17/30165 OR G06F17/30233 OR G06F21/6218 OR G06F3/0659 OR G06F9/542 OR Y10S707/99931 OR Y10S707/99933 OR G06F11/1076 OR G06F11/1458 OR G06F11/1466 OR G06F11/1469 OR G06F11/1662 OR G06F11/201 OR G06F11/2056 OR G06F11/2069 OR G06F11/2097 OR G06F12/0284 OR G06F12/109 OR G06F13/1657 OR G06F17/30082 OR G06F17/30088 OR G06F17/30171 OR G06F17/30194 OR G06F17/30212 OR G06F17/3023 OR G06F17/30362 OR G06F2003/0697 OR G06F2201/80 OR G06F2211/105 OR G06F2212/656 OR G06F3/0601 OR G06F3/0607 OR G06F3/061 OR G06F3/0611 OR G06F3/0614 OR G06F3/0619 OR G06F3/064 OR G06F3/0644 OR G06F8/65 OR G06F9/3844 OR G06F9/4488).CPC.) and (modify$3 near5 file$1) and proxy	USPAT	OR	OFF	2018/09/07 13:27

EAST Search History (Prior Art)

L54	10	49 AND ((Y10S707/99953 OR G06F8/71 OR Y10S707/99955 OR Y10S707/99954 OR Y10S707/99938 OR Y10S707/99942 OR Y10S707/99939 OR G06F11/1461 OR G06F11/2071 OR G06F17/30067 OR G06F11/1451 OR G06F11/1464 OR G06F11/2058 OR G06F11/2082 OR G06F2201/855 OR G06F3/0689 OR Y10S707/99943 OR Y10S707/99952 OR G06F11/1435 OR G06F11/1471 OR G06F11/2064 OR G06F11/2094 OR G06F17/30165 OR G06F17/30233 OR G06F21/6218 OR G06F3/0659 OR G06F9/542 OR Y10S707/99931 OR Y10S707/99933 OR G06F11/1076 OR G06F11/1458 OR G06F11/1466 OR G06F11/1469 OR G06F11/1662 OR G06F11/201 OR G06F11/2056 OR G06F11/2069 OR G06F11/2097 OR G06F12/0284 OR G06F12/109 OR G06F13/1657 OR G06F17/30082 OR G06F17/30088 OR G06F17/30171 OR G06F17/30194 OR G06F17/30212 OR G06F17/3023 OR G06F17/30362 OR G06F2003/0697 OR G06F2201/80 OR G06F2211/105 OR G06F2212/656 OR G06F3/0601 OR G06F3/0607 OR G06F3/061 OR G06F3/0611 OR G06F3/0614 OR G06F3/0619 OR G06F3/064 OR G06F3/0644 OR G06F8/65 OR G06F9/3844 OR G06F9/4488).CPC.) and (modify$3 near5 file$1) and (generat$3 near5 file$1)	USPAT	OR	OFF	2018/09/07 13:27

EAST Search History (Prior Art)

L55	1	49 AND ((Y10S707/99953 OR G06F8/71 OR Y10S707/99955 OR Y10S707/99954 OR Y10S707/99938 OR Y10S707/99942 OR Y10S707/99939 OR G06F11/1461 OR G06F11/2071 OR G06F17/30067 OR G06F11/1451 OR G06F11/1464 OR G06F11/2058 OR G06F11/2082 OR G06F2201/855 OR G06F3/0689 OR Y10S707/99943 OR Y10S707/99952 OR G06F11/1435 OR G06F11/1471 OR G06F11/2064 OR G06F11/2094 OR G06F17/30165 OR G06F17/30233 OR G06F21/6218 OR G06F3/0659 OR G06F9/542 OR Y10S707/99931 OR Y10S707/99933 OR G06F11/1076 OR G06F11/1458 OR G06F11/1466 OR G06F11/1469 OR G06F11/1662 OR G06F11/201 OR G06F11/2056 OR G06F11/2069 OR G06F11/2097 OR G06F12/0284 OR G06F12/109 OR G06F13/1657 OR G06F17/30082 OR G06F17/30088 OR G06F17/30171 OR G06F17/30194 OR G06F17/30212 OR G06F17/3023 OR G06F17/30362 OR G06F2003/0697 OR G06F2201/80 OR G06F2211/105 OR G06F2212/656 OR G06F3/0601 OR G06F3/0607 OR G06F3/061 OR G06F3/0611 OR G06F3/0614 OR G06F3/0619 OR G06F3/064 OR G06F3/0644 OR G06F8/65 OR G06F9/3844 OR G06F9/4488).CPC.) and (modify$3 near5 file$1) and (generat$3 near5 file$1) and (replac$3 near5 copy)	USPAT	OR	OFF	2018/09/07 13:28
L59	22	(mobile near5 object$1) and (mobile near5 agent$1) and (distribut$3 near5 file$1) and @py<="2007"	USPAT	OR	OFF	2018/09/07 13:31

EAST Search History (Prior Art)

L60	4	59 AND ((G06F21/10 OR G06F2221/2135 OR G06Q20/02 OR G06Q20/12 OR G06Q20/24 OR G06F21/86 OR G06F2211/007 OR G06F2221/0737 OR G06F2221/2101 OR G06Q20/04 OR G06Q20/1235 OR G07F9/026 OR H04L2463/101 OR H04L63/20 OR H04N21/25875 OR G06F2221/2151 OR G06Q20/023 OR G06Q30/06 OR H04L2463/102 OR H04L2463/103 OR H04N21/2347 OR H04N21/235 OR H04N21/2362 OR H04N21/2541 OR H04N21/2543 OR H04N21/2547 OR H04N21/4143 OR H04N21/4345 OR H04N21/435 OR H04N21/4405 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/4753 OR H04N21/6581 OR H04N21/835 OR H04N21/83555 OR H04N21/8358 OR H04N7/162 OR H04N7/17309 OR G06F21/31 OR G06F21/33 OR G06F2221/0797 OR H04N21/8355 OR G06F17/30598 OR G06F21/6209 OR G06Q20/10 OR G06Q30/00 OR G06Q30/0257 OR G06Q30/0271 OR G06Q99/00 OR G08B2001/085 OR H04L63/123 OR G06F21/71 OR G06F2221/2137 OR G06Q10/10 OR G06Q20/085 OR G06Q20/102 OR G06Q20/14 OR G06Q20/389 OR G06Q20/401 OR H04L63/102 OR H04L9/3218 OR H04L9/3247 OR G06F21/32 OR G06Q10/063112 OR G06Q10/06314 OR G06Q10/06398 OR G06Q10/087 OR G06Q40/00 OR G06Q40/02 OR G06Q40/04 OR G06Q50/184 OR H04L63/16 OR H04L63/168 OR H04L67/1095 OR H04L67/16 OR H04L67/22).CPC.) and (first near5 file)	USPAT	OR	OFF	2018/09/07 13:32

EAST Search History (Prior Art)

L61	1	59 AND ((G06F21/10 OR G06F2221/2135 OR G06Q20/02 OR G06Q20/12 OR G06Q20/24 OR G06F21/86 OR G06F2211/007 OR G06F2221/0737 OR G06F2221/2101 OR G06Q20/04 OR G06Q20/1235 OR G07F9/026 OR H04L2463/101 OR H04L63/20 OR H04N21/25875 OR G06F2221/2151 OR G06Q20/023 OR G06Q30/06 OR H04L2463/102 OR H04L2463/103 OR H04N21/2347 OR H04N21/235 OR H04N21/2362 OR H04N21/2541 OR H04N21/2543 OR H04N21/2547 OR H04N21/4143 OR H04N21/4345 OR H04N21/435 OR H04N21/4405 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/4753 OR H04N21/6581 OR H04N21/835 OR H04N21/83555 OR H04N21/8358 OR H04N7/162 OR H04N7/17309 OR G06F21/31 OR G06F21/33 OR G06F2221/0797 OR H04N21/8355 OR G06F17/30598 OR G06F21/6209 OR G06Q20/10 OR G06Q30/00 OR G06Q30/0257 OR G06Q30/0271 OR G06Q99/00 OR G08B2001/085 OR H04L63/123 OR G06F21/71 OR G06F2221/2137 OR G06Q10/10 OR G06Q20/085 OR G06Q20/102 OR G06Q20/14 OR G06Q20/389 OR G06Q20/401 OR H04L63/102 OR H04L9/3218 OR H04L9/3247 OR G06F21/32 OR G06Q10/063112 OR G06Q10/06314 OR G06Q10/06398 OR G06Q10/087 OR G06Q40/00 OR G06Q40/02 OR G06Q40/04 OR G06Q50/184 OR H04L63/16 OR H04L63/168 OR H04L67/1095 OR H04L67/16 OR H04L67/22).CPC.) and (mobile near5 device$1)	USPAT	OR	OFF	2018/09/07 13:33

EAST Search History (Prior Art)

L62	19	59 AND ((G06F21/10 OR G06F2221/2135 OR G06Q20/02 OR G06Q20/12 OR G06Q20/24 OR G06F21/86 OR G06F2211/007 OR G06F2221/0737 OR G06F2221/2101 OR G06Q20/04 OR G06Q20/1235 OR G07F9/026 OR H04L2463/101 OR H04L63/20 OR H04N21/25875 OR G06F2221/2151 OR G06Q20/023 OR G06Q30/06 OR H04L2463/102 OR H04L2463/103 OR H04N21/2347 OR H04N21/235 OR H04N21/2362 OR H04N21/2541 OR H04N21/2543 OR H04N21/2547 OR H04N21/4143 OR H04N21/4345 OR H04N21/435 OR H04N21/4405 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/4753 OR H04N21/6581 OR H04N21/835 OR H04N21/83555 OR H04N21/8358 OR H04N7/162 OR H04N7/17309 OR G06F21/31 OR G06F21/33 OR G06F2221/0797 OR H04N21/8355 OR G06F17/30598 OR G06F21/6209 OR G06Q20/10 OR G06Q30/00 OR G06Q30/0257 OR G06Q30/0271 OR G06Q99/00 OR G08B2001/085 OR H04L63/123 OR G06F21/71 OR G06F2221/2137 OR G06Q10/10 OR G06Q20/085 OR G06Q20/102 OR G06Q20/14 OR G06Q20/389 OR G06Q20/401 OR H04L63/102 OR H04L9/3218 OR H04L9/3247 OR G06F21/32 OR G06Q10/063112 OR G06Q10/06314 OR G06Q10/06398 OR G06Q10/087 OR G06Q40/00 OR G06Q40/02 OR G06Q40/04 OR G06Q50/184 OR H04L63/16 OR H04L63/168 OR H04L67/1095 OR H04L67/16 OR H04L67/22).CPC.) and version$1	USPAT	OR	OFF	2018/09/07 13:33

EAST Search History (Prior Art)

L63	19	59 AND ((G06F21/10 OR G06F2221/2135 OR G06Q20/02 OR G06Q20/12 OR G06Q20/24 OR G06F21/86 OR G06F2211/007 OR G06F2221/0737 OR G06F2221/2101 OR G06Q20/04 OR G06Q20/1235 OR G07F9/026 OR H04L2463/101 OR H04L63/20 OR H04N21/25875 OR G06F2221/2151 OR G06Q20/023 OR G06Q30/06 OR H04L2463/102 OR H04L2463/103 OR H04N21/2347 OR H04N21/235 OR H04N21/2362 OR H04N21/2541 OR H04N21/2543 OR H04N21/2547 OR H04N21/4143 OR H04N21/4345 OR H04N21/435 OR H04N21/4405 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/4753 OR H04N21/6581 OR H04N21/835 OR H04N21/83555 OR H04N21/8358 OR H04N7/162 OR H04N7/17309 OR G06F21/31 OR G06F21/33 OR G06F2221/0797 OR H04N21/8355 OR G06F17/30598 OR G06F21/6209 OR G06Q20/10 OR G06Q30/00 OR G06Q30/0257 OR G06Q30/0271 OR G06Q99/00 OR G08B2001/085 OR H04L63/123 OR G06F21/71 OR G06F2221/2137 OR G06Q10/10 OR G06Q20/085 OR G06Q20/102 OR G06Q20/14 OR G06Q20/389 OR G06Q20/401 OR H04L63/102 OR H04L9/3218 OR H04L9/3247 OR G06F21/32 OR G06Q10/063112 OR G06Q10/06314 OR G06Q10/06398 OR G06Q10/087 OR G06Q40/00 OR G06Q40/02 OR G06Q40/04 OR G06Q50/184 OR H04L63/16 OR H04L63/168 OR H04L67/1095 OR H04L67/16 OR H04L67/22).CPC.) and version$1 and network$3	USPAT	OR	OFF	2018/09/07 13:33

EAST Search History (Prior Art)

L64	19	59 AND ((G06F21/10 OR G06F2221/2135 OR G06Q20/02 OR G06Q20/12 OR G06Q20/24 OR G06F21/86 OR G06F2211/007 OR G06F2221/0737 OR G06F2221/2101 OR G06Q20/04 OR G06Q20/1235 OR G07F9/026 OR H04L2463/101 OR H04L63/20 OR H04N21/25875 OR G06F2221/2151 OR G06Q20/023 OR G06Q30/06 OR H04L2463/102 OR H04L2463/103 OR H04N21/2347 OR H04N21/235 OR H04N21/2362 OR H04N21/2541 OR H04N21/2543 OR H04N21/2547 OR H04N21/4143 OR H04N21/4345 OR H04N21/435 OR H04N21/4405 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/4753 OR H04N21/6581 OR H04N21/835 OR H04N21/83555 OR H04N21/8358 OR H04N7/162 OR H04N7/17309 OR G06F21/31 OR G06F21/33 OR G06F2221/0797 OR H04N21/8355 OR G06F17/30598 OR G06F21/6209 OR G06Q20/10 OR G06Q30/00 OR G06Q30/0257 OR G06Q30/0271 OR G06Q99/00 OR G08B2001/085 OR H04L63/123 OR G06F21/71 OR G06F2221/2137 OR G06Q10/10 OR G06Q20/085 OR G06Q20/102 OR G06Q20/14 OR G06Q20/389 OR G06Q20/401 OR H04L63/102 OR H04L9/3218 OR H04L9/3247 OR G06F21/32 OR G06Q10/063112 OR G06Q10/06314 OR G06Q10/06398 OR G06Q10/087 OR G06Q40/00 OR G06Q40/02 OR G06Q40/04 OR G06Q50/184 OR H04L63/16 OR H04L63/168 OR H04L67/1095 OR H04L67/16 OR H04L67/22).CPC.) and version$1 and network$3 and copy	USPAT	OR	OFF	2018/09/07 13:33

EAST Search History (Prior Art)

L65	19	59 AND ((G06F21/10 OR G06F2221/2135 OR G06Q20/02 OR G06Q20/12 OR G06Q20/24 OR G06F21/86 OR G06F2211/007 OR G06F2221/0737 OR G06F2221/2101 OR G06Q20/04 OR G06Q20/1235 OR G07F9/026 OR H04L2463/101 OR H04L63/20 OR H04N21/25875 OR G06F2221/2151 OR G06Q20/023 OR G06Q30/06 OR H04L2463/102 OR H04L2463/103 OR H04N21/2347 OR H04N21/235 OR H04N21/2362 OR H04N21/2541 OR H04N21/2543 OR H04N21/2547 OR H04N21/4143 OR H04N21/4345 OR H04N21/435 OR H04N21/4405 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/4753 OR H04N21/6581 OR H04N21/835 OR H04N21/83555 OR H04N21/8358 OR H04N7/162 OR H04N7/17309 OR G06F21/31 OR G06F21/33 OR G06F2221/0797 OR H04N21/8355 OR G06F17/30598 OR G06F21/6209 OR G06Q20/10 OR G06Q30/00 OR G06Q30/0257 OR G06Q30/0271 OR G06Q99/00 OR G08B2001/085 OR H04L63/123 OR G06F21/71 OR G06F2221/2137 OR G06Q10/10 OR G06Q20/085 OR G06Q20/102 OR G06Q20/14 OR G06Q20/389 OR G06Q20/401 OR H04L63/102 OR H04L9/3218 OR H04L9/3247 OR G06F21/32 OR G06Q10/063112 OR G06Q10/06314 OR G06Q10/06398 OR G06Q10/087 OR G06Q40/00 OR G06Q40/02 OR G06Q40/04 OR G06Q50/184 OR H04L63/16 OR H04L63/168 OR H04L67/1095 OR H04L67/16 OR H04L67/22).CPC.) and version$1 and network$3 and copy and application$1	USPAT	OR	OFF	2018/09/07 13:33

EAST Search History (Prior Art)

L66	12	59 AND ((G06F21/10 OR G06F2221/2135 OR G06Q20/02 OR G06Q20/12 OR G06Q20/24 OR G06F21/86 OR G06F2211/007 OR G06F2221/0737 OR G06F2221/2101 OR G06Q20/04 OR G06Q20/1235 OR G07F9/026 OR H04L2463/101 OR H04L63/20 OR H04N21/25875 OR G06F2221/2151 OR G06Q20/023 OR G06Q30/06 OR H04L2463/102 OR H04L2463/103 OR H04N21/2347 OR H04N21/235 OR H04N21/2362 OR H04N21/2541 OR H04N21/2543 OR H04N21/2547 OR H04N21/4143 OR H04N21/4345 OR H04N21/435 OR H04N21/4405 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/4753 OR H04N21/6581 OR H04N21/835 OR H04N21/83555 OR H04N21/8358 OR H04N7/162 OR H04N7/17309 OR G06F21/31 OR G06F21/33 OR G06F2221/0797 OR H04N21/8355 OR G06F17/30598 OR G06F21/6209 OR G06Q20/10 OR G06Q30/00 OR G06Q30/0257 OR G06Q30/0271 OR G06Q99/00 OR G08B2001/085 OR H04L63/123 OR G06F21/71 OR G06F2221/2137 OR G06Q10/10 OR G06Q20/085 OR G06Q20/102 OR G06Q20/14 OR G06Q20/389 OR G06Q20/401 OR H04L63/102 OR H04L9/3218 OR H04L9/3247 OR G06F21/32 OR G06Q10/063112 OR G06Q10/06314 OR G06Q10/06398 OR G06Q10/087 OR G06Q40/00 OR G06Q40/02 OR G06Q40/04 OR G06Q50/184 OR H04L63/16 OR H04L63/168 OR H04L67/1095 OR H04L67/16 OR H04L67/22).CPC.) and version$1 and network$3 and copy and application$1 and replac$3	USPAT	OR	OFF	2018/09/07 13:33

EAST Search History (Prior Art)

L68	7	59 AND ((G06F21/10 OR G06F2221/2135 OR G06Q20/02 OR G06Q20/12 OR G06Q20/24 OR G06F21/86 OR G06F2211/007 OR G06F2221/0737 OR G06F2221/2101 OR G06Q20/04 OR G06Q20/1235 OR G07F9/026 OR H04L2463/101 OR H04L63/20 OR H04N21/25875 OR G06F2221/2151 OR G06Q20/023 OR G06Q30/06 OR H04L2463/102 OR H04L2463/103 OR H04N21/2347 OR H04N21/235 OR H04N21/2362 OR H04N21/2541 OR H04N21/2543 OR H04N21/2547 OR H04N21/4143 OR H04N21/4345 OR H04N21/435 OR H04N21/4405 OR H04N21/44204 OR H04N21/443 OR H04N21/4627 OR H04N21/4753 OR H04N21/6581 OR H04N21/835 OR H04N21/83555 OR H04N21/8358 OR H04N7/162 OR H04N7/17309 OR G06F21/31 OR G06F21/33 OR G06F2221/0797 OR H04N21/8355 OR G06F17/30598 OR G06F21/6209 OR G06Q20/10 OR G06Q30/00 OR G06Q30/0257 OR G06Q30/0271 OR G06Q99/00 OR G08B2001/085 OR H04L63/123 OR G06F21/71 OR G06F2221/2137 OR G06Q10/10 OR G06Q20/085 OR G06Q20/102 OR G06Q20/14 OR G06Q20/389 OR G06Q20/401 OR H04L63/102 OR H04L9/3218 OR H04L9/3247 OR G06F21/32 OR G06Q10/063112 OR G06Q10/06314 OR G06Q10/06398 OR G06Q10/087 OR G06Q40/00 OR G06Q40/02 OR G06Q40/04 OR G06Q50/184 OR H04L63/16 OR H04L63/168 OR H04L67/1095 OR H04L67/16 OR H04L67/22).CPC.) and version$1 and network$3 and copy and application$1 and replac$3 and (memory near5 device$1)	USPAT	OR	OFF	2018/09/07 13:34

FORM PTO-1449 (modified)
To: U.S. Department of Commerce
(PW FORM PAT-1449)
Patent and Trademark Office

Atty. Dkt. No.	M#	
023027	0459211	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Inventor(s): Michael R. MANZANO

Appln. No.: 16/017,348

Filing Date: June 25, 2018

Date: August 22, 2018 Page 1 of 9

Examiner: Srirama T. CHANNAVAJJALA | Group Art Unit: 2157

U.S. PATENT DOCUMENTS

Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	Sub Class	Filing Date (if appropriate)
	AR	6,463,463	10/2002	GODFREY et al.			
	BR	6,504,994	01/2003	KAWAMURA et al.			
	CR	6,505,200	01/2003	IMS et al.			
	DR	6,611,849	08/2003	RAFF et al.			
	ER	6,671,700	12/2003	CREEMER et al.			
	FR	6,708,221	03/2004	MENDEZ et al.			
	GR	6,757,696	06/2004	MULTER et al.			
	HR	6,760,759	07/2004	CHAN			
	IR	6,810,405	10/2004	LARUE et al.			
	JR	6,829,622	12/2004	BEYDA			
	KR	6,874,037	03/2005	ABRAM et al.			
	LR	6,931,454	08/2005	DESHPANDE et al.			
	MR	6,990,522	01/2006	WU			
	NR	7,024,428	04/2006	HUANG et al.			
	OR	7,054,594	05/2006	BLOCH et al.			

FOREIGN PATENT DOCUMENTS

		Document Number	Date MM/YYYY	Country	Inventor Name	English Abstract		Translation Readily Available	
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Examiner /Srirama Channavajjala/ Date Considered: 09/06/2018

*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.C./

FORM PTO-1449 (modified)
To: U.S. Department of Commerce
(PW FORM PAT-1449)
Patent and Trademark Office

Atty. Dkt. No.	M#	
023027	0459211	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Inventor(s): Michael R. MANZANO

Appln. No.: 16/017,348

Filing Date: June 25, 2018

Date: August 22, 2018 Page 2 of 9

Examiner: Srirama T. CHANNAVAJJALA | Group Art Unit: 2157

U.S. PATENT DOCUMENTS

Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	Sub Class	Filing Date (if appropriate)
	UR	7,065,658	06/2006	BARABAN et al.			
	VR	7,089,307	08/2006	ZINTEL et al.			
	WR	7,155,488	12/2006	LUNSFORD et al.			
	XR	7,243,163	07/2007	FRIEND et al.			
	YR	7,269,433	09/2007	VARGAS et al.			
	ZR	7,290,244	10/2007	PECK et al.			
	AAR	7,340,534	03/2008	CAMERON et al.			
	BBR	7,398,327	07/2008	LEE			
	CCR	7,415,615	08/2008	SKYGEBJER			
	DDR	7,457,631	11/2008	YACH et al.			
	EER	7,467,353	12/2008	KURLANDER et al.			
	FFR	7,483,925	01/2009	KOSKIMIES et al.			
	GGR	7,526,575	04/2009	RABBERS et al.			
	HHR	7,574,711	08/2009	ZONDERVAN et al.			
	IIR	7,584,186	09/2009	CHEN et al.			

FOREIGN PATENT DOCUMENTS

		Document Number	Date MM/YYYY	Country	Inventor Name	English Abstract		Translation Readily Available	
						Enclosed	No	Enclose	No
	JJR								

OTHER (Including in this order Author, Title, Periodical Name, Date, Pertinent Pages, etc.)

	KKR				
	LLR				
	MM				
	NNR				

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Date: August 22, 2018 Page 3 of 9

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U.S. PATENT DOCUMENTS

Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	Sub Class	Filing Date (if appropriate)
	OO	7,587,446	09/2009	ONYON et al.			
	PP	7,613,773	11/2009	WATT			
	QQ	7,639,116	12/2009	SAUNDERS			
	RR	7,657,271	02/2010	KIM			
	SS	7,680,885	03/2010	SCHAUSER et al.			
	TT	7,752,166	07/2010	QUINLAN et al.			
	UU	7,761,414	07/2010	FREEDMAN			
	VV	7,895,334	02/2011	TU et al.			
	WW	7,987,420	07/2011	KLOBA et al.			
	XX	8,009,966	08/2011	BLOOM et al.			
	YY	8,112,549	02/2012	SRINIVASAN et al.			
	ZZ	8,244,288	08/2012	CHIPCHASE			
	AA	8,321,534	11/2012	ROSKIND et al.			
	BB	8,370,423	02/2013	OZZIE et al.			
	CC	8,386,558	02/2013	SCHLEIFER et al.			

FOREIGN PATENT DOCUMENTS

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	EE				
	FF				
	GG				
	HH				

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U.S. PATENT DOCUMENTS

Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	Sub Class	Filing Date (if appropriate)
	IIIR	2003/0038842	02/2003	PECK et al.			
	JJJ	2003/0125057	07/2003	PESOLA			
	KKK	2003/0135565	07/2003	ESTRADA			
	LLL	2004/0049345	03/2004	MCDONOUGH et al.			
	MM	2005/0097225	05/2005	GLATT et al.			
	NNN	2005/0220080	10/2005	RONKAINEN et al.			
	OO	2006/0058907	03/2006	SUDERMAN			
	PPP	2006/0189348	08/2006	MONTULLI et al.			
	QQ	2007/0014314	01/2007	O'NEIL			
	RRR	2007/0191057	08/2007	KAMADA			
	SSS	2007/0238440	10/2007	SENGUPTA et al.			
	TTT	2008/0005280	01/2008	ADAMS			
	UUU	2008/0086494	04/2008	HELLER et al.			
	VVV	2008/0168526	07/2008	ROBBIN et al.			
	WW	2008/0288578	11/2008	SILFVERBERG			
	XXX	2009/0063711	03/2009	FINKELSTEIN			

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	YYY								

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	ZZZ				
	AAA				
	BBB				
	CCC				

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	EE								

OTHER (Including in this order Author, Title, Periodical Name, Date, Pertinent Pages, etc.)

	FFF	FolderShare - Secure Remote Access VPN Solution; Document Management & Real-time File Mirroring Solution; < https://web.archive.org/web/20040804020435/http://www.foldershare.com:80/>; August 4, 2004.
	GG	FolderShare; Your Files Anywhere; <https://web.archive.org/web/20030808183932/http://www.foldershare.com:80/>; August 8, 2003.
	HHH	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20040814015727/http://www.foldershare.com:80/>; August 14, 2004.
	IIIIR	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20040820052105/http://www.foldershare.com:80/>; August 20, 2004.
	JJJ	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20041211020957/http://foldershare.com:80/>; December 11, 2004.
	KKK	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20041217041726/http://foldershare.com:80/>; December 17, 2004.
	LLL	FolderShare; Your Smart File Transfer Solution; <https://web.archive.org/web/20031220151508/http://www.foldershare.com:80/>; December 20, 2003.
	MM	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20041230211050/http://www.foldershare.com:80/>; December 30, 2004.
	NNN	FolderShare - Secure Remote Access VPN Solution; Document Management & Real-time File Mirroring Solution; <https://web.archive.org/web/20040701113739/http://foldershare.com:80/>; July 1, 2004.
	OO	FolderShare - Secure Remote Access VPN Solution; Document Management & Real-time File Mirroring Solution; <https://web.archive.org/web/20040711062548/http://www.foldershare.com:80/>; July 11, 2004.

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Date: August 22, 2018 Page 6 of 9 Examiner: Srirama T. CHANNAVAJJALA Group Art Unit: 2157

U.S. PATENT DOCUMENTS

Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	Sub Class	Filing Date (if appropriate)
	PPP						
	QQQ						
	RRR						

FOREIGN PATENT DOCUMENTS

		Document Number	Date MM/YYYY	Country	Inventor Name	English Abstract		Translation Readily Available	
						Enclosed	No	Enclose	No
	SSS								

OTHER (Including in this order Author, Title, Periodical Name, Date, Pertinent Pages, etc.)

	TTT	FolderShare; Your Files Anywhere; <https://web.archive.org/web/20030722054342/http://foldershare.com:80/>; July 22, 2003.
	UUU	FolderShare - Secure Remote Access VPN Solution; Document Management & Real-time File Mirroring Solution; <https://web.archive.org/web/20040730030655/http://www.foldershare.com:80/>; July 30, 2004.
	VVV	FolderShare - Secure Remote Access VPN Solution; Document Management & Real-time File Mirroring Solution; <https://web.archive.org/web/20040603205113/http://www.foldershare.com:80/>; June 3, 2004.
	WWW	FolderShare - Secure Remote Access VPN Solution; Document Management & Real-time File Mirroring Solution; <https://web.archive.org/web/20040613161906/http://www.foldershare.com:80/>; June 13, 2004.
	XXX	FolderShare - Secure Remote Access VPN Solution; Document Management & Real-time File Mirroring Solution; <https://web.archive.org/web/20040629075057/http://www.foldershare.com:80/>; June 29, 2004.
	YYY	FolderShare - Secure Remote Access VPN Solution; Your Smart File Transfer & Real-time File Mirroring Solution; <https://web.archive.org/web/20040316235151/http://foldershare.com:80/>; March 16, 2004.
	ZZZ	FolderShare - Secure Remote Access VPN Solution; Your Smart File Transfer & Real-time File Mirroring Solution; <https://web.archive.org/web/20040325034239/http://www.foldershare.com:80/>; March 25, 2004.
	AAA	FolderShare - Secure Remote Access VPN Solution; Document Management & Real-time File Mirroring Solution; <https://web.archive.org/web/20040512211417/http://www.foldershare.com:80/>; May 12, 2004.
	BBB	FolderShare; Your Files Anywhere; <https://web.archive.org/web/20030531180252/http://www.foldershare.com:80/>; May 31, 2003.
	CCC	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20041104031510/http://www.foldershare.com:80/>; November 4, 2004.

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	GG	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20041123085254/http://www.foldershare.com:80/>; November 23, 2004.
	HHH	FolderShare; Your Files Anywhere; <https://web.archive.org/web/20031128143634/http://foldershare.com:80/>; November 28, 2003.
	IIIII	FolderShare; Your Files Anywhere; <https://web.archive.org/web/20031001071631/http://foldershare.com:80/>; October 1, 2003.
	JJJ	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20041012083127/http://www.foldershare.com:80/>; October 12, 2004.
	KKK	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20041029085820/http://www.foldershare.com:80/>; October 29, 2004.
	LLL	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20040901034646/http://www.foldershare.com:80/>; September 1, 2004.
	MM	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20040909075254/http://www.foldershare.com:80/>; September 9, 2004.
	NNN	FolderShare; Your Files Anywhere; <https://web.archive.org/web/20030920051943/http://www.foldershare.com:80/>; September 20, 2003.
	OO	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20040924032146/http://www.foldershare.com:80/>; September 24, 2004.

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U.S. PATENT DOCUMENTS

Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	Sub Class	Filing Date (if appropriate)
	PPP	2006/0074985	04/2006	WOLFISH			
	QQQ	2006/0143129	06/2006	HOLM			
	RRR	2004/0133629	07/2004	REYNOLDS			
	SSS	2002/0035697	03/2002	MCCURDY			
	TTT	2003/0028514	02/2003	LORD			
	UUU	2003/0078946	04/2003	COSTELLO			
	VVV	2007/0180084	08/2007	MOHANTY			
	WWW	9,143,561	09/2015	MANZANO			
	XXX	2007/0016629	01/2007	REINSCH			
	YYY	5,806,078	09/1998	HUG			
	ZZZ	2007/0027936	02/2007	STAKUTIS			
	AAA	2008/0005114	01/2008	LI			
	BBB	5,909,581	06/1999	PARK			
	CCC	2004/0158817	08/2004	OKACHI			
	DDD	2009/0013009	01/2009	NAKAYAMA			
	EEE	2006/0168118	07/2006	GODLIN			
	FFF	2006/0129627	06/2006	PHILLIPS			

FOREIGN PATENT DOCUMENTS

		Document Number	Date MM/YYYY	Country	Inventor Name	English Abstract		Translation Readily Available	
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	GGG	WO 98/56149 A1	12/1998	WO	GENELL				
	HHH	WO 2007/047302 A2	04/2007	WO	CHEN et al.				
	IIIIII	EP 1 130 511 A2	09/2001	EP	MULTER				

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JJJ					
KKK					
LLL					
MM					

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	NNN	7,325,038	01/2008	Wang			
	OOO	7,260,646	08/2007	Stefanik et al.			
	PPP	2005/0091316	04/2005	Ponce et al.			
	QQQ	2007/0180084	08/2007	Mohanty			
	RRR	2002/0026478	02/2002	Rodgers et al.			
	SSS	2007/0027936	02/2007	Stakutis et al.			
	TTT	2008/0005114	01/2008	Li			
	UUU	2004/0172424	09/2004	Edelstein et al.			
	VVV	2013/0226871	08/2013	Sarnowski			
	WWW	2004/0107225	06/2004	Rudoff			
	XXX	2006/0010150	01/2006	Shaath et al.			
	YYY	5,600,834	02/1997	Howard			
	ZZZ	5,806,078	09/1998	Hug et al.			
	AAA	6,449,624	09/2002	Hammack et al.			
	BBB	2003/0028542	02/2003	Muttik et al.			
	CCC	6,026,414	02/2000	Anglin			
	DDD	6,154,817	11/2000	Mohan et al.			
	EEE	6,260,069	07/2001	Anglin			
	FFF	2002/0087588	07/2002	McBride et al.			
	GGG	6,606,646	08/2003	Feigenbaum			
	HHH	2004/0093361	05/2004	Therrien et al.			
	IIIIII	7,136,934	11/2006	Carter et al.			
	JJJ	2007/0100913	05/2007	Sumner et al.			
	KKK	7,224,973	05/2007	Tsutazawa et al.			
	LLL	7,788,303	08/2010	Mikesell et al.			

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Bibliographic Data

Application No: 16/017,348

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /Srirama Channavajjala/ Examiner's Signature | Initials

Title: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
06/25/2018	707	2157	023027-0459211
RULE			

APPLICANTS

INVENTORS

Michael R. Manzano Seattle, WA, UNITED STATES

CONTINUING DATA

This application is a CON of 14860289 09/21/2015 PAT 10067942

14860289 is a CON of 12267852 11/10/2008 PAT 9143561

12267852 has PRO of 60986896 11/09/2007

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

07/12/2018

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

ADDRESS

Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102
UNITED STATES

FILING FEE RECEIVED

$3,085

1. **File management method, file management device and file management program**

Regard to file management apparatus for managing the [challenge] WORM file, in particular, to provide file management device that safely delete the WORM file. Get to be in the storage unit 2026 of the file associated with the storage time limit stored in the storage device 203a has expired, the file...

CURRENT ASSIGNEES: HITACHI LTD
JP2007275774A | JAPAN APPLICATIONS | 06-OCT-2005

2. **File management device, file management method, file management program, and recording medium**

A file management device that manages a file that is divided into portions and stored across a plurality of storage devices including a removable storage device that stores information in a removable recording medium thereof, the file management device comprising: an access request receiving unit...

CURRENT ASSIGNEES: PANASONIC CORP
EP1556815A1 | EPO APPLICATIONS | 26-JUL-2005

3. **File management device, file management method, file management program and recording medium**

A file management device that manages a file that is divided into portions and stored across a plurality of storage devices including a removable storage device that stores information in a removable recording medium thereof, the file management device comprising: an access request receiving unit...

CURRENT ASSIGNEES: PANASONIC CORP
US20060074922 | US APPLICATIONS | 06-APR-2006

4. **File management device, file management method, file management program, and recording medium**

A large-capacity file can be managed by dividing the file into a plurality of parts to be stored in a plurality of storage devices and storing data block management information on data blocks constituting the file in one storage device. Moreover, by storing the file management information in a...

CURRENT ASSIGNEES: MATSUSHITA ELECTRIC IND CO LTD
WO2004059474A1 | WIPO APPLICATIONS | 10-JUN-2004

5. **Apparatus and program for data file management**

PROBLEM TO BE SOLVED: To reliably access a data file even if it is moved a plurality of times between a plurality of apparatuses. SOLUTION: A data file management apparatus has a function to save or delete a data file to be input, and a function to move the data file to other apparatuses. To manage...

CURRENT ASSIGNEES: KONICA MINOLTA BUSINESS TECH INC
JP2007018317A | JAPAN APPLICATIONS | 25-JAN-2007

6. **File management system and network system**

PURPOSE: To facilitate the management of files by providing a file management system which includes a management means that sets a management ID for every file to be registered in addition to every file name and version and then manages the files based on these management IDs. CONSTITUTION: A...

CURRENT ASSIGNEES: HITACHI LTD [JA]
JPH08339301A | JAPAN APPLICATIONS | 24-DEC-1996

7. **File management information storage device, control method of file management information storage device, and a control program of the file management information storage device**

CURRENT ASSIGNEES: [redacted]
JP5463899B2 | JAPAN PATENTS | 09-APR-2014

8. **Method and apparatus for virtually managing files**

The present invention relates to a virtual file management method and apparatus, and more particularly, to a method and apparatus for integrally managing business files stored in a plurality of storage devices in an enterprise environment. And provides a view such that the business file stored in...

CURRENT ASSIGNEES: KT CORP
KR20190065036A | KOREA APPLICATIONS | 15-JUN-2019

9. **File managing system, file managing device, file managing method, and program recording medium**

The conventional file management system has a problem that permission information may not be considered even if the file has the permission information attached thereto. Therefore, the first storage device 1 for accumulating the file to which the permission information is added, and the second...

CURRENT ASSIGNEES: [redacted]
KR20010042746A | KOREA APPLICATIONS | 25-MAY-2001

10. **File updating system for network**

PROBLEM TO BE SOLVED: To automatically maintain the consistency of files in a network system without troubling the manual aid of a system manager. SOLUTION: A device for managing the files on a network is provided with a file management agent 7 provided with a function for holding file management...

CURRENT ASSIGNEES: HITACHI KOYUSAI ELEC INC
JPH10289142A | JAPAN APPLICATIONS | 27-OCT-1998

11. **File managing system, file managing device, file managing method, and program recording medium**

Conventional file managing systems are involved in a problem that even a file to which license information is added is handled without considering the license information. A file managing system of the invention comprises a first storage device (2) for storing files to which license information is...

CURRENT ASSIGNEES: MATSUSHITA ELEC IND CO LTD
WO1998052333A1 | WIPO APPLICATIONS | 19-OCT-1998

12. **File managing system, file managing device, file managing method, and program recording medium**

In the conventional file management system, even if the file that is allowed to the additional information, there is a problem that the process being allowed information is not considered. Thus permit information is in the first accumulation device 2 for accumulating the added file, based on the...

CURRENT ASSIGNEES: [redacted]
KR100632592B1 | KOREA PATENTS | 20-SEP-2006

13. **Archive management device**

The invention claims a file management device comprises a file management frame and is set in the file management frame is used for storing file of the filing box document management frame front and back sides are set along a file management frame glidingly set mechanical hand of a file management...

CURRENT ASSIGNEES: MENG BANGXU
CN1959365558A | CHINA APPLICATIONS | 16-AUG-2006

14. **File management system**

In the information processing system and an auxiliary storage device 4 connected to the processing unit are output processing section 5 (57) [Abstract] The data processing unit 2 and the [configuration input processing section 1. the file management for managing file information data space...

CURRENT ASSIGNEES: HOKKAIDO NIPPON DENKI SOFTWARE KK
JP4664375A | JAPAN APPLICATIONS | 14-JAN-1994

15. **File managing system, file managing device, film managing method**

In the existed file management system existing in the even if the additional xu nuo information file and it does not consider xu nuo information is processed by the problem of. So the system comprises storing additional xu nuo information file of the first storage device and according to attached to...

CURRENT ASSIGNEES: MATSUSHITA ELEC IND CO LTD
CN100373288C | CHINA PATENTS | 05-MAR-2008

16. **File management manner, file management device, and file manager administrative program**

A wide area distributed storage system checks for ensure of WORM (Write-Once Read-Many) files. A first management server acquires a storage location of a second file ON a second disk apparatus which corresponds to a first file stored ON a first disk apparatus, of which a retention period has...

CURRENT ASSIGNEES: [redacted]
JP4854490B2 | JAPAN PATENTS | 06-JAN-2010

17. **File management device and file management method**

A device and method that manage files in folders selected from among multiple folders, by newly storing in the folder, which is now an object of management by the file management program, a management file having information regarding the files residing in that folder.

CURRENT ASSIGNEES: MINOLTA CO LTD
US20020065078 | US APPLICATIONS | 02-MAY-2002

18. **File managing system, file managing device, film managing method**

In the existed file management system existing in the even if the additional xu nuo information file and it does not consider xu nuo information is processed by the problem of. So the system comprises storing additional xu nuo information file of the first storage device and according to attached to...

CURRENT ASSIGNEES: MATSUSHITA ELEC IND CO LTD
CN1661571A | CHINA APPLICATIONS | 31-AUG-2005

19. **Folder management method and device**

The invention claims a file management method and device thereof said method comprises: Determining file management device the first one of the file folder satisfy the condition of the file management device comprises a plurality of the first file folder file folder the display device a file...

CURRENT ASSIGNEES: BEIJING XIAOMI MOBILE SOFTWARE CO LTD
CN107423406A | CHINA APPLICATIONS | 01-DEC-2017

20. **File managing device**

PURPOSE: To make it possible to simply confirm the state of a file afterwards when the accessing can not be made to the file due to the erasing, movement or name change of the file by using a specific file managing device having a file management table. CONSTITUTION: The file management table 51 for...

CURRENT ASSIGNEES: MATSUSHITA ELEC IND CO LTD
JP4062900B2 | JAPAN APPLICATIONS | 19-OCT-1994

21. **Apparatus and method for managing file of hybrid storage system**

The present invention relates to an apparatus and a method to manage a file in a hybrid storage system. According to the embodiment of the present invention, the apparatus to manage the file in the hybrid storage system sets a file management policy with a directory unit using the files stored in a...

CURRENT ASSIGNEES: KOREA ELTNC TELECOM
KR20140025518 | KOREA APPLICATIONS | 02-AUG-2014

22. **Virtual file management system**

CURRENT ASSIGNEES: MATSUSHITA ELEC IND CO LTD
JP1074886A | JAPAN APPLICATIONS | 21-FEB-1995

23. **File managing system, file managing device, film managing method, and program recording medium**

In the existed file management system existing in the even if the additional xu nuo information file and it does not consider xu nuo information is processed by the problem of. So the system comprises storing additional xu nuo information file of the first storage device and according to attached to...

CURRENT ASSIGNEES: MATSUSHITA ELEC IND CO LTD
CN1304597A | CHINA APPLICATIONS | 18-JUL-2001

24. **File management system and method for**

The invention claims a file management system and method for the file management system comprises an authentication device a controlling device and a monitoring device. The invention is composed of the tube controlling device a first processor according to an original document and an encryption file...

CURRENT ASSIGNEES: YIRONED QUNKANG SCIENCE & TECH STOCK CO LTD
CN106716455A | CHINA PATENTS | 12-APR-2017

25. **File management device, file management method, file management program, and recording medium**

The topic of the invention is through the file distribution to stored in several memory device structure of the file data block in the management information is stored in a memory device the management of large capacity of the file. Other through the file management information stored in memory...

CURRENT ASSIGNEES: MATSUSHITA ELEC IND CO LTD
CN1717666A | CHINA APPLICATIONS | 04-JAN-2006

26. **File management system and method**

The invention claims a file management system and method for the file management system comprises an authentication device a controlling device and a monitoring device. The invention is composed of the tube controlling device a first processor according to an original document and an encryption file...

CURRENT ASSIGNEES: ZHONGLI COM TECH CO LTD
CN103716455A | CHINA APPLICATIONS | 30-APR-2014

27. **File management system, file management method and file management program**

CURRENT ASSIGNEES: [redacted]
JP5397882B2 | JAPAN PATENTS | 22-JAN-2014

34. **Multi hard-disk file management system and method thereof**

A multi hard-disk file management system is disclosed. The multi hard-disk file management system includes at least one external hard-disk device, computer host and file database. The external hard-disk device has an identification number and a hard-disk file content directory. The computer host has...

CURRENT ASSIGNEES: INVISION INC
TW201738778A | TAIWAN APPLICATIONS | 01-NOV-2017

35. **File management device, file management program, and file management method**

In a file management apparatus, upon receipt of an access request from a file access device, a device access rights determination unit determines whether to grant the file access device access to a file. In addition, a user access rights determination unit determines whether to grant the user who...

CURRENT ASSIGNEES: [redacted]
JP5865508B2 | JAPAN PATENTS | 17-DEC-2015

36. **File managing system, file management apparatus, file management method, and program storage medium**

In the conventional file management system, there is a problem that even a file assigned permission information can be processed without considering any permission information. Therefore, the system includes a first accumulation device 2 for accumulating files to which permission information is...

CURRENT ASSIGNEES: PANASONIC CORP
US6684230 | US PATENTS | 27-JAN-2004

37. **File managing system, file managing device, and film managing method**

In the existed file management system existing in the even if the additional ac nuo information file and it does not consider ac nuo information is processed by the problem of. So the system comprises storing additional ac nuo information file of the first storage device and according to attached to...

CURRENT ASSIGNEES: MATSUSHITA ELEC IND CO LTD
CN1318373C | CHINA PATENTS | 16-MAY-2007

38. **File system managing device**

CURRENT ASSIGNEES: RICOH CO LTD
JP2000187606A | JAPAN APPLICATIONS | 06-JUL-2000

39. **File management method and system thereof**

A file management method and system thereof are disclosed. Let an electronic form generation module to search the electronic form in compliance with the data and conditions from a database storing the data relevant to file management in accordance with the ID and search conditions inputted by a...

CURRENT ASSIGNEES: BAVENTEC CORP
TWI226563B | TAIWAN PATENTS | 11-JAN-2005

40. **File management method and file management device for television devices**

A file management method, a file management device and a computer-readable media for television equipment are disclosed. The file management method includes the following steps: receiving a download request from one of a plurality of mobile devices; reading management data which records a plurality...

CURRENT ASSIGNEES: AMTRAN TECH CO LTD
US20170134533 | US APPLICATIONS | 11-MAY-2017

41. **Device and method for file management**

(57) provides a file management method and a file management apparatus can easily be carried out [Abstract] recovery [PROBLEMS] file failure, its location and equipment with the file management information retrieved from the saved medium 1 and the file content and file management information about...

CURRENT ASSIGNEES: NEC CORP
JP11282738A | JAPAN APPLICATIONS | 15-OCT-1999

42. **Key file management method device and computer readable storage medium**

The invention claims a key file management method comprises the receiving device sending the encryption key file obtaining request according to said encryption key file obtaining request of obtaining the of the device identifier obtaining the equipment identification corresponding to the key file it...

CURRENT ASSIGNEES: TCL TONGLI ELECTRON HUIZHOU CO LTD
CN108111518A | CHINA APPLICATIONS | 01-JUN-2018

43. **RFID-based file management system**

This utility model claims a based on rfid of the file management system comprises: Central management unit with radio frequency electronic tag the file file management device document processing device and file monitoring device and file transmitting and receiving device identity identification...

CURRENT ASSIGNEES: SHULUN CO TECH SHANGHAI CO LTD
CN201778327Y | CHINA PATENTS | 06-JAN-2011

44. **File managing device**

PURPOSE: To prevent the generation of mismatching for the management of the number of files by referring to a file management rule in each software and managing the number of files to be formed/deleted. CONSTITUTION: This file managing device for managing the number of files having the same name at...

CURRENT ASSIGNEES: FUJI XEROX CO LTD
JPH05197723A | JAPAN APPLICATIONS | 23-JUL-1993

45. **File management system, file management apparatus, and file management method**

Disclosed is a file management system capable of shortening the time required for the file selected to be displayed, the file management system and to provide a file management method. . . In the file management system 1 that includes a file management apparatus 10 for viewing the management of the...

CURRENT ASSIGNEES: RICOH CO LTD
JP2016235606A | JAPAN APPLICATIONS | 15-DEC-2016

46. **Apparatus and method for managing files in hybrid storage system**

An apparatus for managing files in a hybrid storage system establishes a file management policy based on a directory unit using files stored in first and second storage devices and manages the files of the first storage device and the second storage device in accordance with the established file...

CURRENT ASSIGNEES: ELECTRONICS & TELECOM RSCH INST
US20140229515 | US APPLICATIONS | 14-AUG-2014

47. **File managing device, file managing method, and recording medium stored with file managing program**

The invention claims a file management device for the purpose of the memory obtained the image sound data it does not carry out wireless unit for collection and processing to the stored file management

device and method thereof and memory document management program storage medium so as to ensure...

CURRENT ASSIGNEE(S): MATSUSHITA ELEC IND CO LTD
CN1329858A | CHINA APPLICATIONS | 02-JAN-2002

42. **Method and device for file management**

CURRENT ASSIGNEE(S): SHARP CORP
JP10344598A | JAPAN APPLICATIONS | 16-FEB-1998

43. **File managing system, file managing device, file managing method, and program recording medium**

In the conventional file management system, there is a problem that even a file assigned permission information can be processed without considering any permission information. Therefore, the system includes a first accumulation device 2 for accumulating files to which permission information is...

CURRENT ASSIGNEE(S): PANASONIC CORP
EP1071011A1 | EPO APPLICATIONS | 24-JAN-2001

44. **File management system based on RFID (Radio Frequency Identification Device)**

This invention claims a based on rfid of the file management system comprises: Central management unit with radio frequency electronic tag the file file management device document processing device and file monitoring device and file transmitting and receiving device identity identification device...

CURRENT ASSIGNEE(S): BAIESI YUEDIAN TECH CO LTD
CN101896938B | CHINA PATENTS | 24-OCT-2012

45. **Multi hard-disk file management system and method thereof**

The embodiment of this invention claims a multiple hard disk file management system a hard disk file management system comprises at least one external hard disk device host computer and document database. External hard disk device has an identification number and the hard disk file content...

CURRENT ASSIGNEE(S): CHEN LZU TIEN
CN1073411A | CHINA APPLICATIONS | 16-NOV-2017

46. **File management method and file system**

A file management method and a file system are applied to the field of data processing technologies. The file system monitors IO access information for operating a file, then determines an IO access mode of the file, determines a corresponding file management policy according to the IO access mode,...

CURRENT ASSIGNEE(S): HUAWEI TECH CO LTD
EP3125124A1 | EPO APPLICATIONS | 01-FEB-2017

47. **File managing device, file managing method**

The invention claims a file management device for the purpose of the memory obtaining the image sound data it does not carry out wireless unit for collecting and processing to the stored file management device and method thereof and memory document management program storage medium so as to ensure...

CURRENT ASSIGNEE(S): MATSUSHITA ELEC IND CO LTD
CN1184516C | CHINA PATENTS | 12-JAN-2005

48. **Data file browsing system, data file management device and data file extraction program**

CURRENT ASSIGNEE(S): BROTHER IND LTD
JP2009075755A | JAPAN APPLICATIONS | 09-APR-2009

49. **Mixed distribution file management warehouse storage system and correlation method**

The invention claims a mixed distribution type managing file storing system and related methods. The invention is used tripler structure of building a energy supporting cross country spanning factory file management mechanism and making use of the central control server to automatically each file...

CURRENT ASSIGNEE(S): HUAQIA SCIENCE & TECH CO
CN1725688A | CHINA APPLICATIONS | 25-JAN-2006

50. **File management method and file system**

The file management method and system files are applied to data processing technology. File system, in order to dynamically adjust the storage medium and file management granularity of the file according to the IO access mode of the file, and monitoring the IO access information for operating the...

CURRENT ASSIGNEE(S): HUAWEI TECH CO LTD
KR20160145748A | KOREA APPLICATIONS | 30-DEC-2016

1. **System and method for managing application installation for a mobile device**

A method and system of installing applications (10A, 10A', 10A") for a plurality of mobile devices from a storage source (4, 4A, 4B), wherein each mobile device (3) is of a different type, includes storing on the storage source (4, 4A, 4B) a plurality of applications. Each application (10A, 10A'...

CURRENT ASSIGNEES: MICROSOFT CORP
CA2306172C | CANADA PATENTS | 16-JAN-2007

2. **System and method for managing application installation for a mobile device**

A method and system of installing applications (10A, 10A', 10A") for a plurality of mobile devices from a storage source (4, 4A, 4B), wherein each mobile device (3) is of a different type, includes storing on the storage source (4, 4A, 4B) a plurality of applications. Each application (10A, 10A'...

CURRENT ASSIGNEES: MICROSOFT CORP
WO1999021335A1 | WIPO APPLICATIONS | 06-MAY-1999

3. **System and method for managing application installation for a mobile device**

A method and system of installing applications (10A, 10A', 10A") for a plurality of mobile devices from a storage source (4, 4A, 4B), wherein each mobile device (3) is of a different type, includes storing on the storage source (4, 4A, 4B) a plurality of applications. Each application (10A, 10A'...

CURRENT ASSIGNEES: MICROSOFT TECH LICENSING LLC
EP1023658A1 | EPO APPLICATIONS | 02-AUG-2000

4. **Method and system for synchronizing multiple user revisions to a shared object**

A number of other users accessing the same shared object simultaneously through several different transport and and revision, can be updated. Revision of a shared object can be automatically synchronized, all users see the amendment to the shared object. Contradictory amendments are being adjusted...

CURRENT ASSIGNEES: MICROSOFT CORP
KR20060089198A | KOREA APPLICATIONS | 26-JUL-2006

5. **Method and system for transitioning between synchronous and asynchronous communication models**

Numerous other users can access the same shared objects through different transport at the same time, the revised and updated. Clients are able to asynchronously communicate by accessing the shared object through a physical server. Clients also peer-to communicate synchronously by accessing the...

CURRENT ASSIGNEES: MICROSOFT CORP
KR20060089197A | KOREA APPLICATIONS | 26-JUL-2006

6. **Method and system for synchronizing change made by a plurality of users on shared object**

A method and system for synchronizing a plurality of users to modify [SOLVED] shared object. It is possible to via the transport several different, and simultaneously access the same shared object, make the changes, different users [MEANS FOR SOLVING PROBLEMS] Many, updating. To allow all users, see ...

CURRENT ASSIGNEES: MICROSOFT CORP
JP2006151972B | JAPAN APPLICATIONS | 27-JUL-2006

7. **Method and system for synchronizing multiple user revisions to a shared object** ☆

Many different users may access, revise and update the same shared object simultaneously through several different transports. Revisions to the shared object are automatically synchronized such that all users can view the revisions to the shared object. Conflicting revisions are reconciled and...

CURRENT ASSIGNEES: MICROSOFT TECH LICENSING LLC
[redacted] | US APPLICATIONS | 20-JUL-2006

8. **Method nad system for synchronizing multiple user revisions to a shared object**

Many different users may access, revise and update the same shared object simultaneously through several different transports. Revisions to the shared object are automatically synchronized such that all users can view the revisions to the shared object. Conflicting revisions are reconciled and...

CURRENT ASSIGNEES: MICROSOFT TECH LICENSING LLC
EP1681652A2 | EPO APPLICATIONS | 19-JUL-2006

9. **Usage history based content exchange between a base system and a mobile system**

A method and system for transferring information from a base system (110) to a mobile system (120) based on a history of usage of information at the base system (110). Recently used files at the base system (110) are transferred to the mobile system (120), without express user interaction. Select...

CURRENT ASSIGNEES: KONINKL PHILIPS NV [NL]
WO2006063983A2 | WIPO APPLICATIONS | 01-JUN-2006

10. **Method and system for transitioning between synchronous and asynchronous communication modes**

Many different users may access, revise and update the same shared object simultaneously through several different transports. Clients may communicate asynchronously by accessing the shared object through a physical server. Clients may also communicate synchronously by accessing the shared object...

CURRENT ASSIGNEES: MICROSOFT TECH LICENSING LLC
US20060168585 | US APPLICATIONS | 20-JUL-2006

11. **Method and system for transitioning between synchronous and asynchronous communication modes**

Many different users may access, revise and update the same shared object simultaneously through several different transports. Clients may communicate asynchronously by accessing the shared object through a physical server. Clients may also communicate synchronously by accessing the shared object...

CURRENT ASSIGNEES: MICROSOFT CORP
EP1681629A1 | EPO APPLICATIONS | 19-JUL-2006

12. **Method and system for synchronizing multiple user revisions to a shared object**

Many different users may access, revise and update the same shared object simultaneously through several different transports. Revisions to the shared object are automatically synchronized such that all users can view the revisions to the shared object. Conflicting revisions are reconciled and...

CURRENT ASSIGNEES: MICROSOFT TECH LICENSING LLC
CA2532607A1 | CANADA APPLICATIONS | 14-JUL-2006

13. **Method and system for transition between synchronous communication mode and asynchronous communication mode**

A method and system for transitioning between asynchronous communication mode and the present invention relates synchronous communication mode. It is possible via different transports, user [SOLUTION] Many updating make changes to concurrently access the same shared object. By accessing the shared...

CURRENT ASSIGNEES: MICROSOFT CORP
JP2006195986A | JAPAN APPLICATIONS | 27-JUL-2006

14. **Method and apparatus for a file sharing and synchronization system**

A computer-implemented method is provided for managing and sharing picture files. In one embodiment of the present invention, the method comprises providing a server platform and providing a datastore on the server platform for maintaining full resolution copies of the files shared between a...

CURRENT ASSIGNEES: SHARPCAST INC
WO2006053091A2 | WIPO APPLICATIONS | 18-MAY-2006

15. **Content management across shared, mobile file systems**

A content management system and method are disclosed having one or more shared file systems located on one or more networks having a firewall. The content management system includes an explorer client, a mounting client, and a gateway. The gateway is in communication with both the explorer client...

CURRENT ASSIGNEES: XFX CORP
US20060080337 | US APPLICATIONS | 13-APR-2006

16. **Method and system for accessing and viewing files on mobile devices**

A system and method for downloading files to a hand-held device includes selecting a file on a data storage device to be shared with a hand-held device, processing the selected file on the data storage device into a converted format for uploading to a server, uploading the converted file to the...

CURRENT ASSIGNEES: CIRCUIT SYS INC
WO2006113678A2 | WIPO APPLICATIONS | 26-OCT-2006

17. **Method and apparatus for a file sharing and synchronization system**

A computer-implemented method is provided for managing and sharing picture files. In one embodiment of the present invention, the method comprises providing a server platform and providing a datastore on the server platform for maintaining full resolution copies of the files shared between a...

CURRENT ASSIGNEES: SHARPCAST INC [+1]
US20060031064 | US APPLICATIONS | 11-MAY-2006

18. **The method, the software product, the memory, and the signal for the distribution of software applications between mobile devices and mobile**

CURRENT ASSIGNEES: EKSTA OY
FI117698 | FINLAND PATENTS | 15-JUL-2006

19. **Method and system for accessing and viewing files on mobile devices**

A system for downloading files to a hand-held device includes a file converter for converting a selected file to a distilled file. The file converter uploads the distilled file to a server, which is associated with a file processor. The server processes the distilled file and sends it to a hand-held. .

CURRENT ASSIGNEES: CIRCUIT SYS INC
US20060230030 | US APPLICATIONS | 12-OCT-2006

20. **Content management across shared, mobile file systems**

A content management system and method are disclosed having one or more shared file systems located on one or more networks having a firewall. The content management system includes an explorer client, a mounting client, and a gateway. The gateway is in communication with both the explorer client...

CURRENT ASSIGNEES: PRONTOFORMS CORP
CA2484469A1 | CANADA APPLICATIONS | 08-APR-2006

21. **Method and system for synchronizing multiple user revisions to a shared object**

A plurality of different user can be realized by several different transmission at the same time accesses revision and updating the same shared object. To the shared object of the revision are automatically at the same time so as to make the user can see the shared object of the revision. Collision...

CURRENT ASSIGNEES: MICROSOFT CORP
CN1804836A | CHINA APPLICATIONS | 19-JUL-2006

22. **Method and system for synchronizing multiple user revisions to a shared object**

CURRENT ASSIGNEES: MICROSOFT TECH LICENSING LLC
AU2005234674A1 | AUSTRALIA PATENT DOCUMENTS | 03-AUG-2006

23. **Distributed file system**

The invention relates to a distributed file system and method for distributing files between computing devices (10-22) of at least one group of computing devices (10-22) in which files are distributed automatically upon the networking of two or more computing devices (10-22). In the preferred...

CURRENT ASSIGNEES: HP INC
EP1387296A1 | EPO APPLICATIONS | 04-FEB-2004

24. **System and method for managing data in a distributed computer system**

Methods are provided for managing, sharing and providing access to data, especially among systems that are used to conduct a distributed application. Such methods may be beneficial, for example, in distributed networks having occasionally-connected devices. Methods are provided for linking and...

CURRENT ASSIGNEES: LANDRY JOHN [+9]
US20060123098 | US APPLICATIONS | 08-JUN-2006

25. **System and method for managing data in a distributed computer system**

Methods are provided for managing, sharing and providing access to data, especially among systems that are used to conduct a distributed application. Such methods may be beneficial, for example, in distributed networks having occasionally-connected devices. Methods are provided for linking and...

CURRENT ASSIGNEES: LANDRY JOHN [+6]
US20070100834 | US APPLICATIONS | 03-MAY-2007

26. **Method, apparatus, network entity, system and computer program product for sharing content**

CURRENT ASSIGNEES: NOKIA CORP [+1]
WO2007119253A2 | WIPO APPLICATIONS | 18-OCT-2007

27. **System and methods for mobile content generation**

The present invention relates to mobile communications and, in particular, provides a system that allows for the creation of content for such uses as full-track audio, ringtones, images, video, and combined video and audio for mobile phones, and systems for deploying such content. Content generation...

CURRENT ASSIGNEES: INVISIBLE TECH INC
WO2007084477A2 | WIPO APPLICATIONS | 26-JUL-2007

28. **Software updates**

A telecommunications device that is configured to form a connection with another telecommunications device without user intervention; select software that is available on that other device, and receive a copy of that software.

CURRENT ASSIGNEES: NCR CORP
US20050022178 | US APPLICATIONS | 27-JAN-2005

29. **Device-to-device software distribution** ★★★★☆

A method and corresponding equipment by which software (11c) on a first device (11) is virally or otherwise distributed to a second device (12), in which the first device (11) and second device (12) and possibly also a server (16) of the software (11c) exchange information sufficient for the first...

CURRENT ASSIGNEES: NOKIA CORP [+1]
WO2006021815A1 | WIPO APPLICATIONS | 02-MAR-2006

30. **System and method for managing data in a distributed computer system** ★★★★☆

Methods are provided for managing, (202) sharing and providing access to data, especially among systems that are used to conduct a distributed (200) application. Such methods may be beneficial, for example, in distributed networks having occasionally-connected (200) devices. Methods are provided for...

CURRENT ASSIGNEES: ADESSO SYS INC
WO2006031692A2 | WIPO APPLICATIONS | 23-MAR-2006

31. **System and method for managing data in a distributed computer system** ★★★☆☆

Methods are provided for managing, (202) sharing and providing access to data, especially among systems that are used to conduct a distributed (200) application. Such methods may be beneficial, for example, in distributed networks having occasionally-connected (200) devices. Methods are provided for...

CURRENT ASSIGNEES: ADESSO SYS INC
CA2622404A1 | CANADA APPLICATIONS | 23-MAR-2006

32. **Method, apparatus, network entity, system and computer program product for sharing content** ★★★☆☆

A method, apparatus, network entity, system and computer program product are provided for content sharing. In particular, a technique is provided whereby an individual desiring to share content including, for example, photograph albums, music or video files, or the like, need only select the...

CURRENT ASSIGNEES: NOKIA TECH OY
US20070233867 | US APPLICATIONS | 11-OCT-2007

33. **System and method for managing data in a distributed computer system** ★★★★☆

Methods are provided for managing, (202) sharing and providing access to data, especially among systems that are used to conduct a distributed (200) application. Such methods may be beneficial, for example, in distributed networks having occasionally-connected (200) devices. Methods are provided for...

CURRENT ASSIGNEES: ADESSO SYS INC
EP1812846A2 | EPO APPLICATIONS | 01-AUG-2007

34. **Device-to-device software distribution** ★★★★☆

A method and corresponding equipment by which software (11c) on a first device (11) is virally or otherwise distributed to a second device (12), in which the first device (11) and second device (12) and possibly also a server (16) of the software (11c) exchange information sufficient for the first...

CURRENT ASSIGNEES: NOKIA CORP
EP1787198A1 | EPO APPLICATIONS | 23-MAY-2007

35. **Method and system for transitioning between synchronous and asynchronous communication modes** ★★★★☆

A plurality of different user can be realized by several different transmission at the same time accesses revision and updating the same shared object. Client through the physical server accessing shared object to asynchronous communication. Client it also can be passed through by the peer to peer...

CURRENT ASSIGNEES: MICROSOFT CORP
CN1801784A | CHINA APPLICATIONS | 12-JUL-2006

36. **Device-to-device software distribution** ★★★★☆

A method and corresponding equipment by which software (11c) on a first device (11) is virally or otherwise distributed to a second device (12), in which the first device (11) and second device (12) and possibly also a server (16) of the software (11c) exchange information sufficient for the first...

CURRENT ASSIGNEES: NOKIA CORP
US20060041641 | US APPLICATIONS | 02-MAR-2006

37. **Software updates** ★★★☆☆

A telecommunications device that is configured to form a connection with another telecommunications device without user intervention; select software that is available on that other device, and receive a copy of that software.

CURRENT ASSIGNEES: NCR INTL INC
EP1638012A2 | EPO APPLICATIONS | 19-JAN-2006

38. **Method and apparatus for wirelessly sharing a file using an application level connection** ★★★☆☆

A method for wirelessly sharing a file comprising recognizing a neighbor node (35); establishing a first application-level connection with the recognized neighbor node (40); determining a file to be shared with the neighbor node (45); and conveying to the neighbor node a portion of the determined...

CURRENT ASSIGNEES: TIME WARNER INC
WO2006023836A2 | WIPO APPLICATIONS | 02-MAR-2006

39. **Method and apparatus for wirelessly sharing a file using an application-level connection** ★★★★☆

Ad hoc application-level connections are established between wireless devices. Autonomous selection of files on a provider device facilitates migration of a file from the file provider to a file receiver. Once a file provider and a file receiver are communicatively coupled using an application-level...

CURRENT ASSIGNEES: TIME WARNER INC
US20060041581 | US APPLICATIONS | 23-FEB-2006

40. **Method and apparatus for wirelessly sharing a file using an application-level connection** ★★★★☆

Ad hoc application-level connections are established between wireless devices. Autonomous selection of files on a provider device facilitates migration of a file from the file provider to a file receiver. Once a file provider and a file receiver are communicatively coupled using an application-level...

CURRENT ASSIGNEES: TIME WARNER INC
US20060039303 | US APPLICATIONS | 23-FEB-2006

41. **Method and apparatus for wirelessly receiving a file using an application-level connection** ★★★☆☆

Ad hoc application-level connections are established between wireless devices. Autonomous selection of files on a provider device facilitates migration of a file from the file provider to a file receiver. Once a file provider and a file receiver are communicatively coupled using an application-level...

CURRENT ASSIGNEES: TIME WARNER INC
WO2006023733A2 | WIPO APPLICATIONS | 02-MAR-2006

48. **System and method relating to remotely accessible securely stored data files** ★★★☆☆

In a first broad form the present invention provides a method of and system for granting access to one of a plurality of versions of a data file, wherein a Uniform Resource Identifier (URI) is associated with said data file and said URI is associated with an access list which includes details of one...

CURRENT ASSIGNEES: ORIGINAL SPIN INTL PTY LTD
WO2004044756A1 | WIPO APPLICATIONS | 27-MAY-2004

49. **The device memory management in the electronic file being updated** ★★★★☆

When performing memory management upgrade client of the host device (130), by performing a sequential search of the second memory area and the first memory large enough to accommodate the new software component Book identifies the block. New software component is a updated version of the components...

CURRENT ASSIGNEES: イノパス ソフトウェア インク,インコーポレイテッド
JP2006508474A | JAPAN APPLICATIONS | 23-FEB-2006

50. **Device memory management during electronic file updating** ★★★★☆

In performing memory management, an upgrade client (130) of a host device identifies and reserves memory blocks large enough to accommodate new software components by performing sequential searches of first and second memory areas. The new software components are updated versions of components of...

CURRENT ASSIGNEES: INNOPATH SOFTWARE INC
KR20060066687A | KOREA APPLICATIONS | 30-MAR-2006

51. **Device memory management during electronic file updating** ★★★★☆

In performing memory management, an upgrade client (130) of a host device identifies and reserves memory blocks large enough to accommodate new software components by performing sequential searches of first and second memory areas. The new software components are updated versions of components of...

CURRENT ASSIGNEES: DOONGO TECH INC
WO2004059519A1 | WIPO APPLICATIONS | 03-JUN-2004

52. **Device memory management during electronic file updating** ★★★☆☆

In performing memory management, an upgrade client of a host device identifies and reserves memory blocks large enough to accommodate new software components by performing sequential searches of first and second memory areas. The new software components are updated versions of components of original...

CURRENT ASSIGNEES: QUALCOMM INC
US20040098427 | US APPLICATIONS | 20-MAY-2004

53. **Device memory management during electronic file updating** ★★★☆☆

In performing memory management, an upgrade client (130) of a host device identifies and reserves memory blocks large enough to accommodate new software components by performing sequential searches of first and second memory areas. The new software components are updated versions of components of...

CURRENT ASSIGNEES: INNOPATH SOFTWARE INC
EP1577940A1 | EPO APPLICATIONS | 07-SEP-2005

54. **Method and apparatus for storing data on the application layer in mobile devices** ★★★☆☆

The present embodiments provide a system and methods for encrypting and storing data in a mobile device such as a personal digital assistant. The system includes an access controller and a cryptography manager both coupled to the software applications on the mobile device. The system employs a user...

CURRENT ASSIGNEES: SAP SE
US20060129830 | US APPLICATIONS | 15-JUN-2006

Inventor Information for 16/017348

Inventor Name	City	State/Country
MANZANO, MICHAEL R.	SEATTLE	WASHINGTON

Appln Info | Contents | Petition Info | Atty/Agent Info | Continuity Data | Foreign Data | **Inventors** | Applicants | Address | Fees | Post Info | Pre Grz

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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/017,348	06/25/2018	Michael R. Manzano	023027-0459211

CONFIRMATION NO. 3719

909
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

IMPROPER CFR REQUEST



Date Mailed: 08/24/2018

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

Power of Attorney, Claims, Fees, System Limitations, and Miscellaneous

In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request because:

- Any request to correct or update the name of the applicant must include an application data sheet (ADS) in compliance with 37 CFR 1.76 specifying the correct or updated name of the applicant in the applicant information section. Any request to change the applicant after an original applicant has been specified under 37 CFR 1.46(b) must include a new ADS in compliance with 37 CFR 1.76 specifying the applicant in the applicant information section and comply with 37 CFR 3.71 and 3.73. See 37 CFR 1.46(c).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/zretta/

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United States Patent and Trademark Office
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/017,348	06/25/2018	Michael R. Manzano	023027-0459211

CONFIRMATION NO. 3719

IMPROPER CPOA LETTER

909
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

OC000000101807468

Date Mailed: 08/24/2018

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the power of attorney filed 08/22/2018. The power of attorney in this application is not accepted for the reason(s) listed below:

- The power of attorney has not been accepted because the party who is giving power has not been identified. Power of attorney may only be signed by the applicant for patent (37 CFR 1.42) or the patent owner. A party who is not the applicant must become the applicant in accordance with 37 CFR 1.46(c) and appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. For a reissue application, reexamination proceeding, or supplemental examination proceeding, a patent owner who was not the applicant under 37 CFR 1.46 must appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. See 37 CFR 1.32(b)(4).

/zretta/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PTO/AIA/80 (07-12)
Approved for use through 11/30/2014. OMB 0651-0035
U.S. Patent and Trademark Office; U.S DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

■ Practitioners associated with Customer Number: 00909

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

■ The address associated with Customer Number: 00909

OR

☐	Firm or Individual Name			
	Address			
	City		State	Zip
	Country			
	Telephone		Email	

Assignee Name and Address: TOPIA TECHNOLOGY, INC.
1119 Pacific Avenue, Suite 200
Tacoma, WA 98402

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record
The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	Janine Terrano	Date	11/03/15
Name	Janine Terrano	Telephone	
Title	President, CEO		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Topia Technology, Inc.

Application No./Patent No.: 16/017,348 Filed/Issue Date: June 25, 2018

Titled: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

Topia Technology, Inc., a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☑ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 046193, Frame 0552, or for which a copy thereof is attached.

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____

   The document was recorded in the United States Patent and Trademark Office at

   Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____

   The document was recorded in the United States Patent and Trademark Office at

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This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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STATEMENT UNDER 37 CFR 3.73(c)

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☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Ngai B. Zhang/	August 22, 2018
Signature	Date
Ngai B. Zhang	65,473
Printed or Typed Name	Title or Registration Number

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

Michael R. MANZANO

Group Art Unit: 2157

Application No.: 16/017,348

Examiner: CHANNAVAJJALA, SRIRAMA T

Filed: June 25, 2018

Confirmation No.: 3719

For: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Pursuant to 37 CFR 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO-1449. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom. Applicant respectfully requests the Examiner return an initialed copy of the enclosed Form PTO-1449 to Applicant with the next Office communication to indicate that the references have been considered, per MPEP § 609.

This Information Disclosure Statement is being filed (a) within three months of the U.S. filing date of this non-CPA application, OR (b) before the mailing date of the first Office Action on the merits in the present application. No certification or fee is required.

Respectfully Submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP

/Ngai B. Zhang/

Ngai B. Zhang
Registration Number 65,473
Customer Number: 00909

Date: August 22, 2018
Telephone: (703) 770-7900
Facsimile: (703) 770-7901
P.O. Box 10500
McLean, VA 22102

FORM PTO-1449 (modified) To: U.S. Department of Commerce (PW FORM PAT-1449) Patent and Trademark Office	Atty. Dkt. No.	M#	
	023027	0459211	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Inventor(s): Michael R. MANZANO		
	Appln. No.: 16/017,348		
	Filing Date: June 25, 2018		
Date: August 22, 2018 Page 1 of 9	Examiner: Srirama T. CHANNAVAJJALA		Group Art Unit: 2157

U.S. PATENT DOCUMENTS

Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	Sub Class	Filing Date (if appropriate)
	AR	6,463,463	10/2002	GODFREY et al.			
	BR	6,504,994	01/2003	KAWAMURA et al.			
	CR	6,505,200	01/2003	IMS et al.			
	DR	6,611,849	08/2003	RAFF et al.			
	ER	6,671,700	12/2003	CREEMER et al.			
	FR	6,708,221	03/2004	MENDEZ et al.			
	GR	6,757,696	06/2004	MULTER et al.			
	HR	6,760,759	07/2004	CHAN			
	IR	6,810,405	10/2004	LARUE et al.			
	JR	6,829,622	12/2004	BEYDA			
	KR	6,874,037	03/2005	ABRAM et al.			
	LR	6,931,454	08/2005	DESHPANDE et al.			
	MR	6,990,522	01/2006	WU			
	NR	7,024,428	04/2006	HUANG et al.			
	OR	7,054,594	05/2006	BLOCH et al.			

FOREIGN PATENT DOCUMENTS						English Abstract		Translation Readily Available	
		Document Number	Date MM/YYYY	Country	Inventor Name	Enclosed	No	Enclose	No
	PR								
OTHER (Including in this order Author, Title, Periodical Name, Date, Pertinent Pages, etc.)									
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	RR								
	SR								
	TR								

Examiner | Date Considered:

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	Appln. No.: 16/017,348		
	Filing Date: June 25, 2018		
Date: August 22, 2018 Page 2 of 9	Examiner: Srirama T. CHANNAVAJJALA	Group Art Unit: 2157	

U.S. PATENT DOCUMENTS

Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	Sub Class	Filing Date (if appropriate)
	UR	7,065,658	06/2006	BARABAN et al.			
	VR	7,089,307	08/2006	ZINTEL et al.			
	WR	7,155,488	12/2006	LUNSFORD et al.			
	XR	7,243,163	07/2007	FRIEND et al.			
	YR	7,269,433	09/2007	VARGAS et al.			
	ZR	7,290,244	10/2007	PECK et al.			
	AAR	7,340,534	03/2008	CAMERON et al.			
	BBR	7,398,327	07/2008	LEE			
	CCR	7,415,615	08/2008	SKYGEBJER			
	DDR	7,457,631	11/2008	YACH et al.			
	EER	7,467,353	12/2008	KURLANDER et al.			
	FFR	7,483,925	01/2009	KOSKIMIES et al.			
	GGR	7,526,575	04/2009	RABBERS et al.			
	HHR	7,574,711	08/2009	ZONDERVAN et al.			
	IIR	7,584,186	09/2009	CHEN et al.			

FOREIGN PATENT DOCUMENTS						English Abstract		Translation Readily Available	
		Document Number	Date MM/YYYY	Country	Inventor Name	Enclosed	No	Enclose	No
	JJR								
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	Appln. No.: 16/017,348		
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Date: August 22, 2018 Page 3 of 9	Examiner: Srirama T. CHANNAVAJJALA	Group Art Unit: 2157	

U.S. PATENT DOCUMENTS

Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	Sub Class	Filing Date (if appropriate)
	OO	7,587,446	09/2009	ONYON et al.			
	PP	7,613,773	11/2009	WATT			
	QQ	7,639,116	12/2009	SAUNDERS			
	RR	7,657,271	02/2010	KIM			
	SS	7,680,885	03/2010	SCHAUSER et al.			
	TT	7,752,166	07/2010	QUINLAN et al.			
	UU	7,761,414	07/2010	FREEDMAN			
	VV	7,895,334	02/2011	TU et al.			
	WW	7,987,420	07/2011	KLOBA et al.			
	XX	8,009,966	08/2011	BLOOM et al.			
	YY	8,112,549	02/2012	SRINIVASAN et al.			
	ZZ	8,244,288	08/2012	CHIPCHASE			
	AA	8,321,534	11/2012	ROSKIND et al.			
	BB	8,370,423	02/2013	OZZIE et al.			
	CC	8,386,558	02/2013	SCHLEIFER et al.			

FOREIGN PATENT DOCUMENTS

		Document Number	Date MM/YYYY	Country	Inventor Name	English Abstract		Translation Readily Available	
						Enclosed	No	Enclose	No
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	EE				
	FF				
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	Appln. No.: 16/017,348		
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Date: August 22, 2018 Page 4 of 9	Examiner: Srirama T. CHANNAVAJJALA	Group Art Unit: 2157	

U.S. PATENT DOCUMENTS

Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	Sub Class	Filing Date (if appropriate)
	IIIR	2003/0038842	02/2003	PECK et al.			
	JJJ	2003/0125057	07/2003	PESOLA			
	KKK	2003/0135565	07/2003	ESTRADA			
	LLL	2004/0049345	03/2004	MCDONOUGH et al.			
	MM	2005/0097225	05/2005	GLATT et al.			
	NNN	2005/0220080	10/2005	RONKAINEN et al.			
	OO	2006/0058907	03/2006	SUDERMAN			
	PPP	2006/0189348	08/2006	MONTULLI et al.			
	QQ	2007/0014314	01/2007	O'NEIL			
	RRR	2007/0191057	08/2007	KAMADA			
	SSS	2007/0238440	10/2007	SENGUPTA et al.			
	TTT	2008/0005280	01/2008	ADAMS			
	UUU	2008/0086494	04/2008	HELLER et al.			
	VVV	2008/0168526	07/2008	ROBBIN et al.			
	WW	2008/0288578	11/2008	SILFVERBERG			
	XXX	2009/0063711	03/2009	FINKELSTEIN			

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	AAA				
	BBB				
	CCC				

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FORM PTO-1449 (modified)
To: U.S. Department of Commerce
(PW FORM PAT-1449)
Patent and Trademark Office

Atty. Dkt. No.	M#	
023027	0459211	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Inventor(s): Michael R. MANZANO

Appln. No.: 16/017,348

Filing Date: June 25, 2018

Date: August 22, 2018 Page 5 of 9

Examiner: Srirama T. CHANNAVAJJALA | Group Art Unit: 2157

U.S. PATENT DOCUMENTS

Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	Sub Class	Filing Date (if appropriate)
	DD						

FOREIGN PATENT DOCUMENTS

		Document Number	Date MM/YYYY	Country	Inventor Name	English Abstract		Translation Readily Available	
						Enclosed	No	Enclose	No
	EE								

OTHER (Including in this order Author, Title, Periodical Name, Date, Pertinent Pages, etc.)

	FFF	FolderShare - Secure Remote Access VPN Solution; Document Management & Real-time File Mirroring Solution; < https://web.archive.org/web/20040804020435/http://www.foldershare.com:80/>; August 4, 2004.
	GG	FolderShare; Your Files Anywhere; <https://web.archive.org/web/20030808183932/http://www.foldershare.com:80/>; August 8, 2003.
	HHH	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20040814015727/http://www.foldershare.com:80/>; August 14, 2004.
	IIIIR	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20040820052105/http://www.foldershare.com:80/>; August 20, 2004.
	JJJ	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20041211020957/http://foldershare.com:80/>; December 11, 2004.
	KKK	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20041217041726/http://foldershare.com:80/>; December 17, 2004.
	LLL	FolderShare; Your Smart File Transfer Solution; <https://web.archive.org/web/20031220151508/http://www.foldershare.com:80/>; December 20, 2003.
	MM	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20041230211050/http://www.foldershare.com:80/>; December 30, 2004.
	NNN	FolderShare - Secure Remote Access VPN Solution; Document Management & Real-time File Mirroring Solution; <https://web.archive.org/web/20040701113739/http://foldershare.com:80/>; July 1, 2004.
	OO	FolderShare - Secure Remote Access VPN Solution; Document Management & Real-time File Mirroring Solution; <https://web.archive.org/web/20040711062548/http://www.foldershare.com:80/>; July 11, 2004.

Examiner | Date Considered:

*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

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Date: August 22, 2018 Page 6 of 9	Examiner: Srirama T. CHANNAVAJJALA	Group Art Unit: 2157	

U.S. PATENT DOCUMENTS

Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	Sub Class	Filing Date (if appropriate)
	PPP						
	QQQ						
	RRR						

FOREIGN PATENT DOCUMENTS

		Document Number	Date MM/YYYY	Country	Inventor Name	English Abstract		Translation Readily Available	
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	SSS								

OTHER (Including in this order Author, Title, Periodical Name, Date, Pertinent Pages, etc.)

	TTT	FolderShare; Your Files Anywhere; <https://web.archive.org/web/20030722054342/http://foldershare.com:80/>; July 22, 2003.
	UUU	FolderShare - Secure Remote Access VPN Solution; Document Management & Real-time File Mirroring Solution; <https://web.archive.org/web/20040730030655/http://www.foldershare.com:80/>; July 30, 2004.
	VVV	FolderShare - Secure Remote Access VPN Solution; Document Management & Real-time File Mirroring Solution; <https://web.archive.org/web/20040603205113/http://www.foldershare.com:80/>; June 3, 2004.
	WWW	FolderShare - Secure Remote Access VPN Solution; Document Management & Real-time File Mirroring Solution; <https://web.archive.org/web/20040613161906/http://www.foldershare.com:80/>; June 13, 2004.
	XXX	FolderShare - Secure Remote Access VPN Solution; Document Management & Real-time File Mirroring Solution; <https://web.archive.org/web/20040629075057/http://www.foldershare.com:80/>; June 29, 2004.
	YYY	FolderShare - Secure Remote Access VPN Solution; Your Smart File Transfer & Real-time File Mirroring Solution; <https://web.archive.org/web/20040316235151/http://foldershare.com:80/>; March 16, 2004.
	ZZZ	FolderShare - Secure Remote Access VPN Solution; Your Smart File Transfer & Real-time File Mirroring Solution; <https://web.archive.org/web/20040325034239/http://www.foldershare.com:80/>; March 25, 2004.
	AAA	FolderShare - Secure Remote Access VPN Solution; Document Management & Real-time File Mirroring Solution; <https://web.archive.org/web/20040512211417/http://www.foldershare.com:80/>; May 12, 2004.
	BBB	FolderShare; Your Files Anywhere; <https://web.archive.org/web/20030531180252/http://www.foldershare.com:80/>; May 31, 2003.
	CCC	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20041104031510/http://www.foldershare.com:80/>; November 4, 2004.

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U.S. PATENT DOCUMENTS

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FOREIGN PATENT DOCUMENTS

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OTHER (Including in this order Author, Title, Periodical Name, Date, Pertinent Pages, etc.)

	FFF	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20041117092357/http://www.foldershare.com:80/>; November 17, 2004.
	GG	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20041123085254/http://www.foldershare.com:80/>; November 23, 2004.
	HHH	FolderShare; Your Files Anywhere; <https://web.archive.org/web/20031128143634/http://foldershare.com:80/>; November 28, 2003.
	IIIII	FolderShare; Your Files Anywhere; <https://web.archive.org/web/20031001071631/http://foldershare.com:80/>; October 1, 2003.
	JJJ	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20041012083127/http://www.foldershare.com:80/>; October 12, 2004.
	KKK	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20041029085820/http://www.foldershare.com:80/>; October 29, 2004.
	LLL	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20040901034646/http://www.foldershare.com:80/>; September 1, 2004.
	MM	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20040909075254/http://www.foldershare.com:80/>; September 9, 2004.
	NNN	FolderShare; Your Files Anywhere; <https://web.archive.org/web/20030920051943/http://www.foldershare.com:80/>; September 20, 2003.
	OO	FolderShare - Secure Remote Access VPN Solution; Need your files on more than one computer?; <https://web.archive.org/web/20040924032146/http://www.foldershare.com:80/>; September 24, 2004.

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U.S. PATENT DOCUMENTS

Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	Sub Class	Filing Date (if appropriate)
	PPP	2006/0074985	04/2006	WOLFISH			
	QQQ	2006/0143129	06/2006	HOLM			
	RRR	2004/0133629	07/2004	REYNOLDS			
	SSS	2002/0035697	03/2002	MCCURDY			
	TTT	2003/0028514	02/2003	LORD			
	UUU	2003/0078946	04/2003	COSTELLO			
	VVV	2007/0180084	08/2007	MOHANTY			
	WWW	9,143,561	09/2015	MANZANO			
	XXX	2007/0016629	01/2007	REINSCH			
	YYY	5,806,078	09/1998	HUG			
	ZZZ	2007/0027936	02/2007	STAKUTIS			
	AAA	2008/0005114	01/2008	LI			
	BBB	5,909,581	06/1999	PARK			
	CCC	2004/0158817	08/2004	OKACHI			
	DDD	2009/0013009	01/2009	NAKAYAMA			
	EEE	2006/0168118	07/2006	GODLIN			
	FFF	2006/0129627	06/2006	PHILLIPS			

FOREIGN PATENT DOCUMENTS

		Document Number	Date MM/YYYY	Country	Inventor Name	English Abstract		Translation Readily Available	
						Enclosed	No	Enclose	No
	GGG	WO 98/56149 A1	12/1998	WO	GENELL				
	HHH	WO 2007/047302 A2	04/2007	WO	CHEN et al.				
	IIIIII	EP 1 130 511 A2	09/2001	EP	MULTER				

OTHER (Including in this order Author, Title, Periodical Name, Date, Pertinent Pages, etc.)

JJJ					
KKK					
LLL					
MM					

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U.S. PATENT DOCUMENTS

Examiner's Initials*		Document Number	Date MM/YYYY	Name (Family Name of First Inventor)	Class	Sub Class	Filing Date (if appropriate)
	NNN	7,325,038	01/2008	Wang			
	OOO	7,260,646	08/2007	Stefanik et al.			
	PPP	2005/0091316	04/2005	Ponce et al.			
	QQQ	2007/0180084	08/2007	Mohanty			
	RRR	2002/0026478	02/2002	Rodgers et al.			
	SSS	2007/0027936	02/2007	Stakutis et al.			
	TTT	2008/0005114	01/2008	Li			
	UUU	2004/0172424	09/2004	Edelstein et al.			
	VVV	2013/0226871	08/2013	Sarnowski			
	WWW	2004/0107225	06/2004	Rudoff			
	XXX	2006/0010150	01/2006	Shaath et al.			
	YYY	5,600,834	02/1997	Howard			
	ZZZ	5,806,078	09/1998	Hug et al.			
	AAA	6,449,624	09/2002	Hammack et al.			
	BBB	2003/0028542	02/2003	Muttik et al.			
	CCC	6,026,414	02/2000	Anglin			
	DDD	6,154,817	11/2000	Mohan et al.			
	EEE	6,260,069	07/2001	Anglin			
	FFF	2002/0087588	07/2002	McBride et al.			
	GGG	6,606,646	08/2003	Feigenbaum			
	HHH	2004/0093361	05/2004	Therrien et al.			
	IIIIII	7,136,934	11/2006	Carter et al.			
	JJJ	2007/0100913	05/2007	Sumner et al.			
	KKK	7,224,973	05/2007	Tsutazawa et al.			
	LLL	7,788,303	08/2010	Mikesell et al.			

FOREIGN PATENT DOCUMENTS						English Abstract		Translation Readily Available	
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(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 130 511 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
05.09.2001 Bulletin 2001/36

(51) Int Cl.7: **G06F 9/46**

(21) Application number: **01300672.1**

(22) Date of filing: **25.01.2001**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **25.01.2000 US 490550**
26.01.2000 US 491675
26.01.2000 US 491694

(71) Applicant: **FusionOne, Inc.**
San Jose, California 95113 (US)

(72) Inventor: **Multer, David L.**
Santa Cruz, California 95060 (US)

(74) Representative: **Butler, Michael John**
Frank B. Dehn & Co.,
European Patent Attorneys,
179 Queen Victoria Street
London EC4V 4EL (GB)

(54) Data transfer and synchronization system

(57) A system and method for synchronizing devices which can couple to the Internet, or any network. In one aspect a system for synchronizing data between a first system and a second system is provided. The system includes a first sync engine on the first system interfacing with data in the first system to provide difference information. A data store is coupled to network and in communication with the first and second systems. A second sync engine is provided on the second system coupled to receive the difference information from the data store via the network, and interfacing with data on the second system to update said data on the second system with said difference information.

Difference information is transmitted to the data store by the first sync engine and received from the data store from the second sync engine. The system may include a management server coupled to the network and in communication with the first sync engine, the second sync engine and the data store. The system may include a plurality of sync engines on a respective plurality of systems, each of said plurality of engines being coupled to receive difference information from each of said first, second and plurality of sync engines from the data store via the network. Each said engine interfaces with data on the system on which it resides to update said data on said system on which it resides with said difference information, and interfaces with data on said system on which it resides to provide difference data information from the system on which it resides to the data store.

In a further embodiment, the invention comprises a method for synchronizing at least a first file and a second file resident on a first and a second systems, respectively, coupled to the Internet, respectively. The method includes the steps of: determining difference data resulting from changes to the first file on the first system; transmitting the difference data to a server via the Internet; querying the server from a second system to determine whether difference data exists for files on the second system; retrieving the difference data to the second system; and updating the second file on the second system with the difference data.

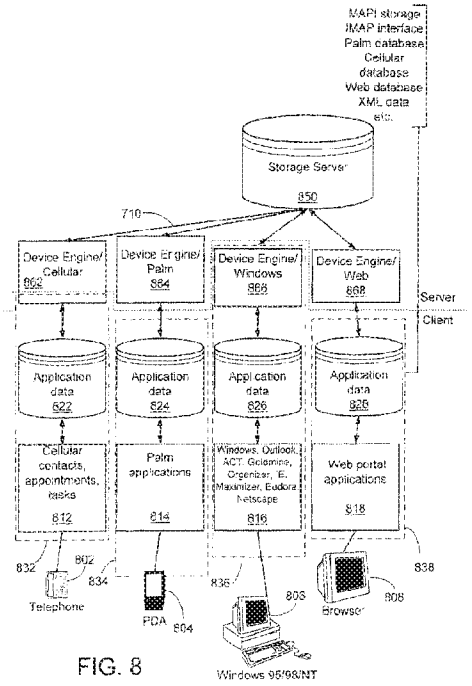


FIG. 8

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Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The invention relates to the transference of data between two systems independent of the form in which the data is kept on the respective systems, and in particular to providing an efficient means of communicating data between systems and devices.

Description of the Related Art

[0002] The growth of computing-related devices has not been limited to personal computers or work stations. The number of personal computing devices has grown substantially in both type and format. Small, hand-held computers carry a multitude of contact, personal, document, and other information and are sophisticated enough to allow a user to fax, send e-mails, and communicate in other ways wirelessly. Even advanced cellular phones carry enough memory and processing power to store contact information, surf the web, and provide text messaging. Along with the growth in the sophistication of these devices, the need to transfer information between them has grown significantly as well.

[0003] With a multitude of different device types on the market, keeping information between the different devices synchronized has become increasingly problematic. For example, if an individual keeps a calendar of information on a personal computer in his or her office using a particular personal information manager application, the individual would generally like to have the same information available in a cellular phone, hand-held organizer, and perhaps a home personal computer. The individual may additionally have a notebook computer which requires synchronizing file data such as presentations or working documents between the notebook and the office computer.

[0004] Until now, synchronization between both documents and personal information managers has occurred through direct connection between the devices, and generally directly between applications such as a personal information manager in one device and a personal information manager in another device or using an intermediary sync-mapping program.

[0005] One example of this is the prevalent use of the 3Com Palm® OS-based organizer, such as the 3Com Palm® series of computing devices, which uses its own calendaring system, yet lets users synchronize the data therein with a variety of different personal information manager software packages, such as Symantec's ACT!™, Microsoft's Outlook®, and other systems. In this example, an intermediary synchronization program such as Puma Technology, Inc. 's Intellisync® is required. Intellisync® is an application program which runs on both the hand-held device and the computer which stores the information data and maps data systems between non-uniform data records. In other cases, direct transfer between applications such as transfer between Microsoft's Outlook® computer-based client and Microsoft's Windows CE "Pocket Outlook" application, is possible. Nevertheless, in both cases, synchronization occurs through direct connection between a personal computer and the personal computing device. While this connection is generally via a cable directly connecting, for example, Palm® device in a cradle to the personal computer, the connection may be wireless as well.

[0006] One component of these synchronization systems is that the synchronization process must be able to delineate between when changes are made to specific databases and must make a decision about whether to replace the changed field. Normally, this is measured by a change in one database, and no-change in a second database. In some cases, both databases will have changed between syncs. In this case, the sync operation must determine which of the two changes which has been made is to "win" and replace the other during the sync. Generally, this determinant of whether a conflict exists allows some means for letting the user resolve the conflict.

[0007] In a technical sense, synchronization in this manner is generally accomplished by the copying of full records between systems. At some level, a user is generally required to map data fields from one application to another and specify which data fields are assigned to which corresponding field in a different device. Less mapping is required where developers more robustly support various platforms of applications.

[0008] In many instances, the data to be synchronized is generally in the form of text data such as records of addresses, contact information, calendar information, notes and other types of contact information. In certain instances, data to be synchronized will be binary format of executable files or word processor-specific documents. In many cases where document synchronization is required, the synchronization routine simply determines whether or not the documents in question have changed, and uses a time-based representation to determine which of the two files is newer, and replaces the older file with the newer file to achieve synchronization, as long as the older of the two files was in fact not changed. This is the model used in the familiar "Briefcase" function in Microsoft Windows-based systems. If both files have changed, then the synchronization routine presents the option of conflict resolution to the user. Such synchronization schemes are generally relatively inefficient since they require full band-width of the document or binary

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file to be transferred via the synchronization link. In addition, at some level the synchronization programs require interaction by the user to map certain fields between different programs.

[0009] One of the difficulties in providing synchronization between different computing devices is that the applications and platforms are somewhat diverse.

[0010] Nevertheless, all synchronization programs generally require certain functions in order to be viable for widespread usage. In particular, synchronization programs must work with popular applications on various platforms. Sync applications must allow for conflicts resolution when changes are made to the same information on different devices between syncing events. They must provide synchronization for all types of formats of data, whether it be text data in the form of contacts, e-mails, calendar information, memos or other documents, or binary data in the form of documents or programs in particular types of formats.

[0011] In a broader sense, applications which efficiently synchronize data between disparate types of devices can provide advantages in applications beyond synchronizing individual, personal information between, for example, a personal information manager hardware device such as a Palm® computing device, and a personal computer. The same objectives which are prevalent in developing data transfer between personal information management (PIM) devices and desktop systems lend themselves to furthering applications requiring data transfer between other types of devices, on differing platforms. These objectives include speed, low bandwidth, accuracy, and platform independence.

[0012] For example, current e-mail systems use a system which is somewhat akin to the synchronization methods used for disparate devices in that an entire message or file is transferred as a whole between different systems. When a user replies to an e-mail, generally the entire text of the original message is returned to the sender, who now has two copies of the e-mail text he/she originally sent out. The same is true if an e-mail attachment is modified and returned. All of the text which is the same between both systems is essentially duplicated on the originator's system.

SUMMARY OF THE INVENTION

[0013] The invention comprises a system and method for efficiently, quickly and easily synchronizing devices which can couple to the Internet, or any network. Synchronization of the devices can occur at independent times using an intervening network based storage server to store changes to data for all the different devices in the system in a data independent format, and provide the data on request to the device requesting a sync at the time requested. Hence, two devices need not be coupled to each other to perform a sync.

[0014] In one aspect the invention comprises a system for synchronizing data between a first system and a second system. The system includes a first sync engine on the first system interfacing with data on the first system to provide difference information. A data store is coupled to network and in communication with the first and second systems. A second sync engine is provided on the second system coupled to receive the difference information from the data store via the network, and interfacing with data on the second system to update said data on the second system with said difference information.

[0015] Difference information is transmitted to the data store by the first sync engine and received from the data store from the second sync engine. The difference information is transmitted to the data store at a first point in time, and received from the data store at a second, subsequent point in time. In a further aspect, the second sync engine can interface with said data on the second system to provide second difference information to the data store and the first sync engine may thereafter couple to the data store to retrieve the second difference information and interface with the data on the first system to update said data on the first system with said second difference information.

[0016] The system may include a management server coupled to the network and in communication with the first sync engine, the second sync engine and the data store.

[0017] In a further aspect, the system may include a first device, coupled to the first system via the network, providing said data to the first system. In such instance, the first system may be a sync server.

[0018] The system may include a plurality of sync engines on a respective plurality of systems, each of said plurality of engines being coupled to receive difference information from each of said first, second and plurality of sync engines from the data store via the network. Each said engine interfaces with data on the system on which it resides to update said data on said system on which it resides with said difference information, and interfaces with data on said system on which it resides to provide difference data information from the system on which it resides to the data store.

[0019] In a further embodiment, the invention comprises a system including a first device, a data store and a second device. The first device includes at least a first data file and first differencing code having an input and an output coupled to a network to receive first device data change transactions, based on said at least one data file, from and provide change transactions to, said network. The data store is coupled to the network and has at least one data structure coupled to store change transactions. The second device includes at least a second data file and second differencing code having an input and an output coupled to the network to receive said first device data change transactions, and provide second change transactions based on said at least second data file to said data store.

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[0020] In a further embodiment, the invention comprises a method for synchronizing at least a first and a second resident on a first and a second systems, respectively, coupled to the Internet, respectively. The method includes the steps of: determining difference data resulting from changes to the first file on the first system; transmitting the difference data to a server via the Internet; querying the server from a second system to determine whether difference data exists for files on the second system; retrieving the difference data to the second system; and updating the second file on the second system with the difference data.

[0021] In a still further aspect, the invention comprises an Internet synchronization system. The system includes a storage server having an Internet connection; a first device coupled to the Internet and including a device sync engine; and a second device coupled to the Internet and including a second device sync engine. A management server may further be provided. In this aspect, each device sync engine may comprise an application object, an application object store, and a delta engine.

BRIEF DESCRIPTION OF THE DRAWINGS

[0022] The invention will be described with respect to the particular embodiments thereof. Other objects, features, and advantages of the invention will become apparent with reference to the specification and drawings in which:

Figures 1 - 7 are block diagrams of various configurations of the system of the present invention utilizing the differencing routines of the present invention.

Figure 8 is an overview of one embodiment of the system architecture in accordance with the present invention.

Figure 9A is a block diagram of the desktop device engine of the present invention.

Figure 9B is a block diagram of the configuration of server side device engines utilized in accordance with the present invention.

Figure 10 is a block diagram of one embodiment of the device engine in an operating system such as Windows.

Figure 11 is a block diagram of an application object incorporated into the device engine of the present invention.

Figure 12 is a diagram of storage object hierarchy of a universal data format utilized with the system of the present invention.

Figure 13 is a listing of exemplary item objects used in accordance with the routines of the present invention.

Figure 14 is a block diagram of a management storage server architecture for used in the system of the present invention.

Figure 15 is a flow diagram illustrating a pull synchronization in accordance with the system of the present invention.

Figure 16 is a flow diagram illustrating a push synchronization in accordance with the system of the present invention.

Figure 17 is a diagram of the management server architecture in accordance with the present invention.

DETAILED DESCRIPTION

[0023] The present invention includes a system and a method for transferring data between two devices which require information to be shared between them. In accordance with the discussion herein, a "device" is defined as a collection of elements or components organized for a common purpose, and may include hardware components of a computer system, personal information devices, hand-held computers, notebooks, or any combination of hardware which may include a processor and memory which is adapted to receive or provide information to another device; or any software containing such information residing on a single collection of hardware or on different collections of hardware. Such software might include applications such as personal information managers, which include contact data and other such information, e-mail systems, and file systems, such as those utilized by Microsoft Windows NT operating systems, Unix operating systems, Linux operating systems, or other systems capable of storing file types having binary formats which translate to application formats of differing types.

[0024] In one embodiment, the invention comprises a set of programs specifically designed to transmit and/or receive differencing data from one device to another device, irrespective of the type of file system, data, content, or system hardware configuration.

[0025] In a further aspect, the system comprises store and forward technology which utilizes the differencing technology to implement services via a public or private network, such as the Internet.

[0026] The system of the present invention finds particular usages in synchronizing personal contact information between different systems, but it will be readily apparent to one of average skill in the art that the present invention provides advantages having broader applicability than merely synchronizing various types of systems. For example, replying and forwarding e-mail can be made more efficient by forwarding only the differences in e-mails between systems. As a further example, updates to systems software via a network can be made more efficient where, for example, instead of completely replacing different modules of an application, only the differences of the modules need be for-

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warded, resulting in more efficient use of existing bandwidth.

System Overview

[0027] Figures 1-7 show various configuration alternatives of the present invention.

[0028] Figure 1 shows an embodiment of the present invention in a basic configuration. In Figure 1, a first system or device, system A, and a second system or device, system B, are coupled by a communication line 110. It should be readily understood that communication line may be any direct coupling of the two systems which allows data to pass between the systems such as, for example, by means of serial ports, parallel ports, an Ethernet connection or other type of network, or an infrared link, or the like. System A includes a functional block 100 representing a differencing transmitter in accordance with the present invention. System B includes a functional block 102 representing the differencing receiver in accordance with the present invention.

[0029] The differencing transmitter 100, upon receipt of a control signal enabling operation of the transmitter, examines a specified data structure of information which is to be transmitted to system B. Differencing transmitter 100 extracts such information from System A and converts the information extracted into difference information Δ. Difference information Δ comprises only the changes to System B's data which have occurred on System B and instructions for implementing those changes. Hence, if the data to be transferred is a change to a file which exists on system B, difference information Δ comprises only the differences in such file and where such differences occur. If the data does not exist at all on System B, the difference information Δ will be the entire file. Difference information Δ received by differencing receiver 102 at System B is reconstructed at System B, and the changes reflected therein are updated on System B.

[0030] For example, if System A and System B are two computers and an update for certain binary files on System A is required, the differencing transmitter on System A will extract the differences in the file known to exist on System B and any new files, and transmit only those differences (an instructions for where to insert those differences) to the differencing receiver 102. Differencing receiver 102 will interpret the difference information (Δ) and reconstruct the binary files on System B. In this manner, the information on System B is updated without the need to transfer the entire binary files between the Systems.

[0031] Figure 2 shows a second example of the system of the present invention. In Figure 2, both System A and System B include functional blocks 104, each representing a differencing synchronizer. The function of the synchronizer 104 is similar to that of the transmitter and receiver combined; the synchronizer will allow difference information Δ to be both transmitted and received. For example, System A and System B are a portable computer and a desktop computer, respectively, where information such as contact information needs to be synchronized between the two, the differencing synchronizer 104 will extract changes made to the contact information on either System A or System B and at predetermined times, transmit the information Δ between the systems, and reconstruct the data on the receiving system to update information from the sending system, in order to ensure that both systems contain the same data.

[0032] Figure 3 shows yet another alternative embodiment of the system of the present invention. In Figure 3, System A again includes a differencing transmitter and System B includes a differencing receiver 102. In this embodiment, a storage server 300 is coupled between System A and System B. Storage server 300 may store a separate database of the difference information Δ provided by System A, which allows System A to provide its difference information Δ to the storage server 300 at a first point in time, and storage server 300 to provide the same difference information Δ to System B at a second point in time, but not the same as the first point in time. In addition, multiple sets of difference information Δ may be provided at different points in time, and stored for later retrieval by System B. Still further, the difference information sets may be maintained on server 300 to allow data on either System A or System B to be returned to a previous state.

[0033] Once again, the storage server 300 is coupled by a direct connection 110 to both System A and System B. Storage server 300 may be a server specifically adapted to receive differencing information Δ from the receiver 100 and provide it to the transmitter 102. In one embodiment, server 300 includes specific functional routines for enabling this transfer. Alternatively, server 300 comprises standard information server types which respond to standard Internet communication protocols such as file transfer protocol (FTP), or hypertext transfer protocol (HTTP).

[0034] Figure 4 shows yet another alternative embodiment of the system of the present invention wherein System A and System B, once again coupled directly to a storage server 300 by a direct connection line 110, each include a differencing synchronizer 104. Difference information Δ can be passed to and from System A through synchronizer 104 to and from the storage server 300 at a first point in time, and to and from System B at a second point in time. In this embodiment, storage server 300 may include routines, described below, for resolving conflicts between data which has changed on both System A and System B independently after the last point in times when the systems were synchronized.

[0035] Figure 5 shows yet another alternative embodiment of the present invention including four systems: System A which includes a differencing synchronizer 104; System B which includes a differencing receiver 102; System C

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which also includes a differencing synchronizer 104; and System D which includes a differencing transmitter 100. Each is directly coupled to a storage server 300, allowing control of transmission of differencing data Δ between the various systems. Server 300 may include routines, described in further detail below, to track the various types of systems which comprise System A through System D, and which control the transmission of various components of the difference information Δ to each of the various systems. For example, since System B includes only differencing receiver 102, the difference information Δ_2 which is provided to it may be a sub-component of that which is transferred between System A in the storage server 300, or may be simply receiving broadcast information Δ_4 from System D. In one embodiment of the system of the present invention, server 300 does not itself route the difference information derived from each receiver/transmitter/synchronizer. Server 300 acts as a repository for the information, and the determination of which difference information Δ is attributed to which receiver/transmitter/ synchronizer is made by each receiver/ transmitter/synchronizer.

[0036] Figure 6 shows yet another alternative embodiment of the present invention. In Figure 6, a synchronizer is provided in storage server 300. It should be recognized that a forwarder and/or receiver may be provided in server 300 as well. The particular embodiment shown herein may be advantageous where device processing power and memory are limited, such as cases where the device is a cell phone. It should be noted that the data transferred between system A and the device engine 104a in such an embodiment may or may not be difference information, depending on whether System A has the capacity to detect and output difference information. Each of the devices may include a differencing receiver, a differencing transmitter, or a differencing synchronizer. It should be understood that a portion of the differencing synchronizer 104a may reside on System A and another portion may reside on server 300.

[0037] Figure 7 shows yet another alternative embodiment of the present invention wherein the devices shown in Figure 6 may be coupled to a combination of public or private networks 700 such as, for example, the Internet. The network 700 may include one or more storage servers 300_1,300_2, and in such cases the difference information Δ transmitted between each such device 602-610 via intermediate storage on one of such servers. Network 700 may couple the devices to one or more specialized function servers, such as servers specifically designed to include a differencing forwarder, receiver or synchronizer. Such devices may comprise, by way of example and without limitation, a personal office PC 602, a smart telephone 604, a user's office PC 606, a personal information Palm® computing device 608, a telephone or cellular phone 604, a home personal computer 606, or a web browser 610. Each differencing receiver, differencing transmitter, or differencing synchronizer present in devices 602-610 includes means to poll the data stored on storage servers 300_1,300_2 to determine whether the data present at storage server 300_1,300_2 includes difference information which the particular receiver or synchronizer is required to have to synchronize the data on the device on which it resides.

[0038] In the following description, an embodiment wherein the differencing receiver, transmitter, and synchronizer are described will be discussed with respect to its use in synchronizing contact information, calendar information, and binary file information between a plurality of different devices in the context of data synchronization. It will be readily understood that the system of the present invention is not limited to synchronization applications, or applications dependent upon specific types of data, such as contact information or scheduling information. In particular, it will be readily understood that the transmission of data comprising only the differences in data between two systems via routines which extract the data and reassemble data on the various systems, represents a significant advancement in the efficient transmission of data. The present invention allows for optimization in terms of a reduction in the bandwidth utilized to transmit data between two systems, since only changes to data are transferred. This consequently increases the speed at which such transactions can take place since the data which needs to be transmitted is substantially smaller than it would be were entire files transferred between the systems.

[0039] In a particular embodiment of the present invention, the ability of devices to connect to the Internet is leveraged to manage data transfer between the systems. In essence, each particular device which requires information access which can connect to the Internet may become part of the system of the present invention, and synchronize its data with other devices defined by a user as being part of the system.

[0040] Generally, the system comprises client software which provides the functions of the differencing transmitter 100, differencing receiver 102, and differencing synchronizer 104 in the form of a device engine. The device engine includes at least one component particular to the type of device on which the device engine runs, which enables extraction of information from the device and conversion of the information to difference information, and transmission of the difference information to the storage server. This allows the replication of information across all systems coupled to the system of the present invention. Although the storage servers 300 utilized in the system of the present invention may be any type of storage server, such as an Internet server or an FTP server, and may be provided from any source, such as any Internet service provider (ISP), particular aspects of a storage server which may be useful and which may be customized to optimize transfer of information between systems coupled as part of the present invention will be described below. Synchronization of devices utilizing the synchronization system of the present invention is possible as long as an Internet connection between the devices is available.

[0041] In a key aspect of the invention, the Internet connection between the devices or between the devices and a

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server, need not exist at the same point in time, and new devices may be added to the system of the present invention at any point in time without the loss of information. The system provides totally transparent access to information and the device engine on each device provides an operating system independent extension which allows seamless integration of the personal information services in accordance with the present invention.

[0042] In a particular unique aspect of the present invention, only those changes to the information which are required to be forwarded to other systems on the system of the present invention are transmitted to enable exceptionally fast response times. In a still further aspect of the invention, information which is transferred in this manner is encrypted to ensure security over the public portions of the Internet.

Architecture Overview

[0043] Figure 8 shows an overview of the architecture of the system of the present invention utilized for synchronizing or "syncing" information on different types of devices. In the embodiment hereinafter described, the system of the present invention allows the coupling of a collection of personal devices and applications one uses when working with personal information. Nevertheless, the system may be used to broadcast public or private information to various device types. System software in the form of a device engine for each device which is declared a part of the system of the invention is distributed across the collection of devices to enable synchronization. Distribution of the device engines may occur via, for example, an installation package forwarded over an Internet connection. In essence, the device engine software of the present invention forms a distributed processing network which maintains consummate synchronization of all information in the system. The processing load associated with delivering this service is pushed to the end-point devices which provides for easy scaling of the system to ever-larger applications.

[0044] The present invention contemplates the use of two types of device engine: one totally embodied on the server which outputs change data to the server; and a second totally embodied on the server receiving device generated change information from the device. In addition, a hybrid of the two, having a portion of the device engine on the device and a portion on the server, is disclosed.

[0045] As shown in Figure 8, any number and type of devices 802-808 may be utilized in accordance with the system of the present invention. A telephone 802 may comprise a cellular phone or a standard POTS-connected telephone. Telephone 802 may include contact information and, as is supported with a newer generation of cellular telephones, appointments and task data stored in a data structure 812. The application 812 which utilizes the application data 822 comprising such information is all stored in the telephone unit 802. Likewise, a personal digital assistant such as a Palm® computing device 804 includes application 814 and application data 824 which may include information such as contacts, appointments and tasks, and may also include file information such as documents which are created and stored on the PDA 804. Device 806 is represented as a Windows personal computer running an operating system such as Microsoft Windows 95, 98, NT or 2000. Applications 816 which may be running on device 806 include the Windows operating system itself, Microsoft Outlook, Symantec's ACT Personal Information Manager, Goldmine Software's Goldmine, Lotus Organizer, Microsoft's Internet Explorer web browser, Netscape's Communicator Suite, Qualcomm's Eudora e-mail, and various other programs, each of which has its own set of application data 826 which is required to be synchronized not only with devices outside the system 806, but also between devices and applications within the system itself. Finally, a dedicated web browser client 808 is shown which couples via the Internet to web portal applications 816 which have their own set of application data 828. Unlike devices 806 which store the application and application data substantially in their own hardware, web portal applications are provided on a separate server and provided to browser 808 via an Internet connection. Nevertheless, the web portal application stored on the portal application provider includes a set of application data 828 which a user may wish to synchronize. For example, a large web portal such as Yahoo! and Snap.com provide services such as free e-mail and contact storage to their users. A user may wish to synchronize this with applications running on their cellular phone, PDA, or Windows devices.

[0046] In order to access the specific application data of each of the systems shown in Figure 8, a device engine is associated with each type of device. A cellular device engine 862 communicates and incorporates itself with the application data 822 of the cellular phone. Likewise, a PDA device engine 864 is provided, which may be based on either the Palm® operating system, Windows CE operating system, or other PDA-type operating systems as necessary. A Windows-based device engine 866 includes a mechanism, discussed below, for extracting application data 826 from supported Windows applications 816, and a web services device engine 868 incorporates to extract application data 828 from web portal applications 818.

[0047] As shown in Figure 8, some device engines are provided entirely on the device (and are referred to herein as desktop device engines), while others include components a the back end server (which may comprise storage server 850 or a specialized server, as shown in Figure 9B.) This is illustrated generally by lines 832, 834,836, and 838 in Figure 8. Also, in Figure 8, elements above dashed line 855 are provided by an administrator or service provider of the system of the present invention. Each of the device engines 862, 864, 866 and 868 is configured relative to the type of device on which it resides. For example, the Cell phone device engine 862 includes one or more components

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arranged on the phone while others are on server 850. Conversely, device engine 866 resides entirely on the windows device 806.

[0048] Data from each of the devices is coupled via an Internet connection 710 with a storage server 850. As noted above, storage server 850 may be a generic storage server or it may be a storage server specifically adapted for use with the system of the present invention as discussed below. One or more of the storage servers 850 are used to communicate transactions amongst the collection of systems 802, 804, 806, 808. It should be readily recognized that any number of different types of systems 802, 804, 806, 808 may be provided in accordance with the present invention and incorporated into the system. However, for brevity, not all the different types of commercially available computing devices which are currently in use or in development, in which the system of the present invention may be incorporated, are listed.

[0049] In its simplest embodiment, the storage server 850 is simply a dumb storage server and each of the device engines transmits only difference information thereto to be stored in a particular location accessible by other device engines in the system. In one embodiment, each device engine implements all processing required to keep all the systems fully synchronized. Only one device engine needs to be coupled to the storage server 850 at one particular point in time. This permits synchronization of multiple systems in a disconnected fashion. Each device engine will download all transactions encapsulating changes that have occurred since the last synchronization from the server and apply them to the particular device.

[0050] The change or difference information (Δ) is provided in one or more data packages, the structure of which is described herein. Each data package describes changes to any and all transfer information across all device engines, including but not limited to application data, files, folders, application settings, and the like. Each device engine can control the download of data packages that include classes of information that apply to the specified local device 802, 804, 806 or 808 attached to that specific device engine. For example, device engine 862 will only need to work with changes to information describing contact names and phone numbers in application data 822, while device engine 866 will be required to work with changes to e-mail, changes to document files, notes, as well as contact and address information since the application data 826 is much more extensive than application data 822.

[0051] Each device engine includes compression/decompression and encryption/decryption components which allow encryption and/or compression of the data packages transmitted across Internet connection 710. It should be recognized that compression and encryption of the data packages may be optionally provided. It is not required in accordance with the present invention. Each device engine performs mapping and translation steps necessary for applying the data packages to the local format required for that type of information in the application data stores 822-828. The device engine also includes components which allow it to track ambiguous updates in cases where users have changed data to a particular data field on two different systems simultaneously since the last update. In this case, the device engine includes a mechanism for drawing this to the attention of the user and allowing the user to resolve the conflict.

Device Engine Architecture

[0052] Figure 9A illustrates a single device engine utilized with a generic application 810 and a generic storage server 850. Figure 9A illustrates a desktop device engine, since all processing occurs on the device and only difference information is transmitted to server 850. Nevertheless, an understanding of the desktop device engine will aid in understanding server side devices engines, hereinafter described. Shown in Figure 9 are the functional components of a device engine in block form and their interrelationship to each other. The device engine 860 is equivalent to the functional block of a differencing sequencer 104 shown in Figures 1-7.

[0053] While the invention will be described with respect to the embodiment of the invention as a differencing synchronizer 104, it will be readily understood that portions of the functionality are utilized as needed in a forward-only (a differencing transmitter) or a receive-only (a differencing receiver) capacity as required by the particular application.

[0054] As noted above, a device engine exists for each and every device that makes up a user's personal information network of devices in the system. As shown in Figure 9A, each device engine 860 includes an application object 910. The application object is specific to each particular application 810 and provides a standard interface between the device engine and the balance of the data transmission system of the invention, and the application 810. Details of the application object will be described in further detail below. The application object is a pluggable architecture which supports a wide variety of vendor-unique applications. The job of the application object is to map data from the application into a temporary or "universal" data structure by connecting to the application via any number of standard interfaces to gain access to the applications data. The data structure of the application object puts the data in a generic or "universal data" format which may be used by the device engine components to generate data packages for provision to the storage server.

[0055] Also provided is an application object store (AOS) 920 which includes a copy of the device's data at a point just after the previous data extraction and synchronization occurred. Application object store 920 is a mirrored interface

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which stores a snapshot of the previous state of the data from the application object 910 in the device engine. The size of the AOS will depend on the data being collected by each device engine.

[0056] The generic output of the application object is provided to a delta module 950. Delta module 950 is a differencing engine which calculates differences in data between the output of the application object 910 and the copy of the data which is provided in an application object store (AOS) 920. The actual differencing and patch routine can comprise a routine such as XDelta or YDelta. The delta module 950 will be referred to herein alternatively in certain portions of the description as "CStructuredDelta." In addition, the difference information is alternatively referred to herein as a "change log." Each change log (or set of difference information) is a self describing series of sync transactions. As described below, the change log may be encrypted and compressed before output to the network.

[0057] Hence, during a sync, the Application Object will, using a mechanism discussed below, extract the data of each application in the device and convert it to a universal data format. The delta module will then generate a difference set by comparing the output of the Application Object and the AOS. This difference information is forwarded to the encryption and compression routines for output to the storage server 850 in the form of a data package. Alternatively, the data from one application can be used to synchronize to data in another application in, for example, a windows environment, as shown by arrow 1050 in Figure 10.

[0058] It should be specifically noted that the application object may interface directly unstructured binary data or with structured application data. The differencing routine supports both uses of the delta module 950 in comparison generation.

[0059] In some cases, operation of the application object and delta module is simplified by the fact that some applications, such as PDA's, have the ability to output changes to its data. In such cases, the delta module 950 need only provide the data into the data package, since comparison to an AOS is not required - the application already includes a mechanism for tracking changes made to its own data. However, in many cases the applications provide, at most, a standard interface to access the data, such as Microsoft's OBDC interface, the Microsoft standard Application Programming Interface (API), or other similar standard interfaces.

[0060] Device engine 860 further includes a versioning module which applies a version number per object in the data package. As explained further below, each object in the data package is assigned a universally unique ID (UUID). Hence, unlike many prior synchronization systems, the system of the present invention does not sync data solely by comparing time stamps of two sets of data. Versioning module 915 allows each device engine to check the state of the last synchronization against data packs which have been provided to the storage server to determine which data packages to apply. This allows the device engine to sync itself independently of the number of times another device engine uploads changes to the storage server. In other words, a first device engine does not care how many times a second device engine uploads data packages to the server.

[0061] An events module 925 controls synchronization initialization events. Items such as when to sync, how to sync, trigger the delta module 950 to perform a synchronization operation.

[0062] A user interface 930 is provided to allow additional functional features to a system user of the particular device to which the device engine 860 is coupled. The user interface is coupled to a conflict resolution module 940, a filtering module 945, and a field mapping module 935. Each of the modules provides the functionality both necessary for all synchronization programs, and which users have come to expect.

[0063] Filtering module 945 allows filtering for types of content based on, for example, a field level content search. The field mapping module 935 allows for the user to re-map certain interpretations of items which were provided in the document stream. For example, if the device engine 860 is operating on a personal computer, and a synchronization is occurring between the personal computer and a notebook computer, and the user has a "my documents" directory on the personal computer which he wishes to map to a different directory on the notebook computer, the field mapping module 935 allows for this re-mapping to occur. It should be recognized that the field mapping module allows for changes in directing the output of the data package. The field mapping module 935 is not necessary to map particular data fields of, for example, contact information from one application, such as Microsoft Outlook, to a different application, such as Symantec's ACT, as is the traditional use of field mapping and synchronizing applications.

[0064] Delta module 950 is further coupled to a compression module 970 and an encryption module 960. It should be recognized that the compression encryption modules need not be enabled. Any type of compression module 970, such as the popular PK Zip or Winzip modules, or those available from HiFn Corporation may be utilized in accordance with the invention. Moreover, any type of encryption algorithms, such as MD5, RCH 6, Two Fish, or Blowfish, or any other symmetric encryption algorithm, may be utilized. In one embodiment of the invention, encryption without compression is used. In a second embodiment of the invention, compression without encryption is used. In a third embodiment of the invention, neither compression or encryption is used, and in a fourth embodiment of the invention, both compression and encryption are used.

[0065] Versioning module 915 also allows the device engine 860 to support multiple users with distinct synchronization profiles. This allows multiple users accessing the same machine to each synchronize their own data set using the same device engine. For example, if the application 810 on a particular device comprises Microsoft Outlook on a

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personal computer, coupled to a Microsoft Exchange server, and Outlook is configured to have multiple user profiles, versioning module 915 will track the data applied through the device engine when a sync request occurs. This allows two users of the same Outlook client software which access different data sets, either in the client computer or on a separate server, to utilize the same device engine and the system of the present invention via the same machine. In a further embodiment, a particular device engine supports the use of foreign devices accessing the system via the same connection. Palm® devices, for example, use a cradle to connect to a computer and/or Internet connection. If a particular user wishes to allow another user to use his Palm® pilot cradle connection to synchronize the other user's Palm® pilot, the device engine can generate data packages to update the local application object store for the foreign device. The application object store can therefore be used as a temporary storage for cases allowing synchronization of foreign devices.

[0066] The output of the device engine 900 comprises a data package which is output to storage server 850. As noted above, only one device engine need be connected to the storage server 850 at a given time. The data package can be stored on the storage server 850 until a request is made to a particular location of the storage server by another device engine. Likewise, delta engine 900 can query alternative locations on the storage server for access to synchronized data within the system of the present invention. Access to areas of the storage server is controlled by a management server (MS) described more fully below. In one embodiment, each sync operation requires that the device engine for each device login to the management server to authenticate the device and provide the device engine with the location of the individual device's data packages on the storage server.

[0067] Data packages may be advantageously provided to the device engine from the storage server in a streaming format, allowing processing to occur using a minimum of bandwidth and storage in the devices. The device engine 860 and particularly the delta module 950 interpret data packages based on the versioning information and the mirrored data present in the application object store 920. When data is returned to the delta module 950 from the storage server 850, the delta module returns differenced data to the application object 910 for the particular application which then translates the delta information into the particular interface utilized for application 810. Once a device engine has been fully applied all data packages from an input stream, it generates a series of data packages that describe the changes made on the local system. The device engine uses the local application object store 920 to keep track of the last synchronized version of each application's actual data, which is then used for the next data comparison by the delta module on the next sync request. Generated data packages can include operations and encode changes generated from resolving ambiguous cases as described above.

[0068] Figure 9B depicts how server based device engines may be provided in the system of the present invention. The Palm® device example is shown in this embodiment, where the Palm® device has the capability of connecting directly to the Internet and a service provider's data center 900. The data center includes a firewall 975 to prevent unauthorized communications with servers resident in the data center 900 and protect integrity of the data. The storage server 850 may communicate directly through the firewall as may the management server (MS) 1410.

[0069] Shown therein are two sync servers 982 and 984 each of which is dedicated to syncing one particular type of application. Sync server 982 is dedicated to the Palm® device, while sync server 980 is dedicated to, for example, a portal application (Portal1).

[0070] Since the Palm® Device 804a includes a mechanism for transmitting changes to its data directly, data may be transmitted using HTTP request and response via the firewall 975 to the sync server 982 where differencing and updating of data in the AOS can occur, after which changes can be downloaded to the Palm® 804a.

[0071] The synchronization server is an application handles concurrent synchronization of user's data. Each Sync Server includes plug-in support for multiple devices to be synchronized using the same sync server executable. Each device type has it's own device name that identifies which AO / AOS components will be used during the sync.

[0072] The sync server uses the concept of a universal data record in its internal sync differencing engine and when sending data to and retrieving from external entities such as the AOS and AO. Hence, in the Palm® application, the job of a server AO is simply to take the device-specific format of its record and convert into a universal record format.

[0073] The Sync Server has a plug-in architecture so that 3rd party application partners can easily add their services into the server. Currently, if the server is operated in a Microsoft Windows NT Server, the sync server discovers the sync components via the Windows NT registry. In alternative embodiments, this function is performed in a Component Manger which operates on each sync server to manage processing by each of the AO and AOS on the server. Each AO and AOS are implemented as a stand-alone DLL that the Sync Server loads at initialization time, or when adding a new component via the Component Manager.

[0074] Each sync server is shown as dedicated to a single application. However, a sync server may handle multiple device types.

[0075] In the embodiment of Figure 9B, it should be noted that, depending on the device type, there are different configurations for the AOS and AO's. For example, the Palm®'s AO data store 1050 resides on the Palm® device 804a itself and a separate AOS data store 1052 exists for this configuration (an Oracle database). In the case of Portal1, the AOS and AO use the data store 1054.

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[0076] Device engines can generate additional data packages intended to resolve synchronization problems in other systems. For example, interfacing with the conflict resolution module 940, if the user makes a change to a particular data store on an application object on his Palm® pilot, then makes an additional change to a personal information manager (PIM) application on his personal computer, the user can specify that the change made on the personal computer will "win" when the conflict is detected by the Δ engine and the versioning information between the two devices. This is essentially a definition that one particular set of data is correct and should replace the second set of data.

[0077] Figure 10 shows a specific embodiment of a desktop device engine utilized in, for example, a Microsoft Windows-based operating system environment.

[0078] As shown in Figure 10, a Windows operating system may have at least three specific applications which may require synchronization. In Figure 10, the system includes Netscape Communicator application 1040 having data such as bookmarks 1021, contacts 1022, and e-mail 1023; a Microsoft Outlook application 1042 which includes contact information 1024, calendar information 1025, e-mail information 1026, note information 1027, and tasks information 1028; and Windows operating system 1044 information including Favorites data 1029, file system information 1030, and individual files 1031.

[0079] Each particular application 1040, 1042, 1044 has an associated application object 1010, 1012, 1014. Each of the respective application objects provides data back to delta module 950 in a generic format which is usable by the delta module in accordance with the foregoing description of the apparatus shown in Figure 9A. From Figure 10, it will be additionally seen how the delta module 950 may be utilized to synchronize data between applications running on the same particular server. The device engine hence does an intra-system sync such as, for example, between the contact information 1022 from Netscape and the contact information 1024 from Outlook.

[0080] Figure 10 further illustrates the modularity of the system of the present invention allowing the device engine to include any number of different application objects to be provided on a single device to incorporate all applications run on that device.

[0081] In operation, during an installation of a device engine into a particular system, the installation program may be tailored to provide application objects which may be present on a given system. For example, and with reference to Figure 10, the installation program for a Windows machine will carry any number of application objects for systems and applications which may be present on a Windows machine. The installer will check for the presence of given applications, and allow the user to add additional applications which may be installed in locations that are not the normal default installation areas for application support by the application objects which the installer is carrying, or deselect certain applications which, for one reason or another, the user may not wish to install an application object for and render a part of the system of the present invention.

Application Object Structure

[0082] Figure 11 is a conceptual depiction of the structure of an application object. As noted above, the application object is a pluggable architecture which supports a wide variety of vendor-unique applications. The consistent and scalable architecture of the system of the present invention for device engines is maintained by encapsulating system-dependent knowledge in a single component, i.e. the application object. As noted above, every application object supports a standard set of interfaces that every device engine understands. Each application object maps these standard interfaces of the capabilities of a particular vendor application. Hence, there will be as many application objects as there are application types.

[0083] As noted above, there are different types of server and desktop device engines, some having application objects entirely on the server, while others have application objects entirely on the desktop.

[0084] Each application object will include a connector 1110 which may comprise a generic interface to the particular application for which the application object store has been designed. For example, when connecting to a Palm® device, the connector will be an HTTP protocol request routine which interfaces with the Palm® device's own built-in synchronization manager, which provides an output of records which have been changed on the Palm® device. As in Figure 9B, since the Palm® outputs all the changes to its data via its own sync manager, in the Palm® application, the job of a server AO is simply to take the device-specific format of its record and convert into a universal record format.

[0085] The connector provides access for the application object to remove the data field from a particular application and convert it to a universal record structure. In the desktop AO, where, for example the application object is designed for a Windows interface, the connector may be the Windows API and the job of the AO will be to translate data from, for example, the windows file system to a universal data format. This universal data structure is then used by the delta module 950 to build data packages to be used in synchronization between components of the systems provided in the network system of the present invention.

[0086] Universal data structure mapping, used on desktop application objects, and universal data record mapping, used by the server device engines, is further detailed below.

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Desktop Application Object

[0087] Each Application Object (AO) is a software component that interfaces with the third party application APIs (Application Programming Interface) to provide the programming services to the delta module for extraction and deposition of information data from and to the third party application domain during synchronization. In addition, the AO maps the third party application data fields to system's domain.

[0088] The AO service is a collection of COM (Component Object Model) objects that can be developed in conjunction with the third party Windows application APIs as a form of a DLL (Dynamic Linked Library) in C or C++. The DLL is loaded on demand at runtime during synchronization. It should be recognized that the application object need not be implemented using the COM model, but may be developed with other distributed object models.

[0089] There are a number of the related subsystems and documents that the developer must be familiar with and this document has made many references to those subsystems during the course of presenting the AO.

- *Change Log (CL)* (or differencing information) , a data file which contains a series of synchronization transactions.
- *DataPack*, a compacted and encrypted Change Log.
- *StructuredDelta*, the delta module differentiation engine that generates differences between Application Objects and Change Log and AOS.
- *AOS*, a database which resides locally on, for example, a windows machine.
- *MS*, a management server that manages users' accounts.
- *SS*, an FTP or storage server that manages data packs.
- *User Manager*, a standalone Windows client UI program that manages the synchronization process.
- *ePortal*, a web-based PIM portal site.
- *pio_types.h*, a header file which contains the definitions of the system's supported data fields known as tags.
- *Def.h*, a header file contains the definitions of the system's constants.
- *interfaces.h*, a COM interface file contains AO interface definitions.

[0090] Each AO has a COM interface-based design built-in. That is, instead of providing a set of traditional APIs as programming services, it provides a set of interface-based objects as programming services.

[0091] StructuredDelta, the delta module, the primary intended user of each AO. StructuredDelta instantiates these COM objects and uses them throughout the synchronization session exclusively through the COM interfaces on those objects to interface with the third party application database.

[0092] Each AO component consists of a set of objects that translate the third party application data into the universal data middle format which underpins the entire spectrum of PIM data regardless of which third-party application the data comes from. The objects in universal data format are **device, (application) data class, store, folder, item**, and **data fields.** The AO digests the third party application data of any kind and reduces it into a few handful simple objects and field types. These objects and field types are fed into StructuredDelta engine and are compared by StructuredDelta in order of their hierarchy. The resulting differences (add, delete, modify) are logged as transactions in the difference information. The data packs are transported to a storage server that may be actively managed by a management server for each individual user account and devices.

[0093] StructuredDelta uses AO objects to access and modify the individual AO objects and data fields. AO objects serve as a buffer between individual application data and StructuredDelta so that StructuredDelta does not require knowledge of each application and database. All AO objects are temporary and created in the space of each AO by StructuredDelta through COM interfaces. AO objects are referenced when they are in use and they are freed when StructuredDelta stops using them. One can think of AO objects as merely placeholders of each application objects for StructuredDelta to access. Once StructuredDelta has a particular Application's data, StructuredDelta would free AO objects immediately without storing them internally.

AppObj

[0094] AppObj is a root object of each AO component and there is one and only one per AO. AppObj provides an entry point into the individual application's database. StructuredDelta instantiates it and holds it on during the entire synchronization session and releases it afterward. AppObj offers a number of services such as what class of data it supports. The C++ example of AppObj's definition is shown below:

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```
class CMyFlAppObj :
        public    Item,
        public    AppObj,
        protected ModuleIdentity,
        protected DataClassInfo,
        protected ItemTypeInfo,
        protected ItemFieldMap,
        protected FolderInfo,
        protected DataFileInfo,
        protected SynchNotify,
        protected ErrorMsg,
        protected EnumItems,
        protected FindItem,
        protected ModifyItem

{
        public:
                CMyAppObj( HWND hWndParent );
                ~CMyFppObj();
};
```

[0095] AppObj can contain children objects. They are Store objects. ***EnumItems*** interface is used to enumerate Store objects. ***FindItem*** interface is used to find the contained objects. ***ModifyItem*** interface enables AppObj to create a new Store object. AppObj is created by StructuredDelta calling *CreateAppObject(HWND hWndParent, AppObj **ppObj).*

Store

[0096] The Store object represents a database of the individual application information. If the individual application can handle multiple databases at same time, one needs multiple Store objects. One can think of Store object as a specialized Folder object, the root folder of each particular application data domain. The C++ example of Store's definition is shown below:

```
class CMyStore :
        public    Item,
        public    ItemContainer,
        protected EnumItems,
        protected FindItem,
        protected FindItemByData,
        protected ModifyItem,
        protected ReadWrite
{


                CMyStore();
                ~CMyStore();
};
```

[0097] Store is a container of Folder objects. ***EnumItems*** interface enables the enumeration of its contained folders while ***FindItem*** and ***FindItemByData*** interface is used to find contained Folders or Item objects. ***ModifyItem*** and ***ReadWrite*** interface enables the modification of each application database.

Folder

[0098] Folder object is a specific data class of each individual application such as a table in the relational database or a collection of data records in each application. For example, the applications contact collection can be thought as a Folder object. The C++ example of Folder's definition is shown below:

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```
class CMyFolder :
        public    Item,
        public    ItemContainer,
        protected EnumItems,
        protected FindItem,
        protected FindItemByData,
        protected ModifyItem,
        protected ReadWrite
{
        public:
                CMyFolder();
                ~CMyFolder();
};
```

[0099] Folder object is also container. It can contain Item objects as well as Folder objects. ***EnumItem*** interface allows the enumeration of either Folder objects or Item objects or both. ***FindItem*** and ***FindItemByData*** interface is used to find contained Folder objects or Item objects. ***ModifyItem*** and ***ReadWrite*** interface enables the modification of an application's data tables.

Item

[0100] Item object represents an individual entity of each application's domain specific data. Item object can be thought as a record of each application's relational table. For example, a contact, email, calendar, to-do item in the particular application can be thought of as an Item object. The C++ example of Item's definition is shown below:

```
class CMyItem :
        public    Item,
        protected EnumItems,
        protected FindItem,
        protected ModifyItem,
        protected ReadWrite
{
        public:
                CMyItem();
                ~CMyItem();
};
```

[0101] Item can contain Attachment objects only. EnumItems interface enables the enumeration of Attachment objects if any. ***ModifyItem*** and ***ReadWrite*** interface enables the modification of an application's records or data fields.

Attachment

[0102] Attachment object is a specialized Item object that encapsulates an attachment data or relationship. Only Item can have Attachment objects. Attachment object can be thought as attachment data such as attached-email files. Attachment can also be thought as attachment relationship to other Item objects. The example of that is the distribution list (Item object) can contain contacts (Item objects). The C++ example of Item's definition is shown below:

```
class CMyItemAttachment :
        public Item,
        protected ReadWrite,
        protected ModifyItem
{
        public:
                CMyItemAttachment();
                ~CMyItemAttachment();
};
```


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Variant

[0103] Variant object represents a data field of each particular application data. For example, a 'first name' of a contact or the birthday date of a contact can be thought as Variant object. StructuredDelta only understands Variant object and the types of data fields it encapsulated. **Variant** object can contain any one of the following data field type:

```
struct Variant
{
      enumFieldTag        tag;
      enumFieldDataFlag   flag;    // flags item fields as not
known or otherwise special
      union
      {
            short int           i;          // eFieldType_WORD
            LONG                l;          // eFieldType_LONG
            DWORD               dw;         // eFieldType_DWORD
            unsigned __int64    qw;         // eFieldType_QWORD
            UUID                uuid;       // eFieldType_UUID
            DATE                time;       // eFieldType_DATE
            LPTSTR                    psz;        //
eFieldType_String
            Binary              bin;        // eFieldType_Binary
            Float               flt;        // eFieldType_Float
            Double                    dbl;        //
eFieldType_Double
            FlCollection        coll;       //
eFieldType_Collection
      } Value;
      Stream*             strm;  // eFieldType_Stream
};
```

[0104] Variant::tag is an identification tag of data field and **variant::flag** specifies the type of data field while **Variant::value** member variable stores each application's field value. One data field type is **Collection**. **Collection** object is an array of **Variant** objects. It can be used to represent a compound data fields.

```
struct Collection
{
      ULONG               cValues;
      struct_Variant**    paVar;            // This array really
contains cValues entries
};
```

[0105] Another data field type that is worth exploring is Binary. Binary object can be used to represent a binary data as it is.

```
struct Binary
{
    ULONG       cb;
    LPBYTE      lpb;
};
```


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AO Interfaces

[0106] Each AO object has an AO COM interface. Each object must implement some of those interfaces to create certain capability or desired behavior that are expected by StructuredDelta.

IItem

[0107] This is the base interface of all application objects. It provides the identification service to StructuredDelta. Every object must have a unique ID, parent unique ID, display name, and item type information (*eItemType_FOLDER*, *eItemType_CONTACT*, etc). The unique ID is a unique string only in a given device. It is not persistent cross the Internet to other devices. The ID usually comes from the third party application database domain such a unique ID of a record.

```
interface IItem : IUnknown
{
        STDMETHOD_(LPCTSTR, GetUniqueID) () const PURE;
        STDMETHOD_(LPCTSTR, GetParentUniqueID) () const PURE;
        STDMETHOD_(LPCTSTR, GetDisplayName) () const PURE;
        STDMETHOD_(enumItemType, GetItemType) () const PURE;
        STDMETHOD_(BOOL, IsContainer) () const PURE;
        STDMETHOD_(DATE, GetLastModificationTime) () const PURE;
        STDMETHOD_(QWORD, GetSize) () const PURE;
        STDMETHOD_(DWORD, GetFlags) () const PURE;
};
```

IItemContainer

[0108] This is the base interface of all application container objects (**store**, **folder**). These container objects must have this interface implemented so that StructuredDelta would recursively descend in them if they have IItemContainer capability.

```
interface IItemContainer : IItem
{
        STDMETHOD_(BOOL, ContainsItemType)( enumItemType eItemType ) PURE;
        STDMETHOD_(BOOL, ContainsDataClass)( enumDataClass eDataClass )
PURE;

        STDMETHOD_(enumSpecialFolderType, GetSpecialFolderType) () PURE;
        STDMETHOD_(GUID, GetMappingGUID) () PURE;
};
```

IErrorMsg

[0109] This is an error-reporting interface for every application object. It is used by StructuredDelta to query the error string after a failure. The AO should implement this on every object after the error occurs and before returning the control to StructuredDelta.

```
interface IErrorMsg : IUnknown
{
        STDMETHOD(GetErrorString) ( LPTSTR pszError, int iBufLen )
const PURE;
};
```


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IEnumItems

[0110] This is an interface for collection enumeration, used by StructuredDelta to enumerate the objects of the third party application database. ***IEItemEnumFlags*** (*eItemEnumFlags_FOLDER, eItemEnumFlags_ITEM, and eItemEnumFlags_ATTACHMENT*) is used to enumerate only the requested type of objects.

```
interface IEnumItems : IUnknown
{
      STDMETHOD(ItemQueryStart) ( enumItemType type, long
&lCount, eItemEnumFlags dwFlags ) PURE;
      STDMETHOD(ItemQueryNext) ( Item **ppItem ) PURE;
      STDMETHOD(ItemQueryFinish) () PURE;
};
```

IFindItem

[0111] This is an interface for recursively finding object within the third party application database, used by StructuredDelta to find application object by its unique ID.

```
interface IFindItem : IUnknown
{
      STDMETHOD(FindStoreByID) ( LPCTSTR pszUniqueID, ItemContainer
            **ppFolder ) PURE;
      STDMETHOD(FindFolderByID) ( LPCTSTR pszUniqueID, ItemContainer
            **ppFolder ) PURE;
      STDMETHOD(FindItemByID) ( LPCTSTR pszUniqueID, Item **ppItem )
            PURE;

                                    };
```

IFindItemByData

[0112] This is an interface for recursively finding the object that matches the search criteria data. The search criteria are represented as **Collection** that allows the multiple search field keys to be used during the search. The multiple objects may be found that match the search criteria. The interface also provides enumeration capability of the search results.

```
interface IFindItemByData : IUnknown
{
      STDMETHOD(FindByDataStart) ( enumItemType type, Variant*
pSearchKey, int* pnFound ) PURE;
      STDMETHOD(FindByDataNext) ( LPTSTR pszEntryID, int
cbBufSize ) PURE;
      STDMETHOD(FindByDataFinish) () PURE;
};
```

IModifyItem

[0113] This is an interface for StructuredDelta to add, delete, and re-parent application data in the third party database during synchronization.

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```
interface IModifyItem : IUnknown
{
      STDMETHOD(Add) ( BOOL bFolder, enumItemType type, Item
**ppItem ) PURE;
      STDMETHOD(Delete) () PURE;
      STDMETHOD(Move) ( ItemContainer * pDestFolder ) PURE;
};
```

IReadWrite

[0114] This is an interface for accessing, writing, and mapping the third party application data fields by Structured-Delta. It provides the capability of read and write data fields from and to the third party application database and the capability of mapping data field of the third party application to universal data format of the system of the present invention. Any object that has data fields and require field level synchronization must implement this interface.

```
interface   IReadWrite : IUnknown
{

      STDMETHOD(Read) () PURE;
      STDMETHOD(Commit) () PURE;
      STDMETHOD(GetFieldData) ( enumFieldTag fieldTag, Variant
**ppVariant ) PURE;
      STDMETHOD(ReleaseFieldData) ( Variant *pVariant ) PURE;
      STDMETHOD(SetFieldData) ( const Variant *pVariant ) PURE;
};
```

IAppObj

[0115] This is an AppObj only interface. It provides the capability of logon and logoff to the third party applications during synchronization. The data class filter mechanism is used by StructuredDelta to filter the enumeration of contained data classes (eDataClass_CONTACT, eDataClass_CALENDAR, etc).

```
interface IAppObj : IUnknown
{
      STDMETHOD(Logon) ( HWND hWndParent ) PURE;
      STDMETHOD(Logoff) () PURE;
      STDMETHOD(SetFilter) ( const VOID* pFilter, int BufLen )
PURE;
      STDMETHOD_(int, GetFilter) ( VOID* pFilter, int BufLen )
PURE;
};
```

IModuleIdentity

[0116] This is an AppObj only interface. It provides DLL module identification information to the Manager object such as the name of the third party application, enum ID of this application, and the application installation detection support.

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```
interface IModuleIdentity : IUnknown
{
      STDMETHOD(GetName) ( LPTSTR pszName, int iBufLen ) const
PURE;
      STDMETHOD(GetAppl) ( Appl *pAppl ) const PURE;
      STDMETHOD(IsInstalled) ( BOOL *bIsInstalled ) const PURE;
};
```

IItemTypeInfo

[0117] This is an AppObj only interface. It provides the information on the number of item types supported by AO, what type items are supported and the capabilities for a specific item type. This returns a DWORD containing bits set.

```
interface IItemTypeInfo : IUnknown
{
      STDMETHOD(GetSupportedTypesCount) ( int &iCount ) PURE;
      STDMETHOD(GetSupportedTypeInfo) ( int iIndex, enumItemType
&type, LPTSTR pszTypeName, int iBufLen ) PURE;
      STDMETHOD(GetItemTypeCaps) ( enumItemType type, DWORD
&dwFlags ) PURE;
};
```

IDataClassInfo

[0118] This is a CAppObj only interface. It provides the information on the number of data classes that are supported by the application object and what the data classes are supported

```
interface IDataClassInfo : IUnknown
{
      STDMETHOD(GetCount) ( int *piCount ) PURE;
      STDMETHOD(GetDataClass) ( int iIndex, enumDataClass
*peDataClass ) PURE;
};
```

IDataFileInfo

[0119] This is a CAppObj only interface, it provides information on the number of database files and database filenames supported by AO to avoid being synched twice by application sync and file-set sync.

```
interface IDataFileInfo : IUnknown
{
      STDMETHOD(GetDataFileCount) ( int *piCount ) PURE;
      STDMETHOD(GetDataFilePath) ( int iIndex, LPTSTR
pszFilePath, int iBufLen ) PURE;
};
```

IItemFieldMap

[0120] This is a CAppObj only interface that is used by StructuredDelta to query the data fields of given application object. For example, what are data fields in application object called eItemType_CONTACT?

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```
interface IItemFieldMap : IUnknown
{
      STDMETHOD(FieldQueryStart) ( const enumItemType &type, int
&iCount ) PURE;

      STDMETHOD(FieldQueryNext) ( enumFieldTag &field, LPTSTR
pszName, int iBufLen, LPTSTR pszType, int iTypeBufLen ) PURE;
      STDMETHOD(FieldQueryFinish) () PURE;
};
```

IFolderInfo

[0121] This is a CAppObj only interface, used by StructuredDelta to obtain the special and default folders' unique IDs and UUIDs.

```
interface IFolderInfo : IUnknown
{
      STDMETHOD(GetSpecialFolderID) ( enumSpecialFolderType
eFolder, LPTSTR pszUniqueID, int iBufLen ) PURE;
      STDMETHOD(GetDefaultFolderID) ( enumItemType type, LPTSTR
pszUniqueID, int iBufLen ) PURE;
      STDMETHOD(MapFolderGUID) ( UUID uuidFolder, LPTSTR
pszUniqueID, int iBufLen ) PURE;
};
```

IFastSync

[0122] This is a CAppObj only interface that is used by StructuredDelta to query if the given AO also provides FastSync service or not. FastSync is a DLL component that is written using the third party APIs and loaded into the third party application to receive the changes in database while users are operating the application. It is used to speed up the synchronization performance by syncing only the objects that are known to IFastSync component.

```
interface IFastSync : IUnknown
{
      STDMETHOD(GetFastSync) ( enumDataClass eDataClass, BOOL*
pbFastSync ) PURE;
};
```

SynchNotify

[0123] This is a CAppObj only interface that is called by Manager to notify the third party application the state of synchronization: **start**, **finished**, or **reset** so that the application can prepare itself accordingly.

```
interface ISynchNotify : IUnknown
{
```


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```
        STDMETHOD(SynchNotify) ( enumSynchNotify eNotify ) PURE;
};
```

Server AO

[0124] Server Application Objects share many characteristics with desktop application objects, including support for reading and mapping to the universal record structure set forth above.

[0125] Nevertheless, among various devices incorporated into the system of the present invention, each application object database will be quite different. For example, the Palm® database on the device is really just a memory space with records laid out sequentially in memory. In a web portal-type application, the application object may be an Oracle database. Server application objects may generally have less difficult tasks since the applications supported are generally either devices providing their own change data output, (such as Palm®-type PDA's), or which do not have a great deal of data to export (such as cell phones, having only name and number information).

[0126] Nevertheless, each application object must support all calls defined in a class interface definition as follows:

FUNCTION	DESCRIPTION
Open	Perform an initialization of the device before data retrieval functions are called.
Close	Done with database calls, cleanup if necessary.
Get First Modified Record	Get the first modified record from the device and insert into application object.
Get Next Modified Record	Get the next modified record from the device and insert into the application object.
Add Record	Add a record into the application object database.
Update Record	Update a record.
Delete Record	Delete a record in the application object database.
Set Device Records	A function called during the synchronization manager to send a bytestream to the application object for interpretation. The bytestream will contain a list of records to add to the application object modified records list. At a later point in time, such records will be retrieved by the Get First Modified Record/Get Next Modified Record functions.
Get Device Records	For records bound to the device, this call gets a bytestream that contains a list of records to add back to the device. There is an outbound record list that is saved until this call is finished, at which time the sync server will be finished with the application object
Set Device Response	A function used to modify or repair a record input saved in the application object store that was sent to the device in the Get Device Records call, such as a record ID for a record. If 10 records were sent to the device during the Get Device Records call, one would expect to see 10 records coming back in during this function call.

[0127] As noted above, because each application object database is different, the calling convention and the application object itself will likewise be different. The calling convention for a Palm® device's sync manager application object is given in the following pseudo-code:

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```
Call AO::Open
Call AO::WriteRecords

Start synchronization process

While more records in AO Data Object
      Call AO::GetFirstModifiedRecord()
      Call AO::GetNextModifiedRecord()
END

IF new records THEN
      Call AO::AddRecord()
IF deleted records THEN
      Call AO::DeleteRecord()
IF update record THEN
      CALL AO::UpdateRecord()


                  Call AO::Close
```

As shown therein, the calling convention is designed to be integrated with the Palm's® own sync manager.

[0128] A second example provided below shows mapping of a portion of a web portal's contact database:

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```
MappingItem CContactTable::m_FieldMap[] =
{
        {1,    eFieldTag_Contact_FirstName,      "firstname"},
        {1,    eFieldTag_Contact_MiddleName,     "middlename"},
        {1,    eFieldTag_Contact_LastName,             "lastname"},
        {1,    eFieldTag_Contact_Title,                "title"},
        {1,    eFieldTag_Contact_Suffix,               "suffix"},
        {1,    eFieldTag_Contact_Anniversary,          "anniversary"},
        {1,    eFieldTag_Contact_Birthday,             "birthday"},
        {1,    eFieldTag_Contact_AssistantName,        "assistantname"},
        {1,    eFieldTag_Contact_Children,             "children"},
        {1,    eFieldTag_Contact_CompanyName,          "companyname"},
        {1,    eFieldTag_Contact_Department,           "department"},
        {1,    eFieldTag_Contact_FTPSite,                    "ftpsite"},
        {1,    eFieldTag_Contact_Gender,               "gender"},
        {1,    eFieldTag_Contact_JobTitle,             "jobtitle"},
        {1,    eFieldTag_Contact_ManagerName,          "managername"},
        {1,    eFieldTag_Contact_NickName,             "nickname"},
        {1,    eFieldTag_Contact_Office,               "office"},
        {1,    eFieldTag_Contact_Profession,           "profession"},
        {1,    eFieldTag_Contact_Spouse,               "spouse"},
        {1,    eFieldTag_Contact_SelectedMailingAddress,
               "selectedmailingaddress"}
};
int CContactTable::m_nNumFields =
sizeof(m_FieldMap)/sizeof(MappingItem);

HRESULT CPortalAddrOCI::InsertRecord( MappingItem theMap[], int
numFields, CDataAccessor *pInsertItem, CFlItemUniversal *pUnivItem,
bool bForceCreate )
{
        bool bHasData = SetRecordFields( theMap, numFields, pInsertItem,
                pUnivItem );

        if( bHasData || bForceCreate )
        {
        // Insert the record into the database and execute the command
                pInsertItem->InsertRow(0);
                pInsertItem->Exec();
        }

        return S_OK;
}
```

[0129] The above example of mapping the contact field files maps contact fields from a particular web contact information database to fields in the universal record format from the master list header file (pio_types.h) in the system of the present invention. This mapping is for a specific contact table and it should be understood that other information, such as phone numbers, e-mail addresses, and other contact information may be stored in a separate table.

[0130] Once data is extracted from a particular application, the server application object must then convert the information into the universal record format which can be utilized by other server device engines to take content information into their own particular application.

Universal Record Format

[0131] The universal record format is used by each server device engine to handle various tasks of encapsulating records in a common format, comparing records, creating and holding differences between records, and other tasks of synchronization.

[0132] The universal record format allows the application objects to support a wide range of extensible application item types such as contacts, calendar, mail, bookmarks, and the like. Flexible type name and value associations permit synchronization without regard to individual vendor application information formats. Each application object encapsulates mapped knowledge from the vendor unique format to the universal format of the present invention. As such, an application object can be designed to support any combination of application and binary information types. In essence, application objects can be designed to support a vendor application using only binary file synchronization if the internal format of the application is not known.

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[0133] Server application objects can also be designed to create collections. For example, if the user wishes to create a "my pictures" collection which consists of some collection of information and synchronize this collection of information, such an arbitrary grouping of classes of information into appropriate representations is supported.

[0134] Because the connector layer of the interfaces to the actual storage with a vendor application varies with application type, application access methods can include, but are not limited to, disk or database access, network protocols, wireless device protocols, and the like.

[0135] The Universal Records Format and the Universal Field Format class definitions are given below:

```
typedef map < enumFieldTag, CUniversalField, less_enumFieldTag >
UniversalRecordMap;
typedef UniversalRecordMap::value_type UniversalRecordPair;
typedef UniversalRecordMap::iterator UniversalRecordIterator;
typedef UniversalRecordMap::const_iterator
ConstUniversalRecordIterator;

class CUniversalRecord
{
private:
      UniversalRecordMap recordMap_;
public:
      bool conflicts(const CUniversalRecord& rhs);
      bool add(const CUniversalRecord &rhs);
      bool subtract(const CUniversalRecord& rhs);

      CUniversalRecord();
      CUniversalRecord( const CUniversalRecord& rhs );
      virtual ~CUniversalRecord();

      // add this element
      HRESULT insert( enumFieldTag eId, long value,
enumFieldDataFlag flag = eFieldDataFlag_Normal);
      HRESULT insert( enumFieldTag eId, LPCTSTR value,
enumFieldDataFlag flag = eFieldDataFlag_Normal);
      HRESULT insert( enumFieldTag eId, DATE value,
enumFieldDataFlag flag = eFieldDataFlag_Normal);
      HRESULT insert( enumFieldTag eId, string value,
enumFieldDataFlag flag = eFieldDataFlag_Normal);
      HRESULT insert( UniversalRecordPair p );

      CUniversalRecord exclusiveLeftWins( CUniversalRecord& rhs );
      CUniversalRecord inclusiveLeftWins( CUniversalRecord& rhs );
      bool removeSame(const CUniversalRecord &rhs);

      bool Find( const enumFieldTag eId, CUniversalField &field );
      UniversalRecordMap::iterator find( const enumFieldTag eId ) {
      return recordMap_.find(eId); }

      UniversalRecordMap::iterator begin()          { return
recordMap_.begin(); }
      UniversalRecordMap::iterator end()            { return
recordMap_.end(); }
      bool empty()                              { return
recordMap_.empty(); }
      long size()                               { return
recordMap_.size(); }
      UniversalRecordMap::iterator erase(UniversalRecordMap::iterator&
it)
            { return recordMap_.erase(it); }
      void clear()                              { recordMap_.clear(); }
};
```


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The UniversalField Structure

[0136]

```
class CUniversalField
{
public:
	enum eUniversalField
	{
		eUF_Unknown,
		eUF_Long,
		eUF_String,
		eUF_Date,
		eUF_Blob
	};

protected:
	eUniversalField		typeId_;
	enumFieldTag		fieldId_;
	enumFieldDataFlag	flag_;
	size_t			len_;

	union
	{
		long	l;
		DATE	d;
		TCHAR*		pCh;
	} value_;

public:
	CUniversalField();
	CUniversalField( const CUniversalField& rhs );
	CUniversalField( enumFieldTag itemId, long value,
enumFieldDataFlag flag = eFieldDataFlag_Normal);
	CUniversalField( enumFieldTag itemId, DATE value,
enumFieldDataFlag flag = eFieldDataFlag_Normal);
	CUniversalField( enumFieldTag itemId, LPCTSTR value,
	enumFieldDataFlag flag = eFieldDataFlag_Normal);
	CUniversalField( enumFieldTag itemId, string blob,
enumFieldDataFlag flag = eFieldDataFlag_Normal);
	~CUniversalField();

	bool operator==( const CUniversalField& rhs ) const;
	bool operator!=( const CUniversalField& rhs ) const { return
		!operator==(rhs); }
	CUniversalField& operator=( const CUniversalField& rhs);

	eUniversalField getType() const	{ return typeId_; }
	enumFieldTag getFieldID() const	{ return fieldId_; }
	enumFieldDataFlag getFlag() const		{ return flag_; }
	size_t getLength() const		{return len_; }

	LPCTSTR getString() const		{ ASSERT( eUF_String ==
	typeId_); return value_.pCh; }
	long getLong() const			{ ASSERT( eUF_Long ==
	typeId_); return value_.l; }
	DATE getDate() const			{ ASSERT( eUF_Date ==
	typeId_); return value_.d; }
	string getBlob() const			{ ASSERT( eUF_Blob ==
	typeId_); return string(value_.pCh,len_); }

	void get( LPCTSTR& p ) const		{ ASSERT( eUF_String ==
	typeId_); p = value_.pCh; }
	void get( long& l) const		{ ASSERT( eUF_Long ==
	typeId_); l = value_.l; }
	void get( DATE& d) const		{ ASSERT( eUF_Date ==
```


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```
        typeId_); d = value_.d; }
        void get( string& b) const        { ASSERT( eUF_Blob ==
        typeId_); b.assign(value_.pCh,len_); }

        bool isString() const             { return typeId_ ==
              eUF_String; }
        bool isLong() const         { return typeId_ ==  eUF_Long; }
        bool isDate() const         { return typeId_ ==  eUF_Date; }
        bool isBlob() const         { return typeId_ ==  eUF_Blob; }
};
```

Example

[0137] An example of how data is removed from one particular application data type and converted into the universal record format is given below for an Oracle database:

```
#include "stdafx.h"

#include <string>
using namespace std;
#include "FlItemUniversal.h"

#include "oci.h"
#include "OCIDefs.h"
#include "OCIConnect.h"
#include "OCISession.h"
#include "OCIColumn.h"
#include "OCICursor.h"
#include "DataAccessor.h"

#include "UniversalMapper.h"
#include "UniversalRecord.h"
#include "FlUtil.h"

#include "BaseAOSTableOCI.h"


/*
 * Function:  MapFields
 * Description:  Map fields from an Oracle database record into an
UniversalRecord format.
 */

void CBaseAOSTableOCI::MapFields( CDataAccessor *pAccessor, MappingItem
theMap[], int numFields, CUniversalRecord &univRec )
{
      string       sValue;
      DATE         dtValue;
      LONG         lValue;
      double       dValue;

      for( int inx=0; inx<numFields; inx++ )
      {
            enumFieldTag fieldID = theMap[inx].m_universalFieldID;

            switch( FlPropType( fieldID ) )
            {
```


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```
                        case eFieldType_Binary:
                        {

// to fill properly, 1st name and last name should already be assigned
                              CUniversalField emailField;
                              string sValue;

                              if ( SUCCEEDED(BuildEmailField( pAccessor,
sValue, emailField )) )
                                    univRec.insert( fieldID,
emailField.getBlob() );
                              break;
                        }

                        case eFieldType_String:
                              if( pAccessor->GetFieldValue( fieldID, sValue )
)
                              {
                                    if ( 0 == ::_tcslen(sValue.c_str()) )
                                          continue;

                                    univRec.insert( fieldID, sValue.c_str()
);
                              }
                              break;

                        case eFieldType_DATE:
                              if( pAccessor->GetFieldValue( fieldID, dtValue
) )
                                    univRec.insert( fieldID, dtValue );
                              break;

                        case eFieldType_DWORD:
                              if( pAccessor->GetFieldValue( fieldID, lValue )
)
                                    univRec.insert( fieldID, lValue );
                              break;

                        case eFieldType_Double:
                              if( pAccessor->GetFieldValue( fieldID, dValue )
)
                                    univRec.insert( fieldID, dValue );
                              break;

                  }
            }
      }

HRESULT CBaseAOSTableOCI::InsertRecord( MappingItem theMap[], int
numFields, CDataAccessor *pInsertItem, CPlItemUniversal *pUnivItem, bool
bForceCreate )
{
      bool bHasData = SetRecordFields( theMap, numFields, pInsertItem,
pUnivItem );

      if( bHasData || bForceCreate )
      {
            pInsertItem->InsertRow(0);
            pInsertItem->Exec();
      }

      return S_OK;
}

/*
 * Function:  SetRecordFields
```


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```
 * Description:  Map fields from an UniversalRecord format into an Oracle
database record (pInsertItem)
 */
bool CBaseACSTableOCI::SetRecordFields( MappingItem theMap[], int
numFields, CDataAccessor *pInsertItem, CFlItemUniversal *pUnivItem )
{
      bool bHasData = false;
      CUniversalField field;

      for( int inx=0; inx<numFields; inx++ )
      {
            enumFieldTag fieldID = theMap[inx].m_universalFieldID;

            BOOL bExists = pUnivItem->m_record.Find( fieldID, field );

            if( bExists )
            {
                  bHasData = true;
                  if( field.isBlob() )
                  {
                        string blob = field.getBlob();
                        LPCTSTR szEmailAddr =
GetAddressFromRecipients((FLRECIPIENTS*)blob.c_str());
                        if( szEmailAddr && *szEmailAddr != NULL )
                              pInsertItem->SetFieldValue( fieldID,
(string)szEmailAddr );
                        else
                        {
                              bHasData = false;
                              continue;
                        }
                  }
                  else if( field.isString() )
                  {
                        string sValue = field.getString();
                        if( !sValue.empty() )
                              pInsertItem->SetFieldValue( fieldID,
sValue );
                  }
                  else if( field.isLong() )
                  {
                        LONG nValue = field.getLong();
                        pInsertItem->SetFieldValue( fieldID, nValue);
                  }
                  else if( field.isDate() )
                  {
                        DATE dValue = field.getDate();
                        if( dValue )
                              pInsertItem->SetFieldValue( fieldID,
dValue );
                  }

            }     // if( bExists )
      } // For all fields

      return bHasData;
}
```

[0138] While the above-identified code is specific to, for example, an Oracle database, one of average skill in the art will readily recognize that the technique utilized above may be adapted to other types of databases containing records and fields of interest. In the above code examples, all fields which are mapped from a particular application are mapped to fields in the master mapping file.

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Management Server

[0139] In order to provide security and identification of particular users in an Internet-implemented synchronization system, a management server may be provided in the system of the present invention. The management server is a centralized server which controls behavior and characteristics of the entire network of device engines across all users.

[0140] Figure 14 shows the general representation of how a management server 1410 integrates itself into the system of the present invention. Shown in Figure 14 is an exemplary device engine 1450 which has HTTP links to both a management server 1410, a storage server 1415, and a generic FTP server 1420. As will be discussed hereinafter with reference to the process of the present invention, and the specific implementation of the data below shown in Figures 15-17, the management server interacts with the device engine to control authorized access to information on the storage server, or a generic FTP server 1420,1425 to access device-specific information storage 1430 in accordance with the system of the present invention. This allows any device coupling to the Internet to have access to management protocols and to retain user information across all platforms which the data which is being synched by the system of the present invention must access.

[0141] The management server communicates using hypertext transfer protocol (HTTP) which may be implemented with a secure sockets layer (SSL) to ensure security.

[0142] In particular, the management server supports an authentication interface that requires each device engine to authenticate with the management server before performing synchronization. Certain storage server implementations may utilize locking semantics to control read and write access to storage for multiple device engines. For example, in a generic FTP request, if two device engines attempt to connect to the same data at the same time, there must be some form of locking control to prevent device engines accessing the same data at the same time. In this instance, the management server controls the device engine acquisition, renewal, and releasing of locks against data stored in the network.

[0143] Each device engine is uniquely identified and tracked by the management server. This allows for tailoring behavior between the management server and specific types of storage systems and device engine components. All device engine components are tagged and version stamped for management via the management server.

[0144] Device actions can request updated copies of individual device engine components, permitting self-update and configuration of device engine systems. This permits minimal download designs for device engines that are on low bandwidth connections enabling the device engines to download additional required components at a later time.

[0145] In a further aspect of the system, a value added component may be provided where the management server can support client's advertising mechanisms, enabling the display of banner or similar advertising on a device engine system without the need for a web browser. Cycling of advertisements, statistic collection, and the like, are managed via management server protocols. Online purchase and subscription mechanisms are also supported using the management server protocol.

[0146] The management server further supports the accounting, sign-up registration, device edition, storage server selection, and similar functions for each user in the system. In one embodiment, the management server may retain password and encryption information for a given user account. In a second embodiment, such information is not retained. The second embodiment provides the advantage that users may feel more secure if the maintainer of the management server is not in possession of the password to access data in the user's account.

[0147] Further information with respect to the management server and the data flow from the management server to other components of the system of the present invention will become apparent with respect to the discussion of the process flow and data flow diagrams in Figures 15-17.

[0148] Figure 17 shows a general depiction of the data flow and the functional specification of the management server utilized in accordance with the present invention.

[0149] As shown in Figure 17, following a welcome request 1710, a user is allowed to sign out which enables an add user module 1712, and subsequently enables an add device module 1714. If sign-up is not requested, information may be provided via module 1718.

[0150] As indicated in Figure 17, the add user module 1712 adds user records to the user in device database 1750. Additionally, the add device module 1714 adds users and devices to the user device database 1750. A device list 1720, and a device engine download and update database 1722, provide selection data for the add device module 1714. The account authentication module 1724 receives input both directly from a user log-in from the welcome screen at 1710 and from the add device module 1714.

[0151] Once an account is authenticated and confirmed, the administrator of the system of the present invention having a private data store at 1770 may choose to provide a web desktop 1754 which allows access to a user's records such as file 1756, e-mail 1758, calendar 1760, contacts 1762, notes 1764, and tasks 1766. The information will be culled from a provider database 1752 which will be synched in accordance with the system of the present invention as previously described. In essence, the provider database 1752 accesses data from the device engines 1780, which include, as discussed above, the storage server, each individual device engine 1785, and a settings database 1787.

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[0152] Other portions of the management server include the locking modules for beginning a sync 1732, continuing a sync 1734, and ending a sync 1736, and for updating user information including modifying a user 1742, adding devices 1744, removing devices 1746, and modifying devices 1748.

Storage Server

[0153] Shown in Figure 14 is the storage server 1415. While storage server 1415 may include a generic storage model accessible through any number of standard Internet protocols, in accordance with the present invention, a flexible storage architecture is provided that permits various standard implementations of the system of the present invention. This allows deployment of network services without installation of new server applications and can be responsible for communicating change information between multiple device engines in a consistent fashion.

[0154] One or more storage servers 1415 may be used to communicate transaction amongst a collection of devices. Each user's personal information network is represented by a unique account within its own data package storage section. The storage server 1415 maintains persistent store collection of data packages which is, at a minimum, enough data packages to be capable of synchronizing the most out-of-date system in a user's given information network or add information to new devices which are provided in the network. Additional data packages can be maintained to permit rollback of previous versions of information. The storage server can automatically dispose of older data package storage and can support aging of an inactive accounts.

[0155] Each storage server 1415 may be implemented using a variety of implementations including a standard FTP server for any operating system platform. The storage server can be implemented using HTTP protocols for increased efficiency and firewall avoidance. The storage server may be implemented using techniques for local storage such as database access or single file storage of a user's entire file system tree. The storage server 1415 may utilize the stored foreign protocol model for moving copies of data packages to other storage servers in the system. In one embodiment, the storage server can allow tunneling of information using an alternative protocol to other storage servers in cases where firewall prevents originating protocol. For example, a storage server can relay an FTP traffic inside an HTTP protocol. Storage servers may include their own locking semantics to arbitrate multiple device engine access to the same server without the need for a separate management server. Each device engine can access only a specific user's data package storage area even though the storage server 1415 may maintain a larger number of data packages across a large number of users. This allows for increased scaling when the storage server is implemented using file system techniques.

[0156] In one aspect, the storage server is implemented using standard FTP or HTTP connections for each operation. HTTP is composed of request response pairs. All requests are supposed to be posting commands. Parameters can be set in the form known as "application/X-WWW-form-URLENCODED". The encoding is specified as in RFC1866. Functions for the storage server include testing if the storage server can reach other users which will retrieve a simple text string, a "get" command which transfers the contents of a file as in a binary stream of byes; a put command as a binary stream of data to the storage server, a directory listing command, a remove command, a rename command, an exist command, and the like.

Pull Synchronization

[0157] Figure 15 represents a "pull" synchronization process in accordance with the present invention. Both the pull synchronization illustrated in Figure 15 and the push synchronization illustrated in Figure 16 are done from the perspective of the device engine.

[0158] A pull synchronization as illustrated in Figure 15 is always performed prior to a push synchronization. This allows the device engine to know whether synchronization of its own data is necessary.

[0159] Each device has its own triggering mechanism for initiating synchronization. Some devices, such as Windows clients and Palm® pilots are triggered manually when the user presses a "sync" button. Other devices, such as a cellular telephone, may be triggered automatically after another device completes a sync. Regular, time-based triggers are supported as well. A web-based application portal will sync when a user logs into the website security authorization mechanism, and may optionally sync on a log-out of the user or on the session time-out, but only if the user has changed data during the session.

[0160] For each sync, the triggering event specifies which application types are to sync for the device. This enables a triggering event to trigger only a sync for a particular application type. The management server can specify that no sync is needed for a particular type of application to minimize traffic to the storage server. Syncs may be triggered via an HTTP request to the server. This request holds information about which device to sync and the user log-in information is bounced to the management server for authorization and validation. Syncs may be triggered by sending an HTTP request to the server and passing the authentication information in the data portion of the request to the management server. Each device may include a servlet that is responsible for retrieving the request and ensuring its proper format

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before passing the synchronization request on to the server.

[0161] The device name and device class uniquely identify a particular device type that is being synchronized, and is contained in the management server. Each user has one or more device entries in the management server authorization records and each device name is unique for this user's space. For example, if a user has five devices with his or her own personal identification number, there will be five authorization records. There may be two Windows devices, two different Palm® devices and a web service portal, each having their own personal identification number.

[0162] As shown in Figure 15, the pull synchronization process starts at an idle state 1405 when the triggering event, described above, triggers a synchronization request. The synchronization request is confirmed at 1410 and if the request is verified, a connection is made to the storage server at step 1415. Once a connection is established, the connection to the management server is made at step 1420 to authenticate the user identification via the management server. If authentication is successful, the management server may initiate a management server lock on the storage server so that no conflicting device engines may couple to the same data at the same time. A failure at any of the steps 1410-1425 will return the system to its idle state 1405. Once the engine server lock is acquired, the storage server will be checked to determine whether a new version of the data exists on the storage server at step 1430. If no new version exists, the synchronization process ends.

[0163] If a new version of the data exists, the device engine will retrieve the difference information at step 1435 "to get Δ."

[0164] Once a Δ is retrieved, conflicts are resolved at step 1450. The resolve conflicts step allows a user to resolve conflicts to multiple types of data which have been changed on both the server portion of the device and in the local data.

[0165] Once the conflicts have been resolved at step 1450, the Δ's are applied at step 1455. The apply Δ step 1455 allows for filters and mappings to be accounted for on the local device engine side of the system. As shown at steps 1460, 1465, 1470, and 1475, the Δ may include updates at the item level 1460, application level 1465, device level 1470, or network level 1475. In each of the aforementioned steps, a loop back to the Δ retrieval step 1435 is provided. When no further Δ's are available, the management server lock is released at step 1440.

[0166] The foregoing description of a pull synchronization is further described in the following pseudo-code:

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```
*SymbolicSyncEngine::Sync

      Download Remote File System

      For each Symbolic app in the file system's list of symbolic apps

            CFDESymbolicSyncEngine::SyncSymbolicApp

                  Create a structured delta object -- CStructuredDelta
delta(...)

                  Compare local and remote versions of deltas SODs),

                  if not the same then

                        while localVersion != remoteVersion

                              download remote version

                              // apply delta (change log)
                              delta.ApplyChangeLog
                              // See details below

                              increment local version

                        end while

                  else
                        nothing to do

                  end if

                  if any local items (change logs) are unsent then

                        delta->ApplyUnsentItems (Reads the changes [JCL
where applied?]

                  end if

                                    /
                  // Generate a new change log for the device:
                  delta->delta.GenerateChangeLog(... strChangeLogFile
...)          // See details below

                  FTP it back up to Storage Server

                  Update the local version number

            end // SymbolicSyncEngine::SyncSymbolicApp

end // CFDESymbolicSyncEngine::Sync

CStructuredDelta::ApplyChangeLog
      Set up  m_pAppObj;         // IFAO pointer
      Set up  m_pAOS;            // IAOS pointer

      Other set up (statistics, time to complete, etc.)

      Read the change log and ...

      ApplyChangeListToAOS(flCharges)
            for each itme in list
                  ApplyItemToAOS // (Does
```


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```
m_pAOS...AddRecord/UpdateRecord/DeleteRecord)
            end for

      end // ApplyChangeListToAOS

      If not doing a full sync, also add changes from this file to apply
these to m_FlChanges

end //CStructuredDelta::ApplyChangeLog

CStructuredDelta::GenerateChangeLog

      Set up  m_pAppObj;         // IFAO pointer
      Set up  m_pAOS;            // IAOS pointer

      Other set up (statistics, time to complete, etc.)

      // Set up m_deviceChanges by call to:
      CStructuredDelta::CreateDeviceChangeList

            Create a CFlItem* pItem

            // Iterate FAO modifications:
            for (m_pAppObj->GetFirstModified(pItem),
m_pAppObj->GetNextModified(pItem))

                  cast pItem to --> CFlItemUniversal* pUniItem

                  // Do certain things based on whetner the operation is
an add, delete, or update.
                  // Then in each case, call:

                        CStructuredDelta::GetMatchingItemFromAOS

                              // First get by FlID
                              m_pAOS->GetRecordByFlID

                              // See if we have an AppID, if so:
                              m_pAOS->GetRecordByAppID


                              // If we can build search key on it
                              iterate m_pAOS->GetFirstMatchingRecord /
m_pAOS->GetNextMatchingRecord

                        end // CStructuredDelta::GetMatchingItemFromAOS

            end for

      end // CStructuredDelta::CreateDeviceChangeList

      if m_deviceChanges is not empty

            // reconcile (compare) change lists while writing to AOS
            CStructuredDelta::ReconcileChangeLists
                  For each item in m_deviceChanges...
                        If we can find it in  m_FlChanges
                              Reconcile the device item and the fl
item
                        end if
                        ApplyItemToAOS // (Does
m_pAOS...AddRecord/UpdateRecord/DeleteRecord)
                  end for
            end //       CStructuredDelta::ReconcileChangeLists
```


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```
                    // Create a new change log (F1 delta package)
                    ApplyChangeListToF1(m_deviceChanges)
                          m_deviceChange.Store
                                // Fires off its own whole world, see
F1ItemList.cpp
                          end // m_deviceChange.Store

                    end // ApplyChangeListToF1(m_deviceChanges)

                    report stats

             end if

             // Switch (SyncMode)
             If SyncMode == full
                    ApplyAOSToDevice
                          iterate m_pAOS->GetFirstRecord...m_pAOS->GetNextRecord
                                Add or update the corresponding FAO record.
(Note.  Never delete based on what's in AOS, apparently).
                    end // ApplyAOSToDevied
             else
                    ApplyChangeListToDevice(m_flChanges);

End // CStructuredDelta::GenerateChangeLog
```

Push Synchronization

[0167] Figure 16 shows a push synchronization in accordance with the system and method of the present invention. Beginning at idle state 1505, a synchronization event occurs and if confirmed at step 1510, Δ's are checked at step 1515. Depending on which type of changes occurred, a network Δ 1520, device Δ 1525, location Δ 1530, or item Δ 1535 will be created.

[0168] Once the Δ's for a given application have been created, the method of the present invention continues at step 1540, which enables a connection to a storage server. Upon connection to the storage server, a further connection to management server 1545 will occur to authenticate the user in the system. Failure at any of the aforementioned points will result in returning to idle state 1505. Upon authentication, a management server lock is enabled to ensure that multiple device engines do not connect to the same data at the same time.

[0169] Once a lock is acquired at step 1555, Δ's are uploaded to the system. As shown, this may include uploading an item Δ 1575, an application Δ 1570, uploading a device Δ 1565, or a network Δ 1560. Once Δ's have been uploaded to the server, management lock server 1580 is released, and the connection to the storage server is terminated at step 1585.

[0170] It should be recognized that such a push synchronization need not occur directly to a server, but may occur directly to a second device engine in accordance with the depiction of the multiple embodiments of the invention in Figures 1-7.

Data Package Specification

[0171] Once information is provided into the universal data format, the device engine organizes the format into a data package. Each data package thus includes a description of changes to any and all information for particular application, and a collection of data packages describes changes across all device engines including all different types of data. With encoding and compression, data packages can become very compact to minimize bandwidth and storage requirements across the system of the present invention.

[0172] In one particular aspect of the present invention, encoding of the data packages may be provided in a streaming format to allow processing by the device engines with minimal storage and memory configuration at the device engine level.

[0173] The device engine can read the stream and determine which records from which applications it needs to update the particular information present on the system on which it resides.

[0174] Data packages can be provided in a binary data format. This allows data packages to encode changes to non-application data at a bite level. Hence, if a single bit on a system changes, the system of the present invention allows synchronization of that bit on another system. Changes are described as a sequence of bite-level change op-

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erations. One such encoding is using a sequence of insert and copy operations. Insert and copy operations generally define a particular "insertion" of a number of bites from a source file, then how many bites of a changed source file must be inserted to a particular file, then how many bites to insert from a particular new file, with a differencing engine taking the bites in the stream and inserting them into the new file to create the new version of the file.

[0175] As will be readily understood by one of average skill in the art, this allows a user to, for example, change a binary file such as a word processing document or other type of attachment, and synchronize such an attachment at the binary level. Specifically, if one forwards an e-mail of a word document to a second individual, the second individual modifies it and wishes to return this document with modifications to the first individual, because the first individual has the original file on his system, if both systems are enabled in the system of the present invention, the second system need only send the changes or the difference information back to the first system in order for the first system to reconstruct the document on the second system using this change data to create the document as intended by the second user.

[0176] Multiple caching of both the generation and application of data packages can be utilized to deal with communication issues in accordance with the system of the present invention. It should be further recognized that data packages can be merged into larger meta-data packages. Such meta-data information, such as the organization of multiple device packages, may be encoded into a larger system package. Each system package is essentially an encoded sequence of data packages.

[0177] Figure 12 shows the general format of the data package and universal data format an object stream hierarchy used in accordance with the present invention. With reference to Figures 11 and 12, one will note that each item in a particular application data structure will have a particular classification, such as a file, folder, contact, e-mail, calendar, etc. as shown in Figure 13. The universal data structure contains a mapped item field for each type of data possible from each application supported by the system. Hence a "master" list of every data field mapping possible will contain a large number of items. Each application object requires a subset of such fields. One exception is an application object used for a Web portal application which provides access to all information available on all devices, including other Web portals.

[0178] Particular examples of item fields 1260 which may be included for any given item 1250 are shown in Figure 13. These exemplary item objects may, for example, be from an allocation such as Microsoft Outlook. Outlook allows for note items 1310, e-mail items 1320, task items 1330, calendar items 1340, bookmark items 1350, file items 1360, channel items 1370, folder items 1380, and contact items 1390, all of which have fields such as those represented in Figure 13.

[0179] The data format also contains folder information 1240 which allows the classification of items and consequently their associated item fields into particular categories.

[0180] Application objects 1230 include information on the types of applications from which information in the stream is included. Device objects 1220 include information on the origin type of device which the information is originating from. Network objects 1210 include information on a user level to define that the information in the data stream is coming from a particular user.

[0181] As detailed above, each application object supports a folder store interface that permits management of collections of information on a folder level, and permits management of folder hierarchies of information. The application object also includes an item interface that permits management of individual information entries such as records or files or components of information entries such as fields within records. Each application object further supports an interface for detection of a vendor application.

[0182] A DataPack essentially contains a sequence of transactions describing changes to information. This information can span two basic types: structured or application data, and unstructured or binary file data.

[0183] Transactions are encoded using an efficient streaming format with tags to represent the actual content objects. This technique permits the continuous extension of the DataPack format as new content is supported.

[0184] The general architecture of the package provides for transactions, application data, file data, files, objects and identifiers to be carried in the data package. Generally, transactions, application data, file data, and files have previously been described.

[0185] The first portion of the data package will be the data package identifier. Each transaction has a basic architecture of objects and operations. Each piece of content is referred to as an object and is uniquely represented with a Universally Unique Identifier (UUID). Objects typically are represented by a dynamically generated UUID, but more common objects are represented by static UUIDs. The following static UUIDs are defined:

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```
UUID_GenericDefaultFolder
UUID_DefaultContactFolder
UUID_DefaultInboxFolder
UUID_DefaultOutboxFolder
UUID_DefaultDraftsFolder
UUID_DefaultTrashFolder
UUID_DefaultSentFolder
UUID_DefaultCalendarFolder
UUID_DefaultTaskFolder
UUID_DefaultNoteFolder
UUID_DefaultJournalFolder
UUID_DefaultFavoriteFolder
UUID_DefaultCookieFolder
UUID_DefaultHistoryFolder
UUID_DefaultChannelFolder
UUID_DefaultFileFolder
UUID_DefaultCallFolder
```

[0186] Each UUID has a unique 128 bit value which may be assigned by the system provider.

[0187] Transactions are broken down into manageable blocks in the form of individual files. These files are then optionally compressed and encrypted and prefixed with appropriate headers. Transactions are grouped into specific files based on the following rules:

- Transactions related to account information are grouped into a DataPack file.
- Transactions related to a specific data class are grouped into a DataPack file.
- Transactions referring to binary data are grouped into separate DataPack files for each file object.

[0188] A DataPack file is identified using specific rules based on the file name. The file name is of the form "UUID.VER" where UUID is the identifier for the specific object and VER is the transaction version number. The version number is of the form "D0001" with additional digits used for large version numbers. The "D000" value may be reserved for the base version for the object.

[0189] The UUID for the user account is generated by the Management Server (MS). The MS also maintains a current table of UUID values and version numbers that provides the root structure for understanding the DataPack files within a user account. The MS also provides necessary locking semantics needed to maintain consistency when multiple device engines attempt to synchronize.

[0190] All DataPacks are prefixed with a standardized header that provides basic content information regarding the DataPack. Compression and encryption headers follow the DataPack header if needed.

[0191] The data package header information will include version signature, applied versioning information, content type, Δ engine type, compression type, encryption type, applied size, encrypted size, compressed size, raw data size, and other data useful for the device engine in decrypting the data stream to provide the data into a format usable for the application.

[0192] The header may optimally have the format:

Type	Bytes
Version	4
Signature	4
AppliedVersion	8
ContentType	4
DeltaType	4
CompressionType	4
EncryptionType	4
AppliedSize	4
EncryptedSize	4
CompressedSize	4

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(continued)

Type	Bytes
RawSize	4
Reserved	TBD

[0193] The following ContentType values are permissible:

Field	Comment
DP_CONTENT_RAW	Raw
DP_CONTENT_COMPRESSED	Compressed
DP_CONTENT_ENCRYPTED	Encrypted

[0194] The DeltaType encodes the type of binary file differencing used. The following DeltaType values are permissible using DataPackageDeltaType:

Field	Comment
PackageDeltaTypeUninitialized	Uninitialized
PackageDeltaTypeRawData	Raw binary data
PackageDeltaTypeDeltaXDelta	Xdelta binary difference
PackageDeltaTypeDeltaBDiff	Bdiff binary difference

[0195] The compression type specifies whether the DataPack has been compressed. A DataPack compression header follows the DataPack header if a compression type is specified. The following CompressionType values are permissible using DataPackageCompressionType:

Field	Comment
PackageCompressionTypeUninitialized	Uninitialized
PackageCompressionTypeNone	None
PackageCompressionTypePK	PKZip format
PackageCompressionTypeLZS	LZS format

[0196] The encryption type specifies whether the DataPack has been encrypted. A DataPack encryption header follows the DataPack header if an encryption type is specified. The following EncryptionType values are permissible using DataPackageEncryptionType:

Field	Comment
PackageEncryptionTypeUninitialized	Uninitialized
PackageEncryptionTypeNone	None
PackageEncryptionTypeXORTest	XOR masked data
PackageEncryptionTypeBlowFish	Blowfish
PackageEncryptionTypeTwoFish	Twofish

[0197] All DataPack compression headers are encoded using the following format:

Field	Size (bytes)	Comment
Size	4	Size of data including this header

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(continued)

Field	Size (bytes)	Comment
Version	4	Version (1)
Signature	4	Signature (4271)
HeaderType	4	Header type (HeaderTypeCompression)
Reserved	12	Reserved
DecompressedSize	4	Decompressed size
Reserved	50	Reserved
Reserved	12	Reserved

[0198] The following HeaderType values are permissible using DataPackageHeaderType:

Field	Comment
HeaderTypeUninitialized	Uninitialized
HeaderTypeEncryption	Encryption header
HeaderTypeCompression	Compression header
HeaderTypeRaw	Raw header

[0199] All DataPack encryption headers are encoded using the following format:

Field	Size (bytes)	Comment
Size	4	Size of data including this header
Version	4	Version (6)
Signature	4	Signature (4270)
HeaderType	4	Header type (HeaderTypeEncryption)
Reserved	12	Reserved
DecryptedSize	4	Decrypted size
InitValue	16	TBD
KeyLength	4	TBD
ClearTextKeyBits	4	TBD
Salt	4	TBD
PadBytes	4	TBD
HMAC	20	TBD
Reserved	12	Reserved

[0200] The data package transaction format may take a number of forms. One example is the following:

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```
DataPack transaction format - header - info - objects and operations
Diagram

        transaction ::= fileData | Header + InfoList + TransactionList

        fileData::= raw binary file data | binary difference data

        Header ::= ID + DataPackID - DataPackVersion
        ID ::= FUSE
        DataPackID ::= CLOG

        InfoList ::= FieldList

        TransactionList ::= Operation + [ItemInfo + [FieldList]]
        Operation ::= see table below
        ItemInfo ::= ItemType + ItemFlags + EntryID + ParentEntryID
        ItemType ::= same as enumItemType
        ItemFlags ::= same as enumFlItemFlags
        EntryID ::= UUID
        ParentEntryID ::= UUID
        UUID ::= 128-bit UUID as defined by standard

        FieldList ::= {FieldTag + FieldData} + ListEnd
        FieldTag ::= same as enumFieldTag
        FieldData ::= FieldDataType + [FieldDataLen + [FieldDataData]]
        FieldDataType ::= see below
        FieldDataLen ::= length as required by FieldDataType
        FieldDataData ::= data as required by FieldDataType
        ListEnd ::= DWORD(0)
```

[0201] The following Operation values are permissible using the Operation class:

Field	Comment
clNop	None
clAdd	Add
clDelete	Delete
clChange	Change
clMove	Move
clRename	Rename
clForceChange	Force change without conflict

[0202] The following FieldDataType values are permissible using clDataType:

Field	Comment
clInvalidType	TBD
clString	Unicode String bytes with a 32-bit length prefix
clString8	Unicode String bytes with an 8-bit length prefix
clString16	Unicode String bytes with a 16-bit length prefix
clEmpty String	TBD
clBlob	32-bit length followed by a byte stream
clBlob8	8-bit length followed by a byte stream
clBlob16	16-bit length followed by a byte stream

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(continued)

Field	Comment
clEmptyBlob	TBD
clByte	8-bit value
clShort	16-bit value
clDword	32-bit value
clQword	64-bit value
clDate	DATE type (double)
clDouble	8 byte real
clFloat	4 byte real
clUuid	16 byte uuid
clZero	Zero value
clOne	One value
clUnspecified	Unspecified value
clDefault	Default value
clCollection	Collection with 32-bit length
clCollection8	Collection with 8-bit length
clCollection 16	Collection with 16-bit length
clEmptyCollection	Collection with no length

[0203] Data package objects are organized into a hierarchy as follows:

```
Account::= DeviceList + DataClassList
DeviceList::= {Device}
DataClassList::= {DataClass} + ProviderList

    ProviderList::= {Provider} + DataStoreList
    DataStoreList::= {Folder} + ItemList
    ItemList::= {Item} + FieldList
    FieldList::= {Field}
```

[0204] An account is the root structure, which identifies information about the user's account. It may have exemplary field tags (eFieldTag_[NAME]) such as Name, Password, UserName and Version. The FieldTag ItemType value is specified as ItemType_PIN using enumItemType.

[0205] A device is a system identified as part of an account. Examples include PCs, handhelds, Web sites, and so on. It may have tags (eFieldTag_[Name]) such as: "name" and "type" and item type values (eDevice_[Name]) such as Portal, Palm, Windows, CellPhone.

[0206] A data class is a grouping of similar information types. Many data classes may be represented for a particular account. The data class may contain field tags (eFieldTag_[Name]) such as: Name; ItemType; SubType; IsManaged; Provider; Filter and Version.

[0207] The following ItemType values are permissible using enumDataClass (eDataClass_[Name]):

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Tag	Description
UNKNOWN	Unknown
CONTACT	Contact/address book
EMAIL	Electronic mail
CALENDAR	Calendar
TASK	Task/to do
NOTE	Note/memo
JOURNAL	Journal
BROWSER	Web browser favorites, cookies, etc.
FILESET	Collection of files
PIN	Account information
DEVICE	Device information
FILEBODY	Contents of file

[0208] A Provider is the application that maintains specific information within a data class. There can be more than one provider for a particular data class. Field tags include: Name, AppObjID, Password, Username and Version. Examples of provider tags permissible for the provider (eProvider[Name]) include: Portal, Palm®, MicrosoftOutlook®, Lotus Organizer, Microsoft Internet Explorer, Microsoft Windows, and so on.

[0209] Data stores are the containers for storing information within a provider. There can be more than one data store for a particular provider. Folders represent structural organization of information within a data store. Data stores are not required to support folders. Tags (eFieldTag_[Name]) supported for each data store include: Name, ItemType, IsManaged and OriginalPath. Item types permissible for the data store include: unknown; Folder; MAPI; Database and Store_File.

[0210] Folders represent structural organization of information within a data store. Data stores are not required to support folders. A folder is represented by a UUID and may contain any of the following field tags (eFieldTag_[Name]): Name; ItemType; IsManaged; FileAttributes; CreationDate; ModificationDate; AccessDate; SpecialFolderType.

[0211] The eFieldTag_ItemType value is specified as eItemType_FOLDER using enumItemType.

[0212] Items are individual informational components consisting of the actual user data. They may contain field tags such as: Name, ItemType, IsManaged, and Version.

[0213] File items typically have the following additional field tags (eFieldTag_[Name]):

```
FileAttributes
CreationDate
ModificationDate
AccessDate
FileSize
FileBody
DeltaSize
Hash
```

[0214] Item types may take the format (eItemType_[Name]) and may include: extended; folder; attachment; contact; distlist; email; calendar; task; call; note; post; journal; form; script; rule; favorites; subscription; common_favorites; desktop; common_desktop; startmenu; common_startmenu; channels; cookies; programs; common_programs; startup; common_startup; sendto; recent; internet_cache; history; mapped_drives; printers; docs; doctemplates; fonts; window_settings; app_data_folder; app_settings; fileset; pin; device; data_store; file; provider; and data_class; internal.

[0215] A field is based on one of a set of base type definitions. All field tag information is encoded using the following format:

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Field	Size (bits)	Comment
FieldTag	16	Unique tag number
FieldType	6	Field base type
FieldSubType	10	Field sub-type

[0216] A number of Field types are possible, including: unknown; long; dword; date; string; binary; float; double; collection; uniqueid; qword; uuid; file; invalid. LONG is a four byte value encoded in big-endian format. FieldType DWORD is a four byte value encoded in big-endian format. FieldType String is a sequence of Unicode characters followed by a single NULL byte. Interfaces are provided with an MBCS value. FieldType Binary is a sequence of bytes. FieldType UniqueID is a sequence of bytes as defined by the Universally Unique Identifier (UUID) standard. AO interfaces are provided with a Locally Unique Identifier (LUID) value FieldType QWORD is an eight byte value encoded in big-endian format. FieldType File is a UUID that references a separate DataPack containing the file body data. AO interfaces are provided with a sequence of Unicode characters followed by a single NULL byte that describes the full path name for the file.

[0217] Any number of filed sub types are possible. Each of the sub-types includes all of the possible data types from all of the supported user applications. As should be well understood, the possibilities in the number of sub-types is quite large, and dynamic as each new application supported by the system of the present invention is added. Examples of sub-types include:

SubField Description	Description
Base	No sub-type specified
EmailAddress	Email address
EmailAddressList	Email address list
SearchKey	Search key
CategoryList	Category list
StringList	String list
DistributionList	Distribution list
Gender	Gender (enumGender)
TimeZone	Time zone (enumTimeZone)
Boolean	Boolean (TBD)
NonZeroBool	Boolean with non-zero value (enumNonZeroBool)
Priority	Priority
Sensitivity	Sensitivity (enumSensitivity)
Importance	Importance (enumImportance)
SelectedMailingAddr	Selected mailing address (enumSelectedMailingAddr)
TaskStatus	Task status (enumTaskStatus)
FlagStatus	Flag status (enumFlagStatus)
RecurrenceType	Recurrence type (enumRecurrenceType)
DayOfWeek	Day of week (enumDayOfWeek)
DayOfMonth	Day of month (1 through 31)
InstanceOfMonth	Instance of month (enumInstanceOfMonth)
MonthOfYear	Month of year (enumMonthOfYear)
BusyStatus	Busy status (enumBusyStatus)
AttachmentType	Attachment type (enumAttachmentType)
MailBodyType	Mail body type (enumMailBodyType)
RGB	RGB color value
ManagedState	Managed state (enumManagedState)
FaoId	FAO ID for provider
SpecialFolderType	Special folder type (enumSpecialFolderType)
ResponseState	Response state (TBD)
ResponseStatus	Response status (TBD)

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(continued)

SubField Description	Description
JournalStatus	Journal status
PageStyle	Page style
PageNumberMethod	Page number method
DelegationState	Delegation state
MeetingStatus	Meeting status
MeetingInvitation	Meeting invitation
CalendarType	Calendar type
DateOnly	Date only
TimeOnly	Time only
PhoneNumber	Phone number
URL	URL
FilePath	File path
PopMessageID	POP message ID
MIMEType	MIME type
INVALID	All values must be below this

[0218] The aforementioned invention provides a user-centric model of communication to deliver personal information via network services. This model accommodates devices that are disconnected from the network, such as the Internet, at various times. Personal information can continue to exist locally rather than imposing a server-centric model on existing information.

[0219] In accordance with the foregoing, a store and forward information broadcast is utilized. Changes to existing information are replicated to an Internet storage server and changes are then retrieved by other devices on the network at device-specific times. In this manner, direct client communication is accomplished without requiring one-to-one communication. While one communication is supported by the system of the present invention, it need not be required.

[0220] Although the present invention has been presented in the form of an Internet store and forward broadcast for the purposes of synchronizing personal information amongst various types of devices, it will be readily recognized that synchronization need not be accomplished as the only application for the aforementioned system. In particular, the system can be utilized to efficiently broadcast changes to information in so-called "push" type information applications where only portions of the data need to be changed on a client application. For example, in a system where information such as changes in a stock price need to be broadcast to a plurality of users, a client application implementing the aforementioned technology can be updated by only changing specific portions of the data in the client application relative to that particular stock price. This can be done using a smaller bandwidth than has previously been determined with other devices.

[0221] The many objects and advantages of the present invention will be readily apparent to one of average skill in the art. All such objects and advantages are intended to be within the scope of the invention as defined by the written description and drawings presented herein.

Claims

1. An system for synchronizing data between a first system and a second system, comprising:

   a first sync engine on the first system interfacing with data on the first system to provide difference information;

   a data store coupled to network and in communication with the first and second systems; and

   a second sync engine on the second system coupled to receive the difference information from the data store via the network, and interfacing with data on the second system to update said data on the second system with said difference information.

2. The apparatus of claim 1 wherein the first system and second system are coupled to the server via a private network.

3. The apparatus of claim 1 wherein the first system and second system are coupled to the server via an Internet

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connection.

4. The apparatus of claim 1 wherein the difference information is transmitted to the data store by the first sync engine and received from the data store from the second sync engine.

5. The apparatus of claim 4 wherein the difference information is transmitted to the data store at a first point in time, and received from the data store at a second, subsequent point in time.

6. The apparatus of claim 1 wherein said second sync engine interfaces with said data on the second system to provide second difference information to the data store.

7. The apparatus of claim 6 wherein the first sync engine couples to the data store to retrieve the second difference information and interfaces with the data on the first system to update said data on the first system with said second difference information.

8. The apparatus of claim 1 further including a management server coupled to the network and in communication with the first sync engine, the second sync engine and the data store.

9. The apparatus of claim 8 wherein said management server authorizes access of difference information on the data store by the first and second sync engines.

10. The apparatus of claim 8 wherein said management server locks access to difference information on the data store during communication with the first and the second sync engines.

11. The apparatus of claim 1 further including a first device, coupled to the first system via the network, providing said data to the first system.

12. The apparatus of claim 11 wherein the first system is a sync server.

13. The apparatus of claim 11 wherein said data comprises changes to a previous state of the data, and said difference information comprises said changes in an encoded, universal format.

14. The apparatus of claim 1 wherein said sync engine comprises:

a data interface;

a copy of a previous state of said data; and

a difference transaction generator.

15. The apparatus of claim 1 wherein said data on said first system comprises application data having a plurality of application specific formats, and said difference information is provided for each of said formats in a universal format to said data store.

16. The apparatus of claim 1 further including:
a plurality of sync engines on a respective plurality of systems, each of said plurality of engines being coupled to receive difference information from each of said first, second and plurality of sync engines from the data store via the network, and each said engine interfacing with data on the system on which it resides to update said data on said system on which it resides with said difference information, and interface with data on said system on which it resides to provide difference data information from the system on which it resides to the data store.

17. A system, comprising:

a first device including at least a first data file and first differencing code having an input and an output coupled to a network to receive first device data change transactions, based on said at least one data file, from and provide change transactions to, said network;

a data store coupled to the network having at least one data structure coupled to store change transactions; and

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a second system including at least a second data file and second differencing code having an input and an output coupled to the network to receive said first device data change transactions, and provide second change transactions based on said at least second data file to said data store.

18. The apparatus of claim 17 wherein the first device and second device are coupled to the data store via an Internet connection.

19. The apparatus of claim 17 wherein the first change transactions are transmitted to the data store by the first device at a first point in time and received from the data store by the second device at a second, subsequent point in time.

20. The apparatus of claim 17 wherein the first differencing code receives second change transactions from the data store to and interfaces with at least the first data file on to update said data with said second change transactions.

21. The apparatus of claim 17 further including a management server coupled to the network and in communication with the first sync engine, the second sync engine and the data store.

22. The apparatus of claim 17 wherein said management server authorizes access of difference information on the data store by the first and second differencing code.

23. The apparatus of claim 17 wherein the first device is a sync server.

24. The apparatus of claim 17 wherein said differencing code comprises:

an application object;

an application object store; and

a delta engine.

25. A method for synchronizing at least a first and a second resident on a first and a second systems, respectively, coupled to the Internet, respectively, comprising:

determining difference data resulting from changes to the first file on the first system;

transmitting the difference data to a server via the Internet;

querying the server from a second system to determine whether difference data exists for files on the second system;

retrieving the difference data to the second system; and

updating the second file on the second system with the difference data.

26. The method of claim 25 wherein said step of determining comprises:

comparing a current instance of the first file to a stored instance of the first file; and

generating said difference data.

27. The method of claim 25 wherein said step of querying comprises:
coupling to a management server which provides information on a state of said difference data for files on the first system and the second system.

28. The method of claim 25 wherein said step of retrieving comprises:

coupling to the management server;

receiving authorization from the management server to retrieve the difference data;

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transmitting a request to the server for the difference data; and

receiving the difference data in response to the request.

29. The method of claim 28 wherein the management server locks the server from receiving further requests for the difference data during said retrieving step.

30. The method of claim 25 wherein said step of updating comprises:
applying the difference data to a stored instance of the second file on the second system.

31. An Internet synchronization system, comprising:

a storage server having an Internet connection;

a first device coupled to the Internet and including a device sync engine; and

a second device coupled to the Internet and including a second device sync engine.

32. The Internet synchronization system of claim 31 further including:
a management server.

33. The Internet synchronization system of claim 32 wherein the storage server and the management server are provided in a data center.

34. The Internet synchronization system of claim 31 wherein communications between the first device, the second device and the storage server are encoded and compressed.

35. The Internet synchronization system of claim 31 wherein data transfer between the first device, the second device and the storage server comprises difference transactions.

36. The Internet synchronization system of claim 31 wherein each device includes applications having data in an application specific format, and wherein communication between the first device, the second device and the storage server include changes to said data in an application independent format.

37. The Internet synchronization system of claim 31 wherein each device sync engine comprises:

an application object;

an application object store; and

a delta engine.

38. A data synchronization system, comprising:

a server;

a first system having a plurality of data file types on the system;

a differencing synchronizer on the first system extracting a first set of differencing data from the data files on the first system when the data files on the system are changed, outputting the differencing data to the server, and retrieving differencing data from the server and applying it to selected data files on the first system;

at least one second system having a second plurality of data file types on the second system; and

a differencing synchronizer on the second system extracting the differencing data from the data files on the second system when the data files on the system are changed, outputting the differencing data to the server, and retrieving the first set of differencing data from the server and applying it to selected data files on the second system.

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39. The system of claim 38 wherein said systems are coupled to allow transfer of said difference data between systems.

40. The system of claim 39 wherein said systems are coupled via the internet.

41. The system of claim 39 further including a server coupled to each of said first and second systems to receive, store, and output said first set and said second set of differencing data.

42. The data synchronization system of claim 38 wherein said first system is a server and said second system is a device capable of communicating with said server

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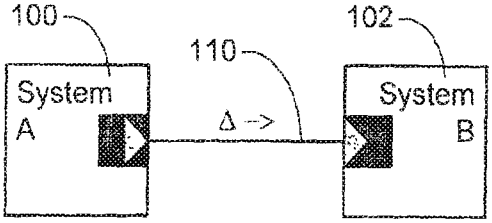


FIG. 1

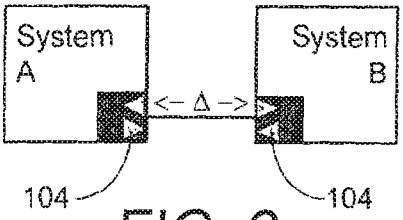


FIG. 2

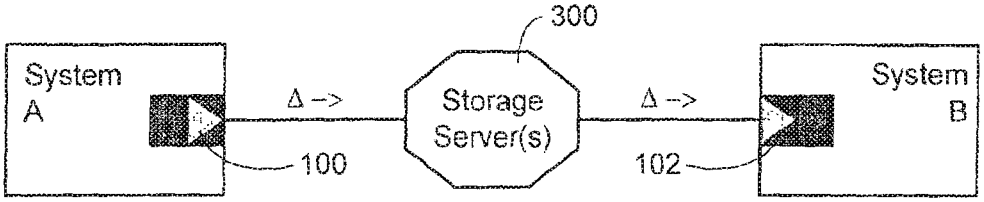


FIG. 3

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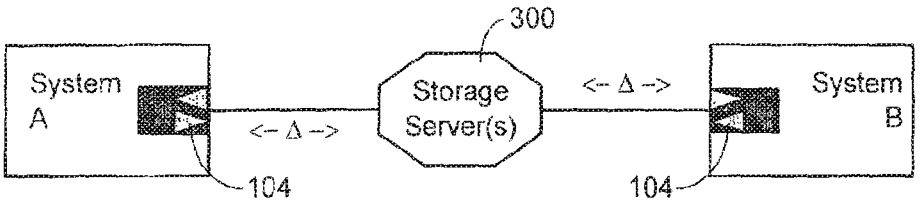


FIG. 4

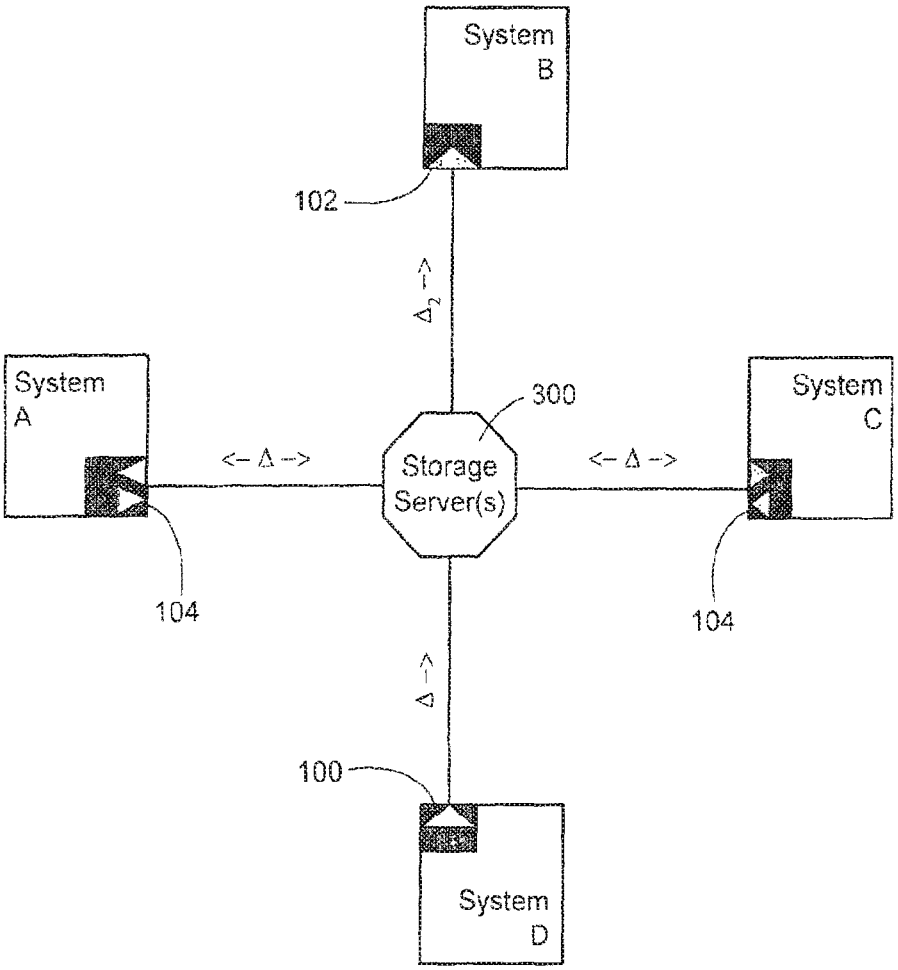


FIG. 5

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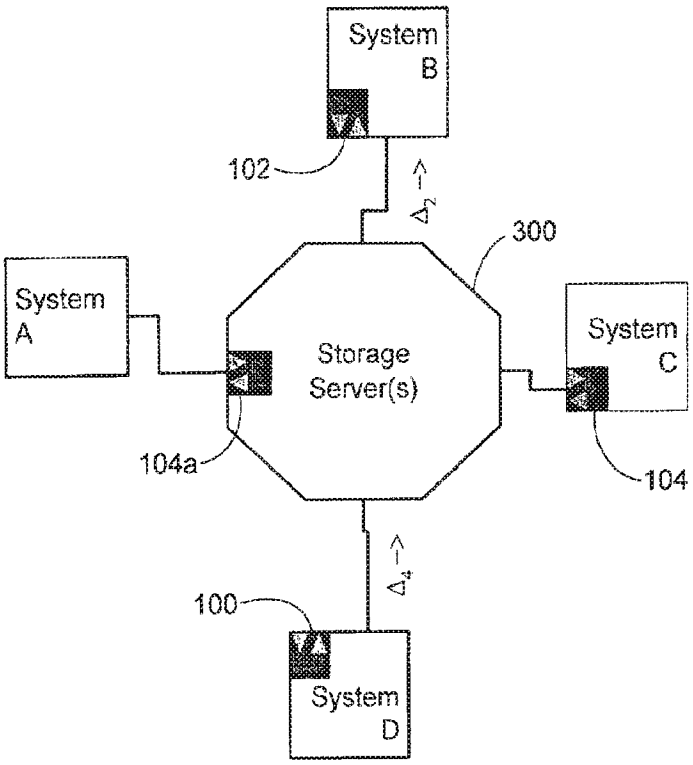


FIG. 6

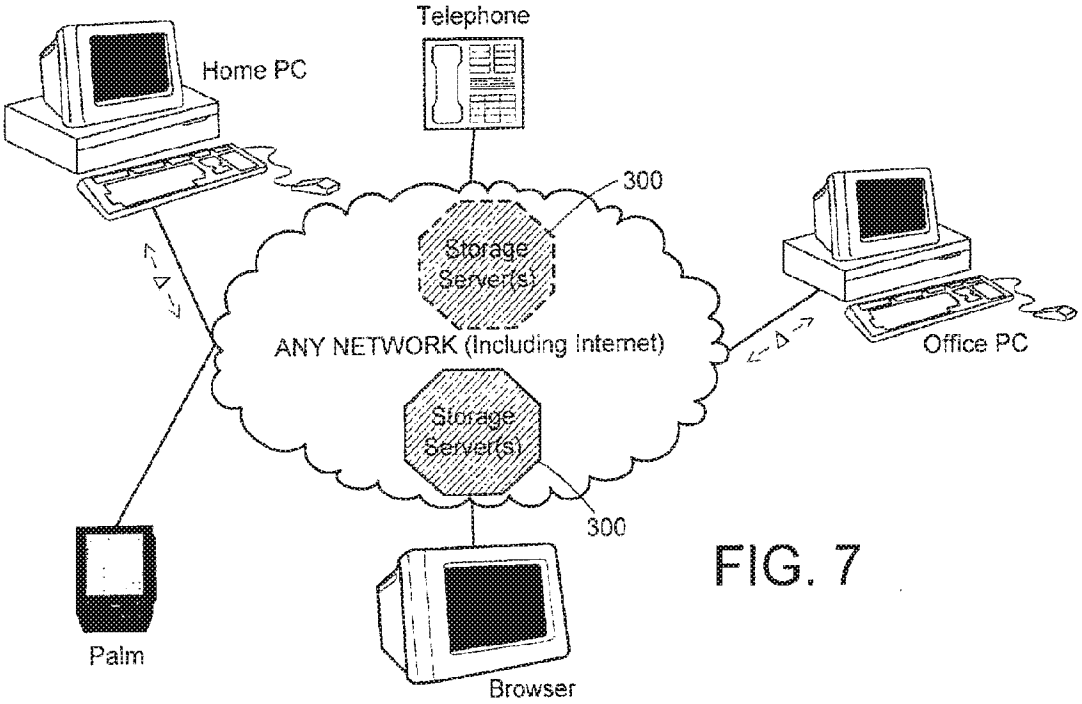


FIG. 7

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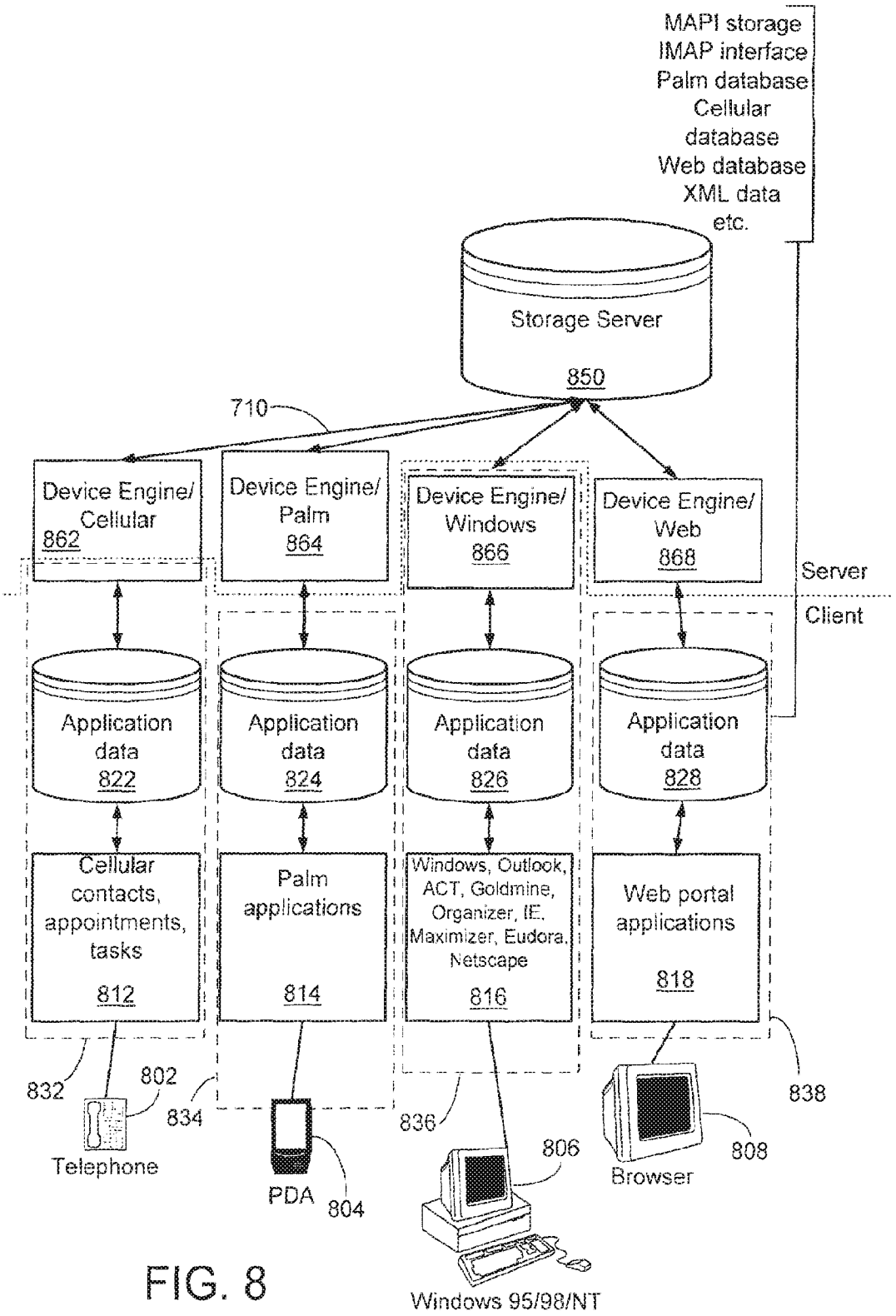
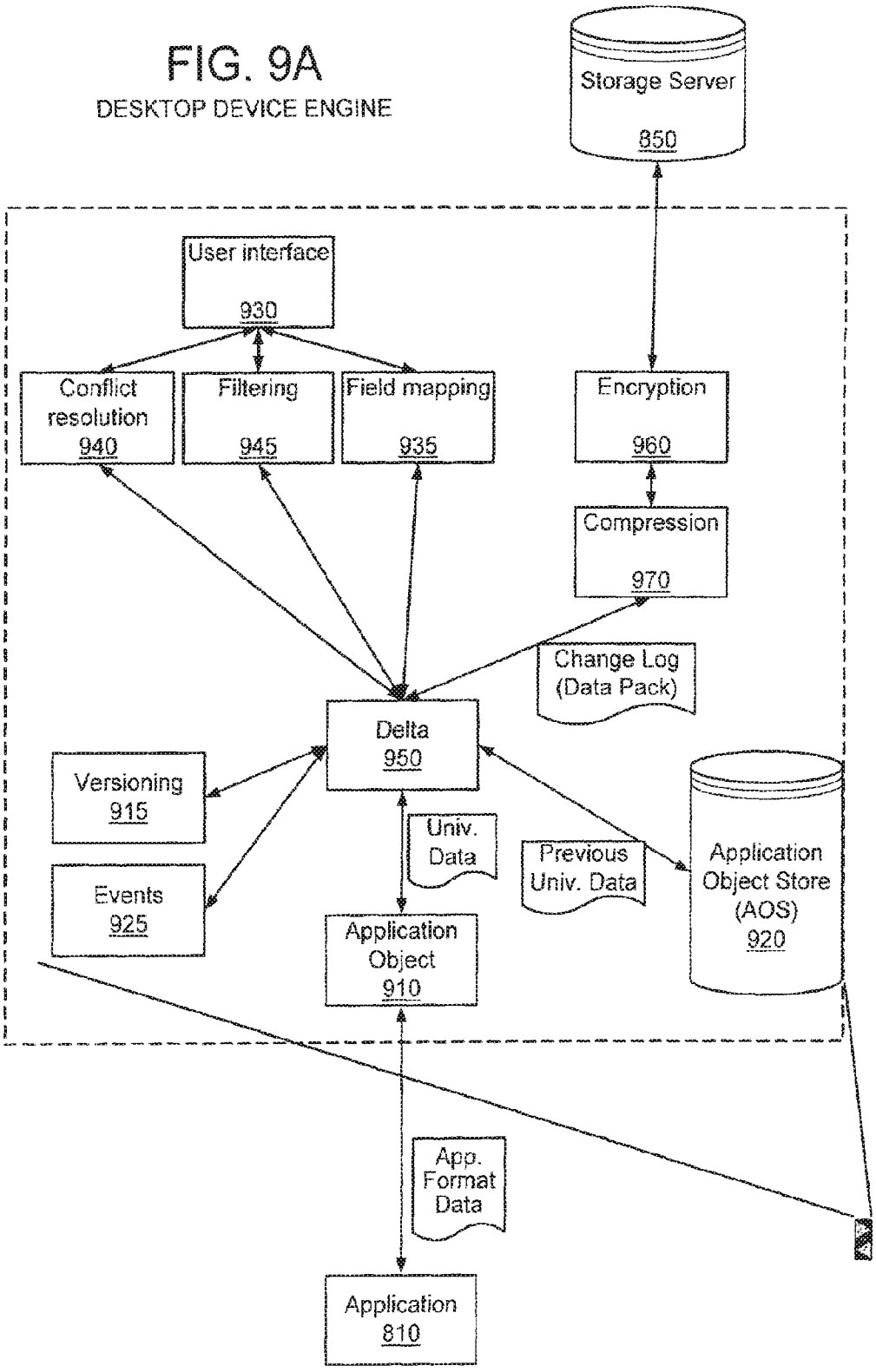


FIG. 8

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FIG. 9A

DESKTOP DEVICE ENGINE



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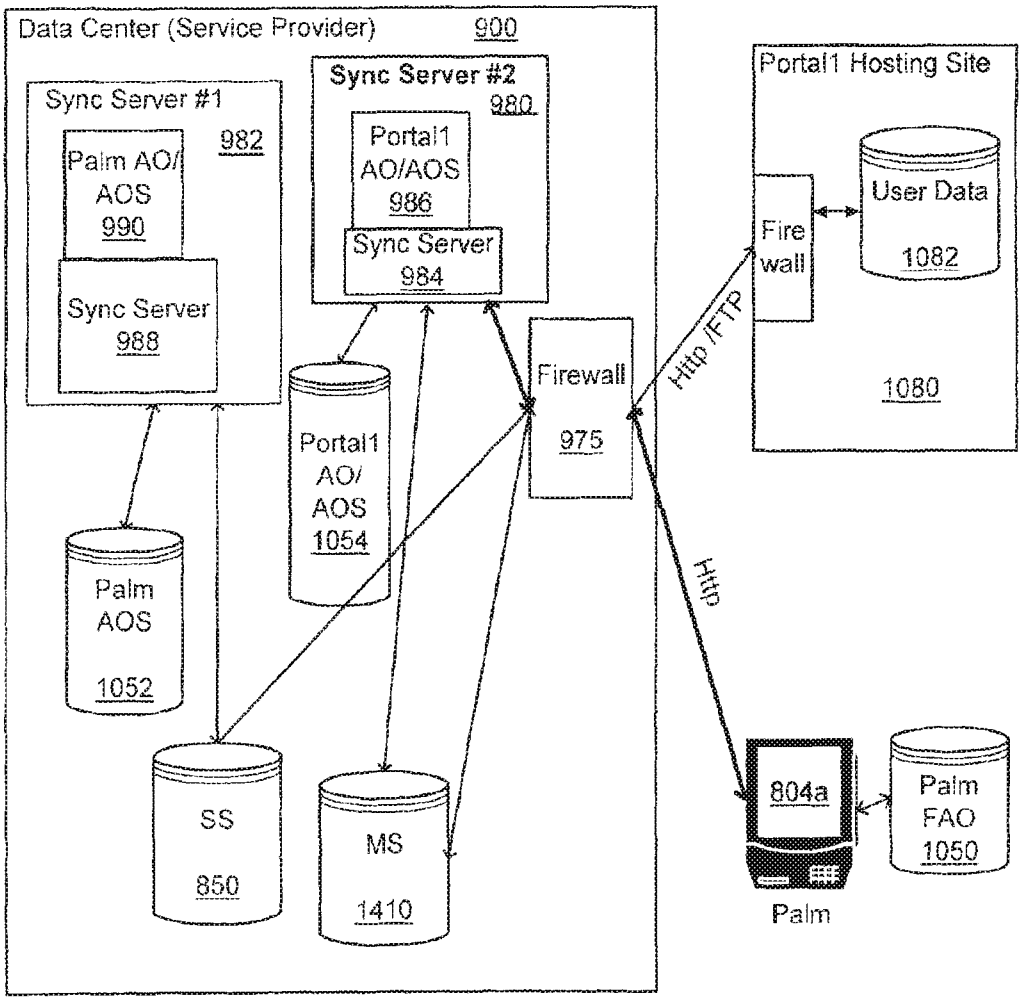
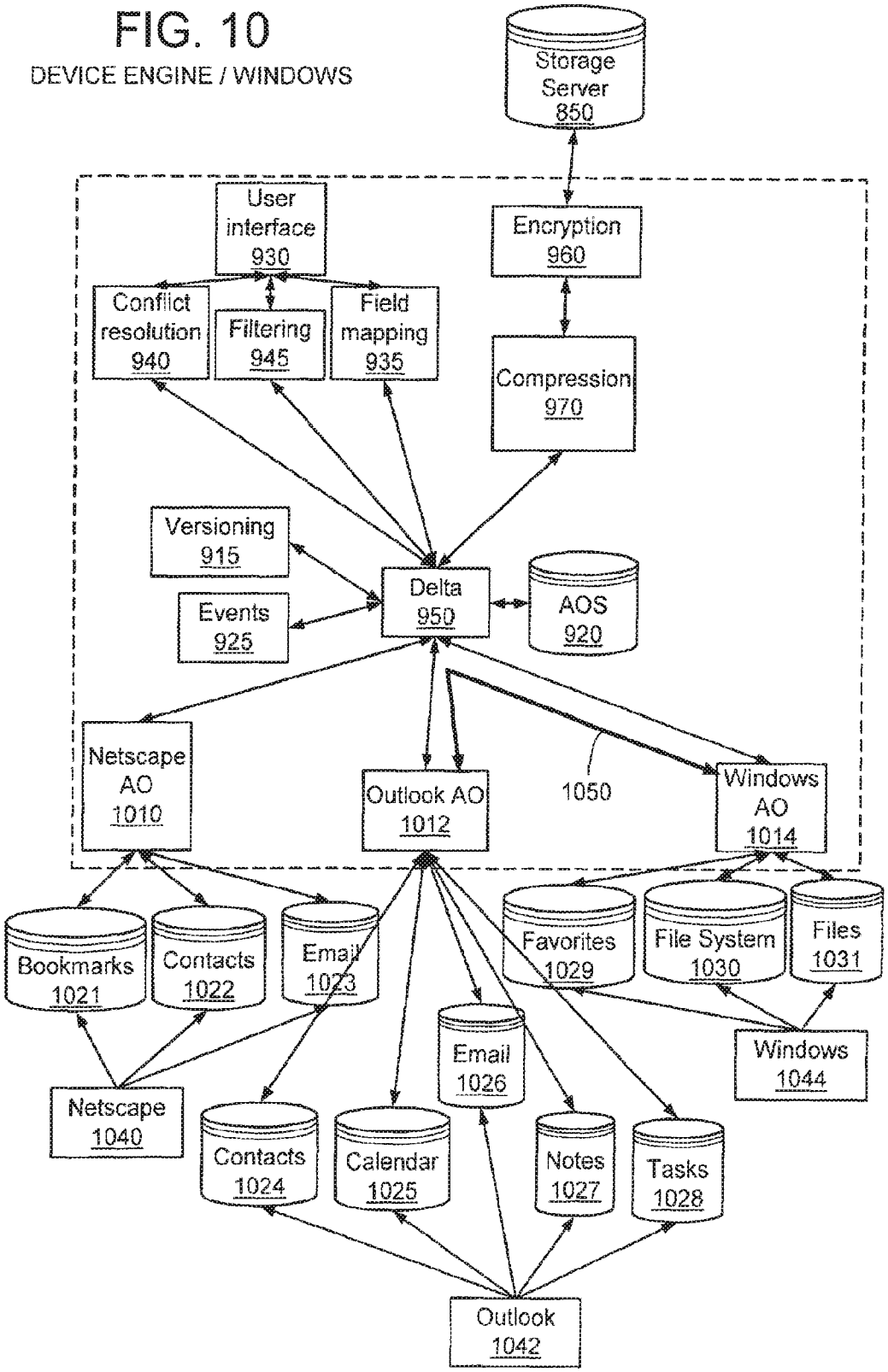


FIG. 9B

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FIG. 10

DEVICE ENGINE / WINDOWS



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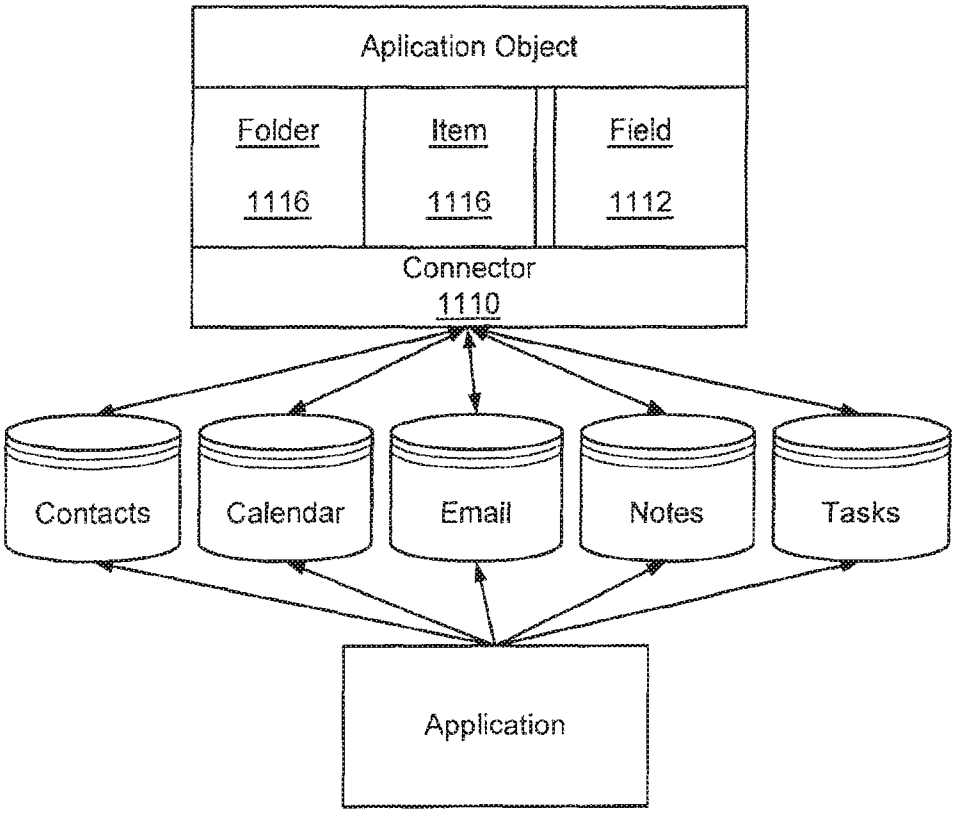


FIG. 11

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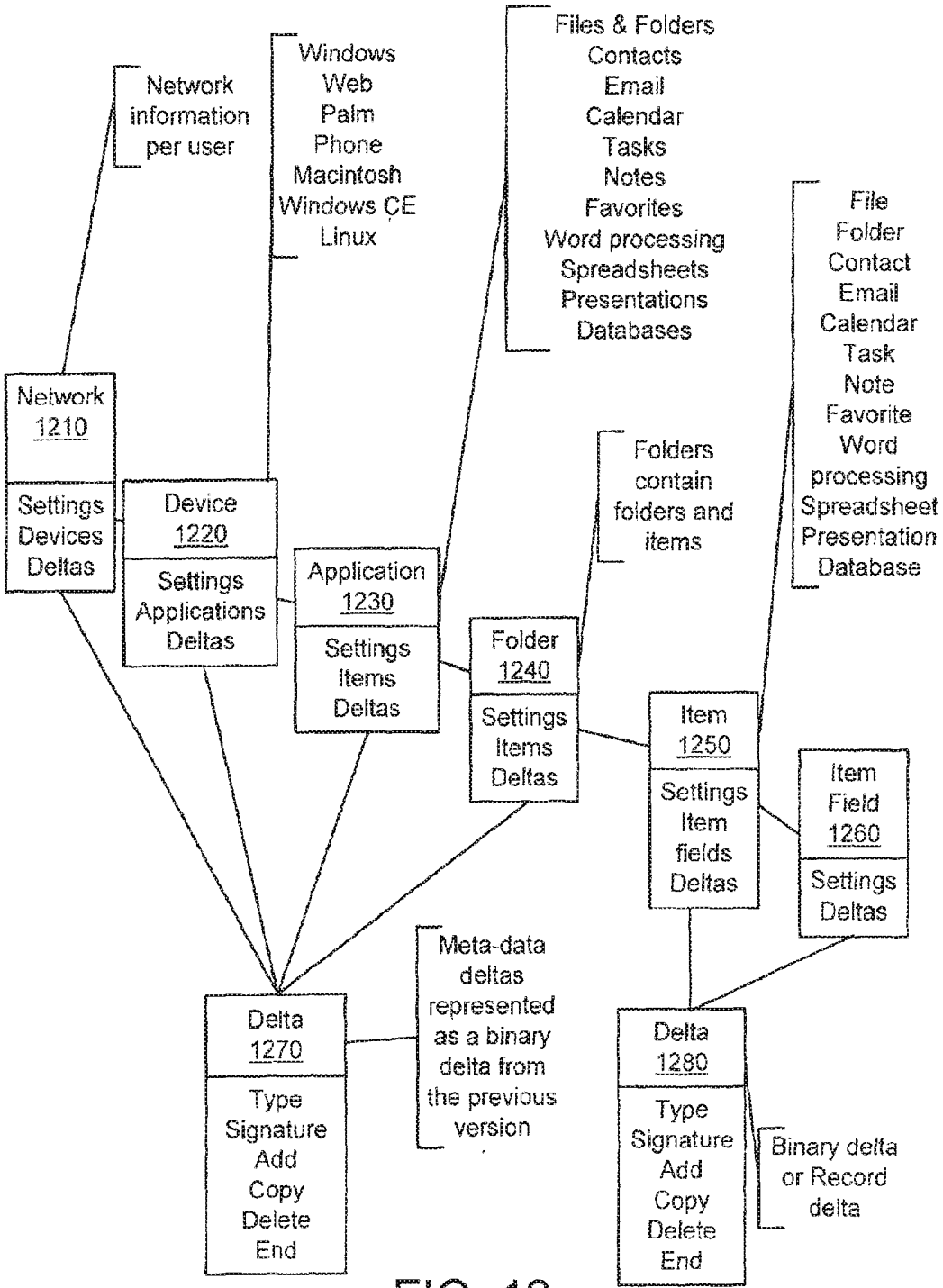


FIG. 12

OBJECT HIERARCHY

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Note Item 1310
Note Object
Categories
Color
Created
Do Not AutoArchive
Icon
In Folder
Message Class
Modified
Outlook Internal Version
Outlook Version
Read
Size
Subject

Email Item 1320
Account
Attachment
Bcc
Billing Information
Categories
Cc
Changed By
Conversation
Created
Defer Until
Do Not AutoArchive
Download State
Due By
Expires
Flag Status
Follow Up Flag
From
Have Replies
Sent To
Icon
Importance
In Folder
Junk E-mail Type
Message Class
Mileage
Modified
Outlook Internal Version
Outlook Version
Read
Received
Remote Status
Retrieval Time
Sensitivity
Sent
Size
Subject
To
Tracking Status

Task Item 1330
% Complete
Actual Work
Assigned
Attachment
Billing Information
Categories
Company
Complete
Contacts
Conversation
Created
Date Completed
Do Not AutoArchive
Due Date
Icon
In Folder
Message Class
Mileage
Modified
Outlook Internal Version
Outlook Version
Owner
Priority
Read
Recurring
Reminder
Reminder
Override Default
Reminder Sound
Reminder Sound File
Reminder Time
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Requested By
Role
Schedule+ Priority
Sensitivity
Size
Start Date
Status
Subject
Team Task
To
Total Work

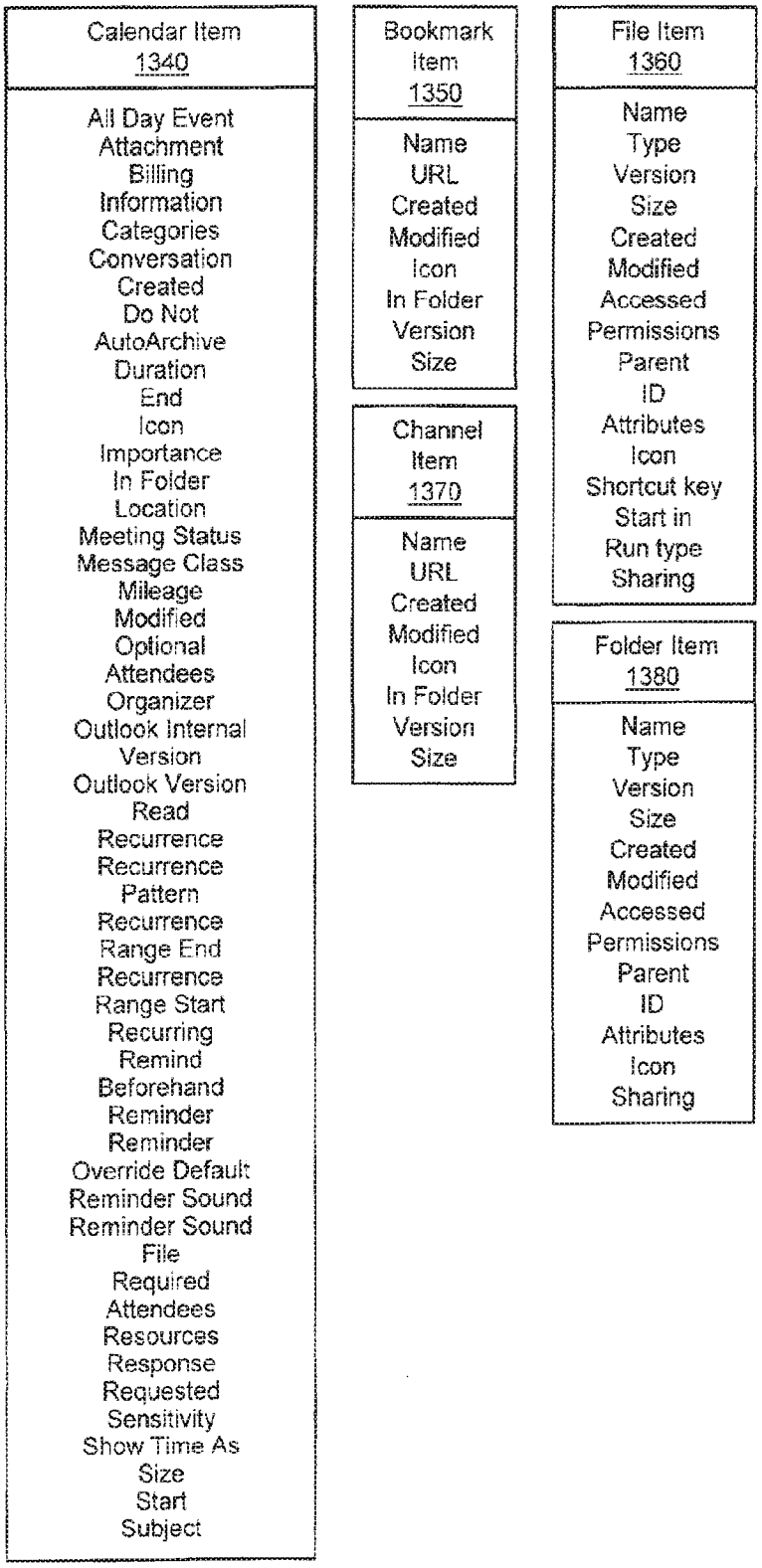
FIG. 13
PART 1

FIG. 13

Part 1	Part 2	Part 3

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FIG. 13 PART 2



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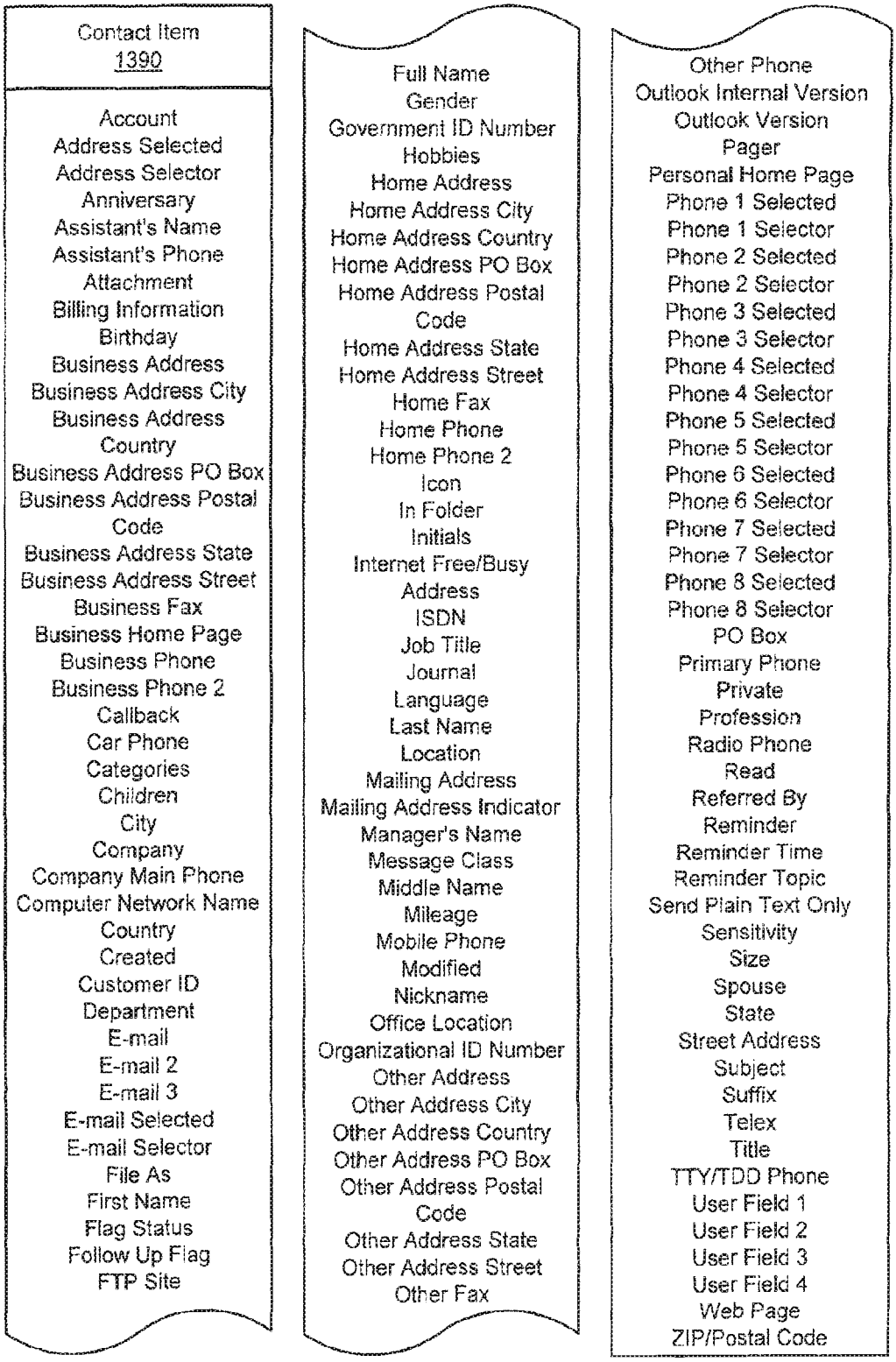


FIG. 13 PART 3

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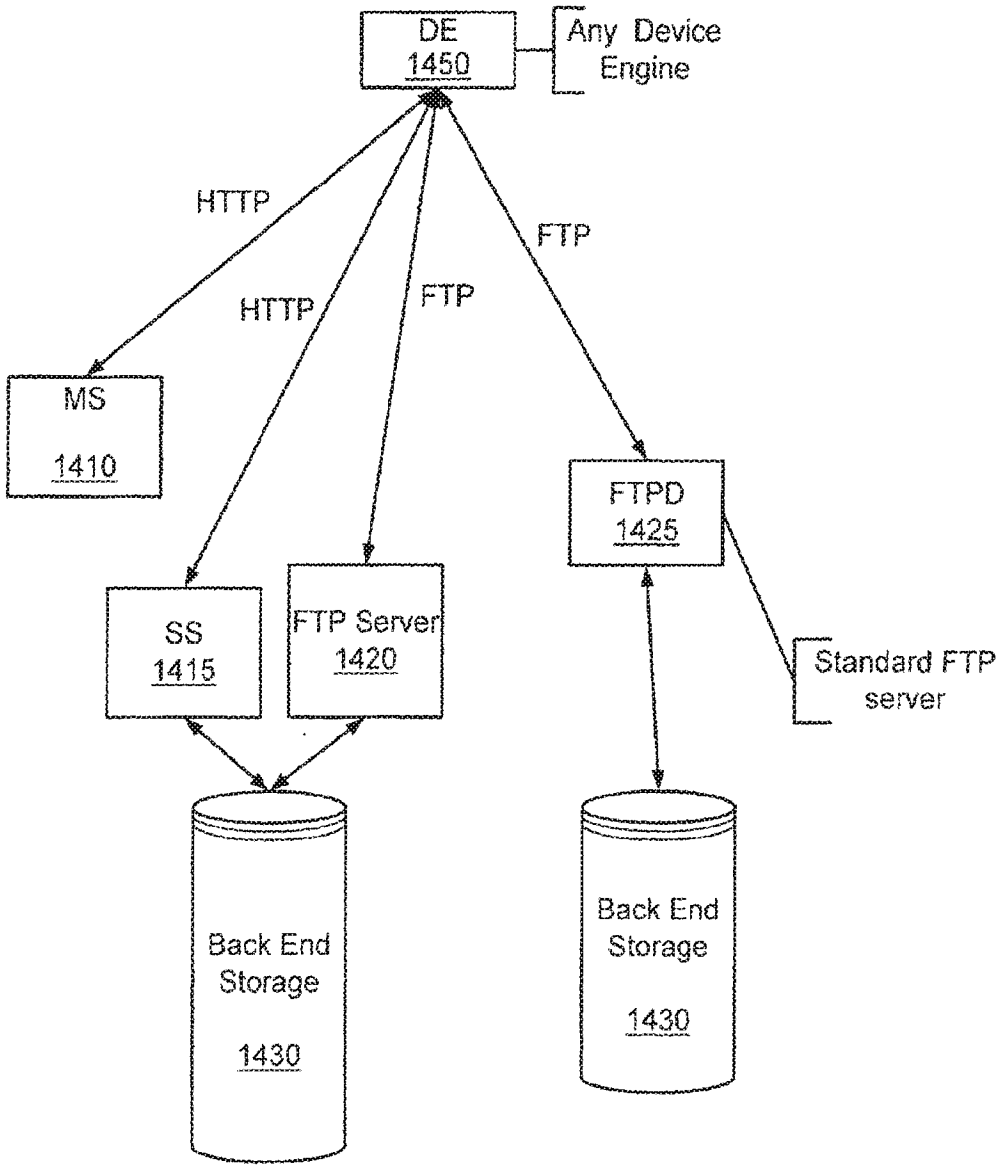
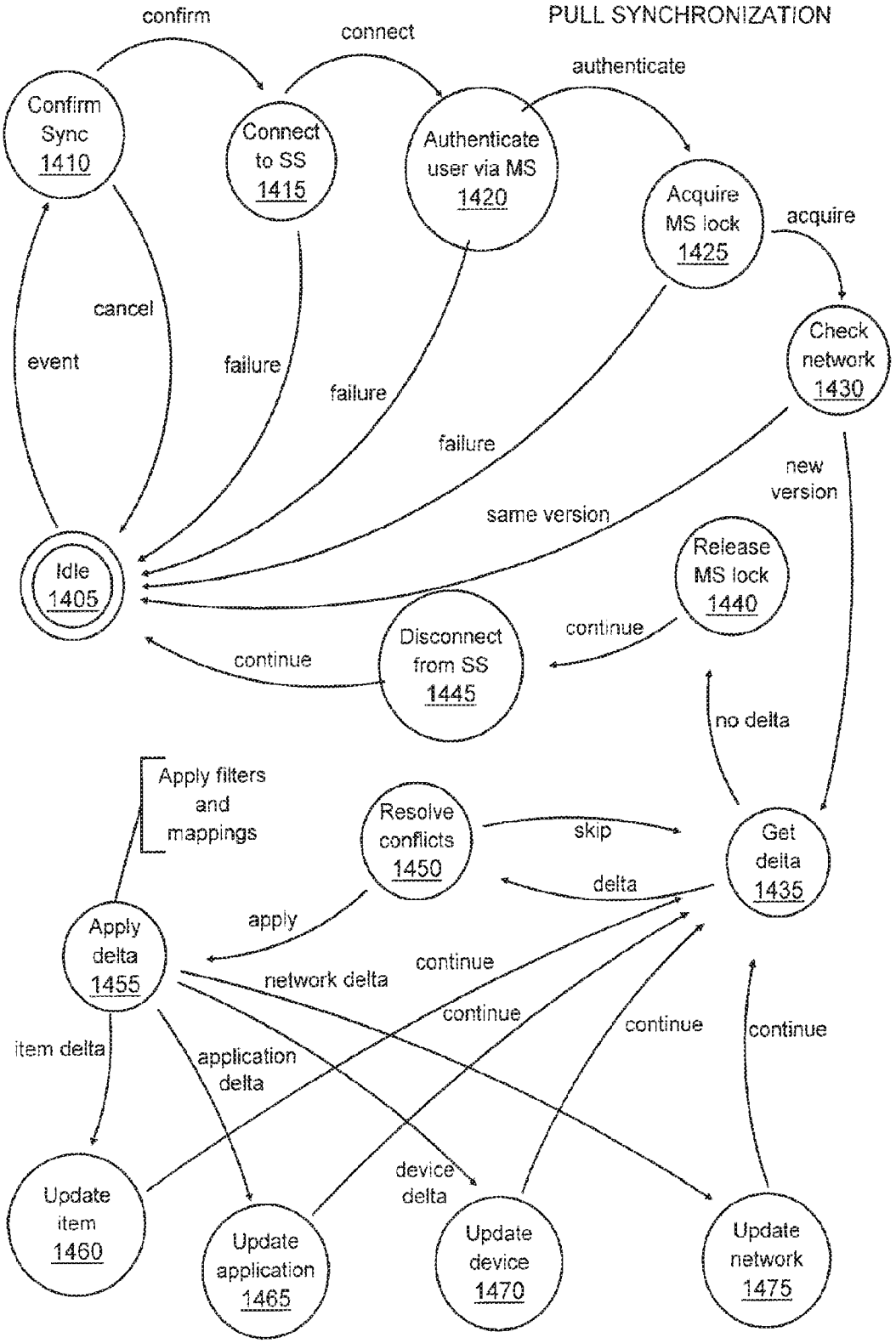


FIG. 14

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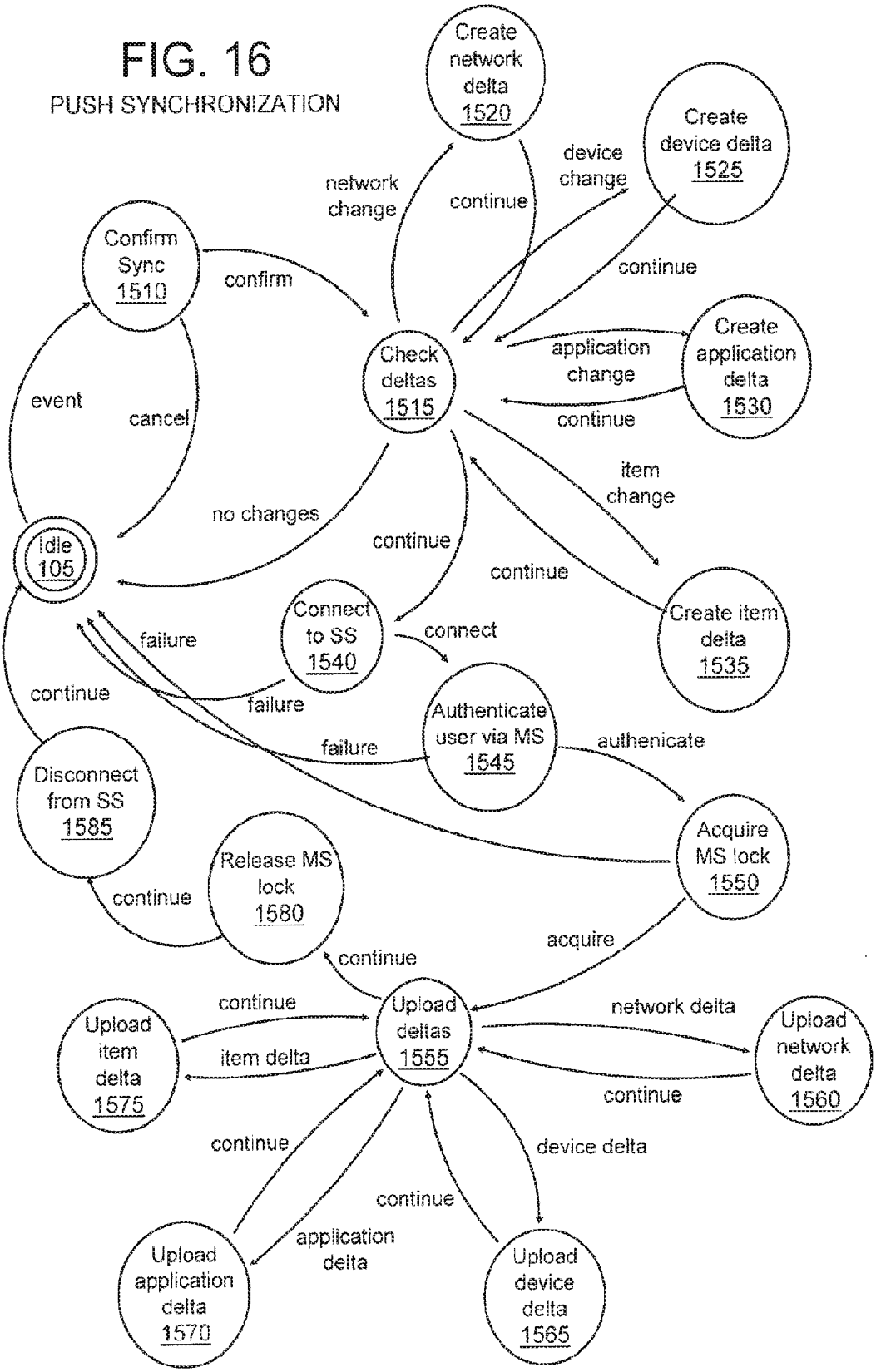
FIG. 15

PULL SYNCHRONIZATION



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FIG. 16
PUSH SYNCHRONIZATION



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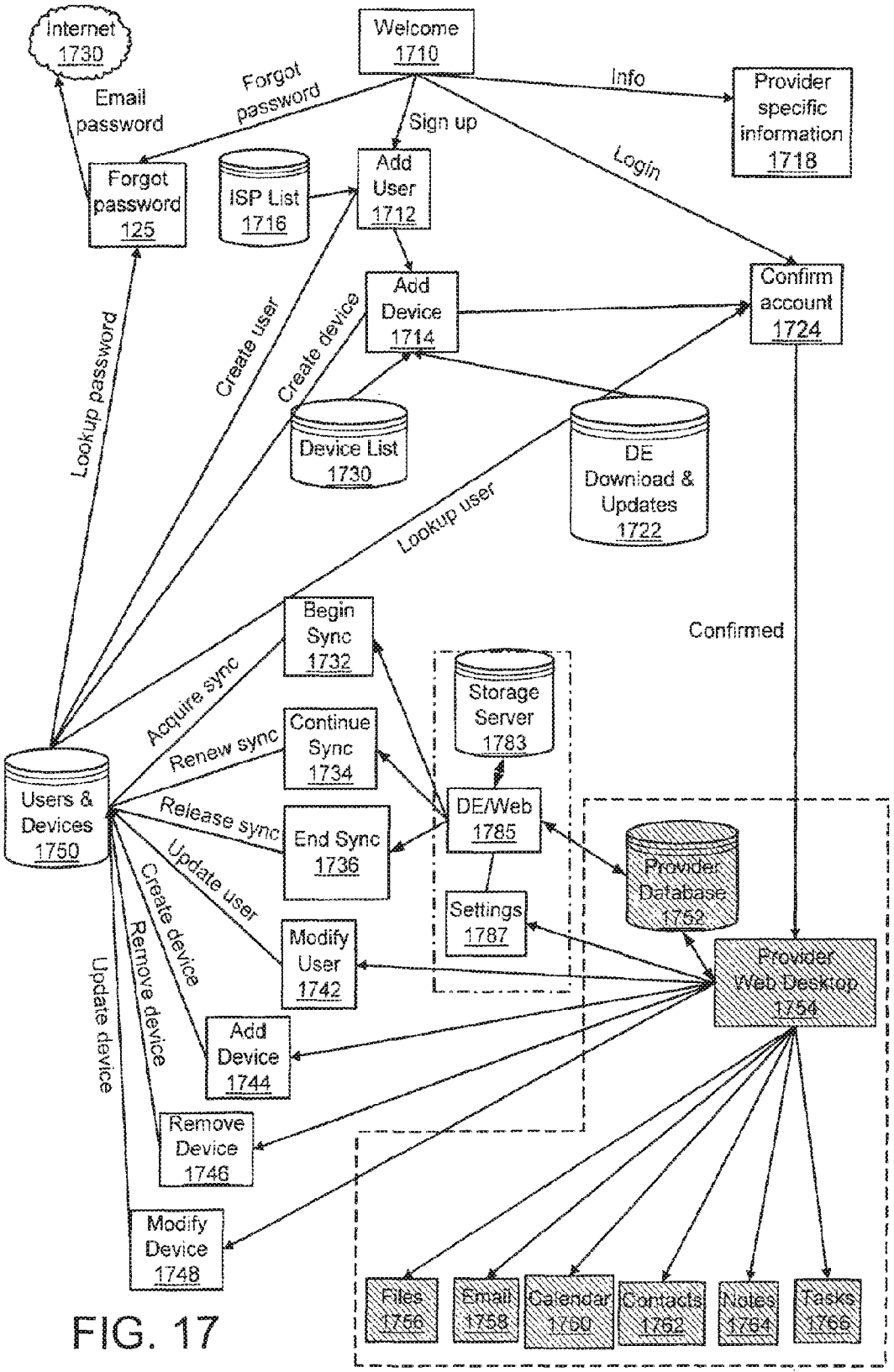


FIG. 17

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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : H04L 29/06 — A1

(11) International Publication Number: WO 98/56149

(43) International Publication Date: 10 December 1998 (10.12.98)

(21) International Application Number: PCT/SE98/01073

(22) International Filing Date: 5 June 1998 (05.06.98)

(30) Priority Data:
08/870,487 6 June 1997 (06.06.97) US

(71) Applicant: TELEFONAKTIEBOLAGET LM ERICSSON [SE/SE]; S–126 25 Stockholm (SE).

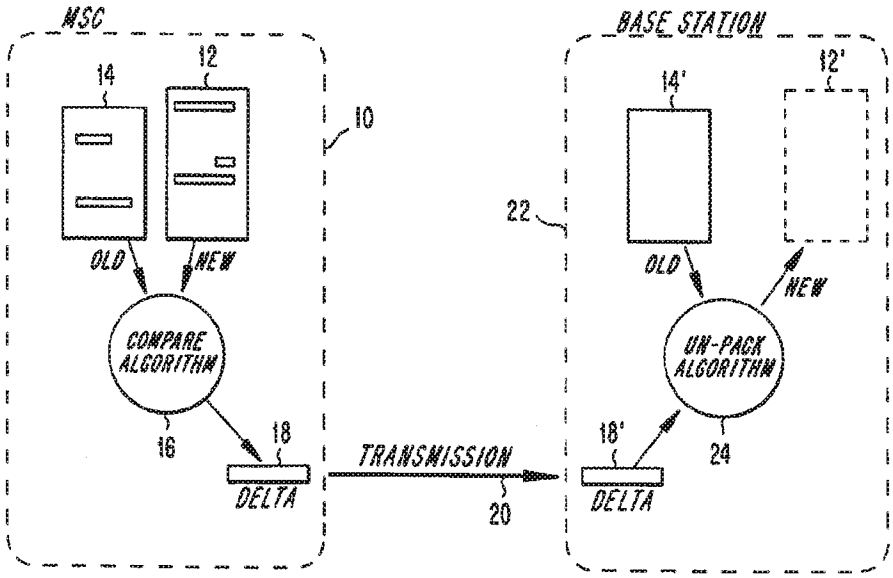
(72) Inventor: GENELL, Gunnar; Folkungagatan 132 B, S–116 30 Stockholm (SE).

(74) Agent: ERICSSON RADIO SYSTEMS AB; Common Patent Dept., S–164 80 Stockholm (SE).

(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: DELTA FILE SOFTWARE LOADING IN CELLULAR TELECOMMUNICATIONS SYSTEMS



(57) Abstract

An improved method for software loading in a cellular telecommunication system is disclosed. The method includes generating, with a compare algorithm, a delta file (18) that includes the differences between a new software file (12) and an old software file (14) running on the device. The delta file is then transmitted to a distribution unit in a designated base station (22) where a copy of the new software file (12) is reconstructed from the delta file (18) and the old software (14). The distribution unit stores the reconstructed new software file and loads it into the designated devices when alerted by an associated mobile switching center. The method reduces the time required for software loading for the cellular system and reduces the load on the associated transmission links by transmitting a substantially smaller data file than the complete version of the new software file.

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DELTA FILE SOFTWARE LOADING IN CELLULAR TELECOMMUNICATION SYSTEMS

BY INVENTOR

Bror Erik Gunnar Genell

FIELD OF THE INVENTION

The present invention relates generally to software loading in cellular telecommunication systems. In particular, it pertains to a method of loading a software file by generating a substantially smaller delta file which is used to reconstruct the original software file.

BACKGROUND OF THE INVENTION

Software loading plays a significant role in the operation of complex electronic equipment such as cellular telecommunication systems. Within cellular systems, software loading is necessary in several instances. For example, the functionality of modern cellular systems is, to a large extent, controlled by software. One common motivation for software loading is to provide system upgrades in the form of migratory releases of predetermined software packages. Furthermore, functional changes and enhancements may be added and activated by newly installed software. By way of example, an analog network operating on the Advanced Mobile Phone System (AMPS) can be upgraded to a Digital Advanced Mobile Phone System (D-AMPS) with relatively minimal hardware modifications which are activated by new software.

Figure 1 illustrates a current method for loading software in a typical cellular network. A computer terminal 10 used for loading software is coupled to a mobile switching center (MSC) 12. Terminal 10, generally located at the same site as MSC 12, permits loading from a centralized location. MSC 12 is linked to a plurality of base

stations by way of a high speed digital connection, such as a pulse code modulation (PCM) link. The PCM link is an optical or wired link capable of efficiently delivering digital data over vast distances in accordance with a specified standard. One widely used standard link is a T1 link 14 which specifies transmission of data at 1.544 Mb/s. Furthermore, the T1 standard specifies the transmission of twenty four timeslots, where one timeslot corresponds to one analog conversation (AMPS) or three conversations in digital mode (D-AMPS). Of the twenty four timeslots, twenty three are used for carrying voice data and one, timeslot 9, is reserved for the transmission of control information. It is desirable to utilize the same transmission link for transporting both voice and software data to maximize efficiency, therefore, timeslot 9 is used to carry software data during loading.

T1 link 14 couples MSC 12 to base station one (BS1) for efficient high speed communication between the components. Base stations typically contain anywhere from eight to seventy two devices wherein each can include, for example, a transmitter and receiver (i.e. transceiver), Location Verification Module (LVM), Radio Frequency Test Loop (RFTL), Combiner Tuner Controller (CTC), or other microprocessor equipped units. The procedure for software loading requires that each of the devices be taken off-line or set in an idle state during loading. This is commonly referred to in the industry as "blocking" the device and must be done sequentially for each device prior to loading. Since it may take anywhere from seconds to several tens of seconds to load each device, it is readily apparent that the software loading may take a significant amount of time. It should be noted the speed of loading depends greatly on the speed and capacity of the transmission line used. Furthermore, since a typical cellular network contains multiple base stations, each base station will have software loaded in its devices in a similar sequential fashion. In the forgoing example, MSC 12 is coupled to BS2 via T1 link 17 and BS3 is coupled to MSC 12 via T1 link 19. A complete software load for the entire network can take anywhere from several minutes to hours or even days.

A major disadvantage of this methodology is the length of time required for loading all devices for all base stations in the network. The transfer of large amounts of

data to a significant number of devices places a high load on transmission links which inefficiently uses system resources. Furthermore, since software loading requires that each device be taken off-line for a specified period of time, the device, while out of service, cannot serve traffic thereby depriving cellular operators of potential revenue. A method for loading software in the background without interrupting device traffic is disclosed in Genell co-pending application Serial No. _____, entitled: Background Software Loading In Cellular Telecommunication Systems filed on 5/20/97 which is incorporated herein in its entirety.

In view of the foregoing, it is an objective of the present invention to provide a technique for software loading in cellular telecommunication networks that is fast, efficient and saves system resources by reducing the load on transmission links.

SUMMARY OF THE INVENTION

Briefly described, and in accordance with multiple embodiments thereof, the invention provides a method of reducing the time necessary for software loading in a cellular telecommunication network by transmitting a much smaller data file, instead of the entire version of a new software file. In an embodiment of the present invention, a new software file is fed in its entirety into a compare algorithm located in a software dissemination center e.g. mobile switching center (MSC) or mobile station (MS). The compare algorithm compares the new software file to the corresponding old software file currently running on a designated device in a base station (BS) targeted for software loading. The compare algorithm then generates a delta file that includes the differences in data between the new software file and the old software file. The delta file further includes data reference information necessary for subsequent reconstruction of the new software file. The delta file is transmitted from the software dissemination center via a transmission medium, such as a T1 link or by wireless means, to the BS An unpack algorithm in the BS then reconstructs the new software file from the delta file and the

old software currently running on a designated device(s) in which the new software file is subsequently loaded.

In an apparatus aspect of the present invention, a system for loading software in a cellular telecommunication system is described. The system includes a software dissemination center, a base station in communication with the dissemination center e.g. MSC or MS, a compare algorithm located in the dissemination center for comparing a new software file to an old software file and generating a delta file, and an un-pack algorithm located in the base station. The delta file includes the differences in data between the new and old software files. The compare algorithm also includes data reference information for later reconstruction. The delta file is transmitted via a transmission medium, such as a T1 link or through wireless means, from the software dissemination center to the BS. The new software file is reconstructed in the BS with an un-pack algorithm using the delta file and a corresponding old software file currently running on a designated device(s) in which the new software file is subsequently loaded.

The present invention provides a method of loading software that is fast, efficient, and transparent to the user. The method substantially reduces the load on the transmission links due to software loading. These and other advantages of the present invention will become apparent upon reading the following detailed descriptions and studying the various figures of the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention, together with further objectives and advantages thereof, may best be understood by reference to the following description taken in conjunction with the accompanying drawings in which:

Figure 1 shows a prior art method of software loading in a cellular telecommunication system;

Figure 2 illustrates a method of software loading in accordance with a first embodiment of the present invention; and

Figure 3 depicts a method of switching device operations to run the new software file in accordance with a second embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

In a basic cellular telecommunication system, a mobile switching center (MSC) is linked to a plurality of base stations by a series of digital transmission links. The base stations are geographically dispersed to form an area of coverage for the system. Each base station (BS) is designated to cover a specified area, known as a cell, in which two way radio communication can take place between a mobile station (MS) and the BS in the associated cell. The procedure of software loading is typically initiated from the MSC to devices in the individual base stations in a sequential fashion. A description of a method for software loading in accordance with the present invention follows.

Figure 2 illustrates an exemplary procedure for software loading in accordance with a first embodiment of the present invention. For simplicity, the example refers to software loading for a single device in a base station. Software loading is initiated from MSC 10 which has the advantage of providing a central distribution location for loading to all the base stations in the service area of the MSC. Since software loading typically involves transferring large amounts of data to replace existing software, the process imposes a high demand on the transmission links thus taking up a significant amount of system resources. In many cases the content of the new software file contains much of the same data (or redundant data) as the old software file it replaces. The present invention takes advantage of this fact by transmitting a much smaller file, which excludes the redundant data, which is later reconstructed into the original new software file.

In accordance with the procedure, a relatively large new software file 12, such as a system upgrade or new functional release package for example, is loaded into the MSC. The new file 12 is fed, and stored for use with subsequent loadings, into a compare algorithm that compares it with a copy of a corresponding old software file 14 that was stored from the previous software load and is currently running on the designated device targeted for software loading. A delta file 18 is then generated from the output of the compare algorithm 16. The delta file 18 contains the differences in data between the new and old files in which redundant data between the files is excluded. The delta file 18 also contains reference pointers indicating where the differences occurred in the original file which are necessary to later reconstruct the new file 12. The redundant data may often include the same software code used for basic functions such as transmitting and receiving in the device, for example. Omitting the redundant data from the delta file 18 typically enables it to be significantly smaller than the complete version of the new file. For example, a typical delta file may often be around 5 percent or less of the size of the entire new software file.

After delta file 18 has been generated, it is transmitted via a transmission medium such as a digital optical (or wired) link 20, e.g., a T1 link. The T1 protocol allocates timeslot 9 for control information and related data, and is also used for software loading. It should be noted that other transmission protocols may require different allocations for software data, for example, the E1 link designates timeslot 16 for software loading and control information. Furthermore, other protocols may be used that designate data to be sent in multiple timeslots for faster more efficient loading. Alternatively, software loading may be carried out by wireless means through the air from a software dissemination center to a designated base station. For example, a software dissemination center can be an MSC as described in the present embodiment, a mobile station (MS), or a separate unit that is configured to transmit software files. The transmission of the relatively small delta file is especially suited for wireless transmission since the transceiver time dedicated for this task will be relatively small thereby having minimal affect on system traffic.

During software loading, the data is transmitted to a designated base station 22 until a complete delta file 18' has been received. The delta file 18' is then sent through an un-pack algorithm 24 which performs an inverse operation to that of compare algorithm 16 in the MSC. The un-pack algorithm 24 uses delta file 18' and the old software file 14' currently running on the device to reconstruct a new software file 12', which is identical to the new software file 12. The un-pack algorithm 24 reconstructs the new software file 12' by obtaining data and reference information contained in delta file 18'. The reference information indicates locations in old file 14' where data is to be added, removed, modified etc. Once the new software file 12' has been generated it is loaded into the device to run subsequent device activities. Several methods are suitable for use with the present invention for switching device operations to execute the new software on the designated device(s).

Figure 3 depicts a method of switching device operations to run the newly loaded software, in accordance with a second embodiment of the present invention. A relatively small delta file 18 (of Figure 2) is transmitted from the MSC via T1 link 20 to a designated base station. At the base station, the delta file 18 arrives at a distribution unit (DXU) 28, which contains the un-pack algorithm 24 (Figure 2). The un-pack algorithm reconstructs the new software file 12' (Figure 2) which is then stored in the distribution unit 28. A processor 30 within the distribution unit 28 sets up and directs the transfer of the new software file 12' for loading into an array of devices 32.

The distribution unit 28 has the capability to delay software loading to the devices until it is alerted by the MSC that all base stations are ready for uniform loading of all devices. Furthermore, selective software loading may be performed for particular devices which have been selected by the MSC. In this case processor 30 directs the distribution unit 28 to load the software for a specific device. This situation may occur, for example, in base stations operating in mixed mode, i.e. in AMPS/D-AMPS, wherein devices of a particular type will be upgraded accordingly with different software.

Other methods of software loading, such as those described in the Genell co-pending application Serial No. _____ for background software loading, may be incorporated for use with the present invention. Background loading permits the software to be loaded in a manner that will not disturb devices which may be handling voice or data traffic. Therefore, the devices are never "blocked" in order to load the software as in the prior art. In this technique, a delta file 18 (Figure 2) is transmitted to the distribution unit 28 of a selected base station while any or all of the devices 32 may be active. The distribution unit 28 unpacks the received delta file 18' (Figure 2) to reconstruct the new software file 12' where it is stored until the distribution unit 28 is alerted by the MSC that the target device is idle.

The present invention discloses a technique which permits fast and efficient software loading in cellular telecommunication systems by transmitting a substantially smaller software file than the complete original version. The technique has the further advantage of reducing the demand placed on transmission links during software loading and permits background loading in a manner that eliminates the need for taking the devices off-line.

It will be appreciated by those skilled in the art that changes could be made to the embodiments described above without departing from the inventive concept thereof. In particular, inventive concept can be used for loading software files for base station components other than transceiver devices such as control radio interface cards etc., or any component requiring software loading. Furthermore, the concept may be applied to cellular systems operating in accordance with, for example, Code Division Multiple Access (CDMA), Global System for Mobile Communication (GSM), or Personal Digital Cellular (PDC). It should be understood that the invention is not limited to the particular embodiments disclosed, but it is intended to cover modifications within the spirit and scope of the invention as defined in the appended claims.

What is claimed is:

CLAIMS

1. A method of loading software in a telecommunication system comprising the steps of:

comparing a new software file to an old software file in a software dissemination center;

generating a delta file that includes the differences in data between the new software file and the old software file;

transmitting said delta file from said software dissemination center to a designated base station; and

reconstructing said new software file from the delta file and the old software file in the base station.

2. A method as recited in claim 1 wherein said software dissemination center in said comparing step is a mobile switching center.

3. A method as recited in claim 1 wherein said software dissemination center in said comparing step is a mobile station.

4. A method as recited in claim 1 wherein said comparing step is performed by a compare algorithm in the software dissemination center.

5. A method as recited in claim 1 wherein the generating step further includes the step of inserting reference information in the delta file.

6. A method as recited in claim 1 wherein said delta file is transmitted to said base station via a T1 link.

7. A method as recited in claim 1 wherein said transmitting step is performed by wireless transmission through the air.

8. A method as recited in claim 1 wherein said delta file is received by a distribution unit in the base station.

9. A method as recited in claim 8 wherein the reconstructed new software file is stored in the distribution unit, and wherein said distribution unit loads the new software file into designated device(s) in the base station when alerted by the MSC.

10. A method as recited in claim 1 wherein said reconstructing step is performed by an un-pack algorithm in the base station, wherein said un-pack algorithm performs an inverse operation to that of said compare algorithm.

11. A software loading system for use in a telecommunication system comprising:

a software dissemination center;

a base station having a plurality of devices therein, said base station being in communication with the software dissemination center via a transmission medium;

a compare algorithm located in the software dissemination center for comparing a new software file to an old software file currently running on the designated device(s) in the base station, and wherein said compare algorithm further generates a delta file; and

an un-pack algorithm located in the base station for reconstructing the new software file from the delta file and the old software file.

12. A software loading system as recited in claim 11 wherein said software dissemination center is a mobile switching center.

13. A software loading system as recited in claim 11 wherein said software dissemination center is a mobile station.

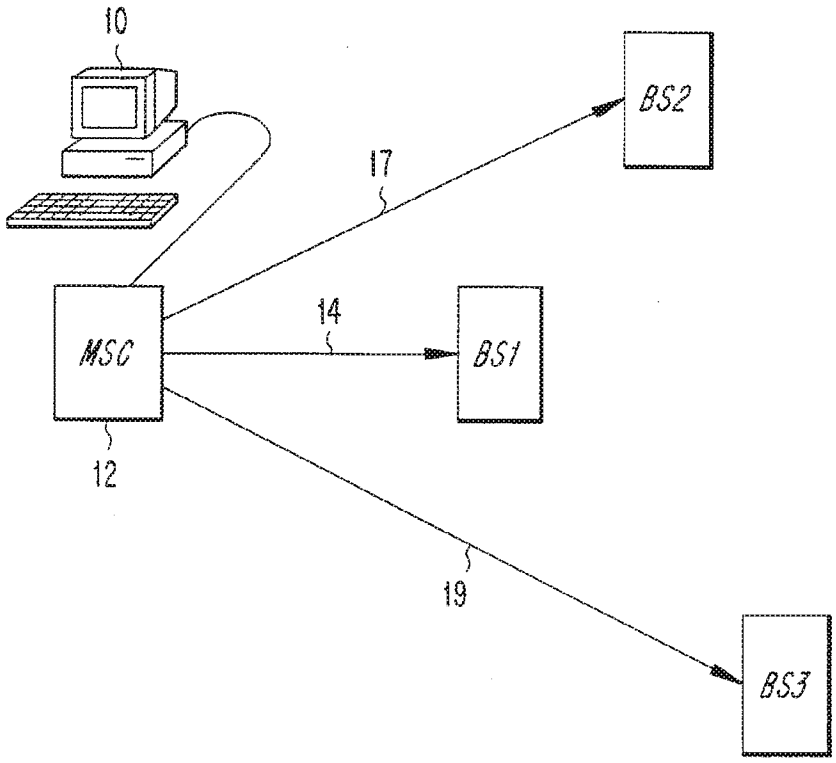
14. A software loading system as recited in claim 11 wherein said transmission medium is a T1 link.

15. A software loading system as recited in claim 11 wherein said transmission medium is an E1 link.

16. A software loading system as recited in claim 11 wherein said transmission medium is the air interface.

17. A software loading system as recited in claim 11 wherein said delta file is received by a distribution unit in the base station, wherein the reconstructed new software file is stored in the distribution unit and loaded into the designated devices when alerted by the MSC.

Fig. 1
(PRIOR ART)



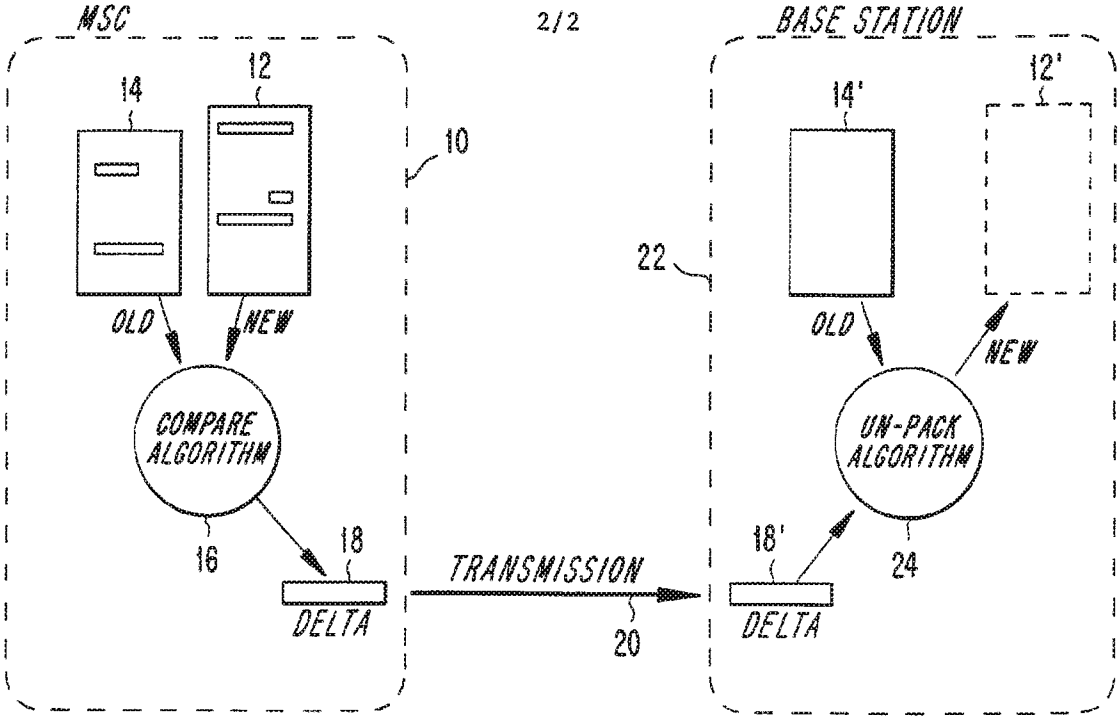

MSC
BASE STATION
14
12
10
14'
12'
22
OLD
NEW
OLD
NEW
COMPARE ALGORITHM
UN-PACK ALGORITHM
16
18
18'
24
TRANSMISSION
DELTA
DELTA
20

Fig. 2

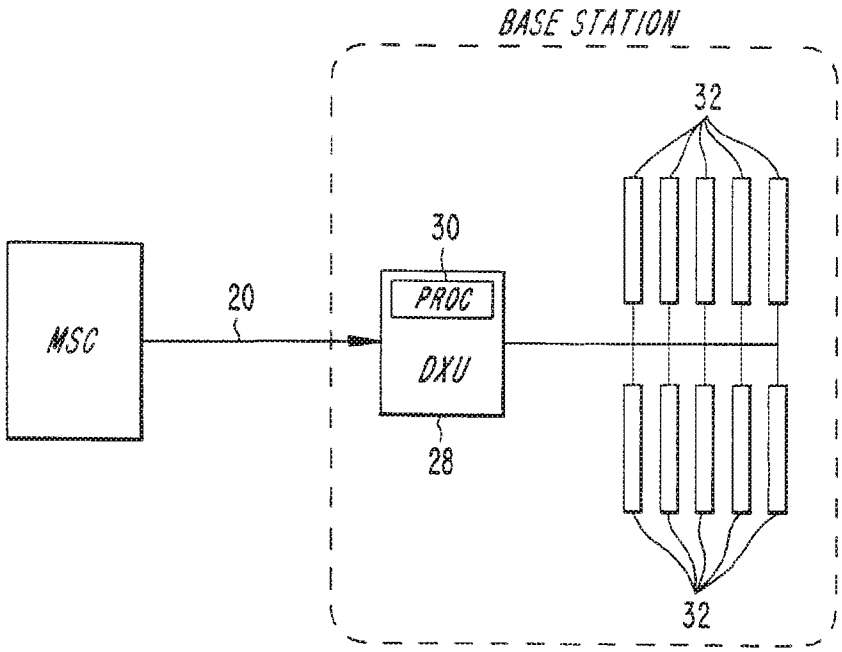

BASE STATION
32
30
MSC
20
PROC
DXU
28
32

Fig. 3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/SE 98/01073

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 H04L29/06

According to International Patent Classification(IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 H04L

Documentation searched other than minimumdocumentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 665 670 A (TRAVELING SOFTWARE) 2 August 1995 see abstract	1-17
X	WO 95 19003 A (NORTON-LAMBERT) 13 July 1995 see abstract	1-17
A	EP 0 290 924 A (IBM) 17 November 1988 see abstract	1-17
A	US 4 847 830 A (M.MOMIROV) 11 July 1989 see abstract	1-17

[ ] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of theinternational search	Date of mailing of the international search report
22 July 1998	30/07/1998

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl. Fax: (+31-70) 340-3016	Canosa Areste, C

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Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

Int ional Application No
PCT/SE 98/01073

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 665670 A	02-08-1995	US 5446888 A	29-08-1995
		CA 2140124 A	15-07-1995
		JP 7295867 A	10-11-1995
		US 5721907 A	24-02-1998
WO 9519003 A	13-07-1995	CA 2180459 A	13-07-1995
		EP 0739514 A	30-10-1996
		JP 9510559 T	21-10-1997
EP 290924 A	17-11-1988	JP 63292257 A	29-11-1988
		US 4958278 A	18-09-1990
US 4847830 A	11-07-1989	AT 120919 T	15-04-1995
		AU 2824089 A	05-07-1989
		CA 1307350 A	08-09-1992
		DE 3853539 D	11-05-1995
		DE 3853539 T	14-12-1995
		EP 0396589 A	14-11-1990
		JP 3502742 T	20-06-1991
		WO 8905551 A	15-06-1989

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
26 April 2007 (26.04.2007)

PCT

(10) International Publication Number
WO 2007/047302 A2

(51) International Patent Classification:
G06F 11/14 (2006.01)

(21) International Application Number:
PCT/US2006/039712

(22) International Filing Date: 11 October 2006 (11.10.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/249,983 12 October 2005 (12.10.2005) US

(71) Applicant *(for all designated States except US)*: **QUALCOMM Incorporated** [US/US]; 5775 Morehouse Drive, San Diego, California 92121 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **CHEN, Liren** [CN/US]; 15130 Dove Creek Road, San Diego, California 92127 (US). **STEENSTRA, Jack** [US/US]; 9208 Fostoria Court, San Diego, California 92127 (US). **TAYLOR, Kirk S.** [US/US]; 10511 Caminito Rimini, San Diego, California 92129 (US).

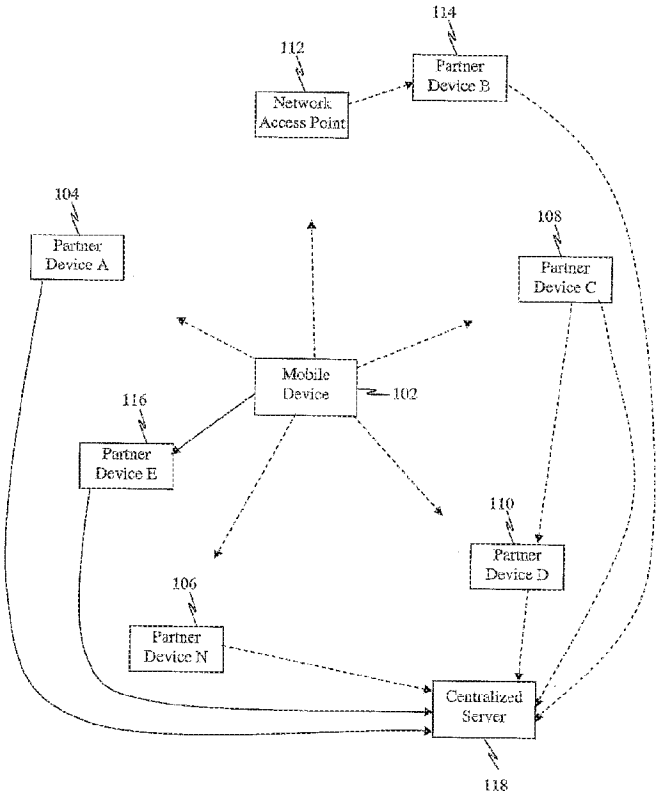
(74) Agents: **WADSWORTH, Philip R.** et al.; 5775 Morehouse Drive, San Diego, California 92121 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: PEER-TO-PEER DISTRIBUTED BACKUP SYSTEM FOR MOBILE DEVICES



(57) Abstract: Some embodiments provide a method, system, and apparatus for transparently backing-up information from a mobile device to distributed devices having storage capabilities. As the mobile device comes within communication range of one or more of the trusted partner devices, information from the mobile device is backed up, in segments or portions, on the one or more distributed partner devices. Information backed-up in one partner device may be transferred to another partner device for storage. A centralized master server may also maintain a list of the locations (e.g., partner devices) where backup information is maintained for the mobile device. When requested to do so by a user, the centralized server can retrieve and consolidate the backup information for the mobile device.

WO 2007/047302 A2

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

PEER-TO-PEER DISTRIBUTED BACKUP SYSTEM FOR MOBILE DEVICES

BACKGROUND

Field

[0001] The present invention generally relates to backup systems for mobile devices, and more specifically providing a distributed and transparent way of backing-up content from a mobile device to other devices.

Background

[0002] Mobile devices, such as cellular/mobile telephones, personal digital assistants (PDA), pagers, mobile computers, etc., are widely used for many types of applications that store information on the mobile devices. For example, mobile phones may store contact information (e.g., phone numbers, addresses, etc.), text messages, pictures, and other types of information. As a result of their expanding capabilities and features, users have become dependent on such mobile devices as part of their daily lives and/or business. Whether it be contact information, pictures, electronic files, electronic mail, or other types of information, the information stored in such mobile devices has become increasingly important to users. Thus, it has become increasingly important to backup such information to minimize losses and inconveniences in case the mobile device is lost, stolen, or malfunctions.

[0003] However, backing up information from mobile devices is not an easy task. Many mobile devices, such as mobile phones, do not provide a convenient way to backup the information stored therein. Additionally, those mobile devices that provide backup mechanism often require that the mobile device be physically coupled to a computer and that the user initiate the backup procedure. This is at minimum inconvenient and relies on the user to remember to backup the information.

[0004] Additionally, with expanded features and capabilities, mobile devices often include significant storage capacity of several megabytes to hundreds of gigabytes. Backing up such large amount of information would require a significant amount of time, thereby inconveniencing a user even more. Even if a user decides to backup information from a mobile device, a significant amount of storage space may be needed from the user's computer to store such information.

[0005] The different types of mobile devices and varying communication interfaces also makes it difficult to provide a convenient backup mechanism that can be

implemented on various types of mobile devices. Certain types of wireless interfaces have limited capacity, ranging from tens of kilobits per second for a typical commercial cellular network to tens of megabit per second for a wireless LAN network. Coupled with the large storage space on many mobile devices and limited battery life, it becomes physically impossible for a user to back-up all the information stored on a mobile devices at once.

SUMMARY

[0006] Some embodiments provide a method, system, and apparatus for transparently backing-up information from a mobile device to distributed devices having storage capabilities. As the mobile device comes within communication range of one or more of the trusted partner devices, information from the mobile device is backed up, in segments or portions, on the one or more distributed partner devices. Information backed-up in one partner device may be transferred to another partner device for storage. A centralized master server may also maintain a list of the locations (e.g., partner devices) where backup information is maintained for the mobile device. When requested to do so by a user, the centralized server can retrieve and consolidate the backup information for the mobile device.

[0007] According to one implementation, a mobile device comprises a storage device to store mobile device content, and a processing unit configured to (a) locate a first partner device to receive the mobile device content, (b) determine whether the first partner device is trustworthy to receive the mobile device content, (b) determine the portions of the mobile device content that should be backed-up, (c) determine the amount of information the first partner device can backup, (d) obtain a portion of the mobile device content from the storage device, and (e) send the portion of the mobile device content to the first partner device for backup, and (f) restore the backup information from a plurality of partner devices to the storage device.

[0008] The mobile device may further include one or more communication interfaces coupled to the processing unit, wherein the processing unit is configured to search for the first partner device through the one or more communication interfaces. The one or more interfaces may provide a wireless communication link or a wired communication link to the first partner device. Additionally, the mobile device may be further configured to (a) locate a second partner device to receive the mobile device

content, (b) obtain another portion of the mobile device content from the storage device, and (c) send the another portion of the mobile device content to the second partner device for backup.

[0009] Another implementation provides a partner device comprising a storage device to backup information from a mobile device, and a processing unit configured to (a) determine whether a mobile device is a trusted device, (b) determine the amount of information the storage device can receive from the mobile device for backup, (c) receive information to backup from the mobile device, (d) store the received information in the storage device, and (e) notify a centralized server of the portions of information from the mobile device that are backed-up in the storage device, (f) send the backup information to a centralized storage server, and (g) remove the received information from the storage device upon receipt of a message from a centralized server. The information may be wirelessly received from the mobile device and may be a portion of the information available for backing-up at the mobile device.

[0010] Some implementations provide a centralized server comprising a communication interface to obtain index information associated with backup information stored in one or more partner devices and a processing unit configured to (a) maintain an index of the one or more partner devices where backup information is stored, and (b) obtain the backup information from the one or more partner devices to reconstruct the information of a mobile device. Additionally, the centralized server may determine whether there are duplicate versions of the backup information on the one or more partner devices, and, if there are duplicate versions of the backup information, then inform the partner device with the oldest version of the backup information that it can be deleted.

[0011] Another feature of the invention provides a method for use in a mobile device backup system, comprising (a) identifying a plurality of partner devices for storing backup information for the mobile device, (b) locating a partner device to receive backup information, (c) determining the amount of information the partner device can backup, (d) determining whether the mobile device has information to backup, (e) sending a portion of the backup information to the partner device, (f) obtaining the backup information for the mobile device from the plurality of partner devices, (g) consolidating the obtained backup information from the plurality of partner devices, and (h) restoring the backup information from the plurality of partner devices to the mobile device.

[0012] Another feature of the invention provides a method for use in a distributed device backup system, comprising (a) determining whether a mobile device seeks to backup information in a partner device, (b) receiving backup information from the mobile device, and (c) storing the backup information in the partner device. Additionally, the method may include (a) retrieving backup information from the partner device, (b) transferring backup information from the partner device to another partner device, (c) removing the backup information from the partner device if a more recent version of the backed-up information is stored elsewhere, (d) and storing the backup information in a centralized server.

[0013] Another feature of the invention provides a method for use in a centralized server for indexing backup information, comprising (a) obtaining index information associated with distributed backups stored in one or more partner devices, (b) maintaining an index of backup information associated with a particular mobile device, (c) obtaining the backup information from the one or more partner devices to reconstruct the information of the particular mobile device, (d) determining whether there are duplicate versions of the backup information on the one or more partner devices; and (e) if there are duplicate versions of the backup information then informing the partner device with the oldest version of the backup information that it can be deleted.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] Figure 1 is a block diagram illustrating one example of a peer to peer distributed backup system for mobile devices according to one implementation.

[0015] Figure 2 is a block diagram illustrating a mobile device according to some implementations.

[0016] Figure 3 is a block diagram illustrating components and functions of a mobile device according to some implementations.

[0017] Figure 4 is a block diagram illustrating a partner device according to some implementations.

[0018] Figure 5 is a block diagram illustrating components and functions of a partner device according to some implementations.

[0019] Figure 6 is a block diagram illustrating a centralized server according to some implementations.

[0020] Figure 7 illustrates an index that may be maintained by a centralized server to keep track of backup locations and dates for a mobile device.

[0021] Figure 8 is a flow diagram illustrating a method operational on a mobile device to backup information on a partner device.

[0022] Figure 9 is a flow diagram illustrating a method operational on a partner device to backup information received from a mobile device.

[0023] Figure 10 is a flow diagram illustrating a method operational on a centralize server to consolidate backup information received from partner devices.

DETAILED DESCRIPTION

[0024] In the following description, specific details are given to provide a thorough understanding of the embodiments. However, it will be understood by one of ordinary skill in the art that the embodiments may be practiced without these specific detail. For example, circuits may be shown in block diagrams in order not to obscure the embodiments in unnecessary detail. In other instances, well-known circuits, structures and techniques may be shown in detail in order not to obscure the embodiments.

[0025] Also, it is noted that the embodiments may be described as a process that is depicted as a flowchart, a flow diagram, a structure diagram, or a block diagram. Although a flowchart may describe the operations as a sequential process, many of the operations can be performed in parallel or concurrently. In addition, the order of the operations may be rearranged. A process is terminated when its operations are completed. A process may correspond to a method, a function, a procedure, a subroutine, a subprogram, etc. When a process corresponds to a function, its termination corresponds to a return of the function to the calling function or the main function.

[0026] Moreover, a storage medium may represent one or more devices for storing data, including read-only memory (ROM), random access memory (RAM), magnetic disk storage mediums, optical storage mediums, flash memory devices and/or other machine readable mediums for storing information. The term "machine readable medium" includes, but is not limited to portable or fixed storage devices, optical storage devices, wireless channels and various other mediums capable of storing, containing or carrying instruction(s) and/or data.

[0027] Furthermore, embodiments may be implemented by hardware, software, firmware, middleware, microcode, or a combination thereof. When implemented in

software, firmware, middleware or microcode, the program code or code segments to perform the necessary tasks may be stored in a machine-readable medium such as a storage medium or other storage(s). A processor may perform the necessary tasks. A code segment may represent a procedure, a function, a subprogram, a program, a routine, a subroutine, a module, a software package, a class, or a combination of instructions, data structures, or program statements. A code segment may be coupled to another code segment or a hardware circuit by passing and/or receiving information, data, arguments, parameters, or memory contents. Information, arguments, parameters, data, etc. may be passed, forwarded, or transmitted through a suitable means including memory sharing, message passing, token passing, network transmission, etc.

[0028] In the following description, certain terminology is used to describe certain features of one or more embodiments of the invention. For instance, the term "mobile device" refers to handheld computers, laptop computers, personal digital assistants (PDA), wireless devices, mobile phones, pagers, wireless modems, music players (e.g., MP3 players), personal information managers, and/or other communication/computing devices. The term "partner device" is used to refer to an electronic device, computer, processing unit, storage device, and/or mobile device with which a trust relationship has been established. The terms "content" and "information" are interchangeably and broadly used to refer to all types of data including, telephone numbers, contact information, electronic mail, video, digital pictures, sound recordings, graphics, text messages and documents, etc., and file systems. The term "storage device" refers to a device that can store information, such as hard-drives, static memory, flash memory, solid state disk, etc.

[0029] Some embodiments provide a method, system, and apparatus for transparently backing-up information from a mobile device to trusted devices as the mobile device comes within communication range of one or more of the partner devices. Another feature provides that the information from the mobile device is backed up in segments or portions across a plurality of distributed partner devices. Information backed-up in one partner device may be transferred to another partner device for storage. By distributing backup information across multiple partner devices, the distributed backup system makes efficient use of surplus storage capacity on partner devices avoiding the transfer time and storage costs associated with storing all information on a single location. A centralized master server may maintain a list of the locations (e.g., trusted partner devices) where backup information is maintained for a

mobile device. In another aspect, the centralized master server may obtain and store all backups from the various partner devices. Thus, the centralized server facilitates recovery and reconstruction of information.

[0030] Figure 1 is a block diagram illustrating one example of a peer to peer distributed backup system for mobile devices according to one implementation. A mobile device 102 may move through various locations as it is carried by its user. The mobile device 102 may include an application or program that interacts with the operating system and is configured to backup user content, such as contact information, caller lists, phone numbers, call records, text messages, voice mail, images, music, files, etc., from the mobile device 102 to other trusted or partner devices 104, 106, 108, 110, 114, and/or 116. Because mobile devices, by their nature, move around with a user, having to physically connect a mobile device to host system (e.g., computer) to download or backup information is inconvenient. Additionally, with mobile devices having increasingly larger storage capacities (e.g., megabytes to hundreds of gigabytes), the amount of time to backup such large amount of information becomes prohibitive in many instances, and at minimum very inconvenient to the user. Thus, the present invention provides a distributed backup system that enables mobile device 102 to backup information piecemeal (e.g., in portions or fragments of the total information to backup) to other devices with which it comes into contact (e.g., wireless or wired communication).

[0031] As the mobile device 102 moves around with a user, it may come into contact with one or more trusted or partner devices partner devices 104, 106, 108, 110, 114, and/or 116. Partner devices are devices with which a mobile device has established, either beforehand or on-the-fly, a secure or trusted relationship. That is, the mobile device believes that the partner devices are secure enough or trustworthy enough to hold its backup information and, conversely, the partner devices are willing to provide backup storage for the mobile device. The level of "trust" between a mobile device and a partner device to establish a relationship may vary from minimal (e.g., a mere reply that the partner device is willing to accept backup information from the mobile device) to a pre-established secure relationship between the partner and mobile devices (e.g., involving predefined access permissions between the devices).

[0032] In some implementations, the mobile device may communicate wirelessly with a partner device 104, determine whether partner device 104 is able and willing to receive backup information from mobile device 102, and send backup information to the

partner device 104. In some situations, a wired communication link (e.g., direct or indirect link or network) from partner device 104 may serve to inform a centralized server 118 that partner device 104 has backup information from mobile device 102. Similarly, mobile device 102 may backup information to a partner device 106 via a wireless communication which then communicates such occurrence to centralized server 118 via a wireless link. In yet another type of information backup, mobile device 102 may backup information to through a wired connection (e.g., interface cable or docking station) to partner device 116 which then informs centralized server 118 of such backup occurrence. Another type of partner device 108 may receive and store backup information from mobile device 102 and inform centralized server 118 of such occurrence via one of multiple communication paths. For example, partner device 108 may send such notification to centralized server 118 either directly, via a wired or wireless link, or indirectly, via another partner device 110 or a network device. In yet another configuration of the invention, mobile device 102 may communicate with a partner device 114 via a network access point 112.

[0033] In sending backup information to the various partner devices with which it communicates, mobile device 102 may send just portions of the information available for backup. This way, mobile device 102 is able to backup a large amount of information onto multiple partner devices 104, 106, 108, 110, 114, and/or 116 during the, typically, short periods of time that mobile device 102 comes into contact with each partner device. That is, since mobile device 102 moves around with its user, it may only have a short period of time in which to backup information to partner devices. Thus, fragmenting the information into smaller portions permits the mobile device to backup such information across one or more distributed partner devices.

[0034] Another feature provides for a partner device to offload its backed-up information from a mobile device on to another device. For example, partner device 108 may offload backed-up information from mobile device 102 on to partner device 110. In various implementations, the second device on to which a partner device offloads backup information need not be a partner device of mobile device 102. For instance, partner device 110 may have a trusted relationship with partner device 108 but not with mobile device 102.

[0035] In some implementations, mobile device 102 can define the level of security it seeks for its backed-up information from the partner devices to which it sends backup information. Such level of security may be passed on to partner devices so that they can

store the backup information appropriately. Additionally, such security information may also indicate whether a partner device can offload backed-up information to other devices.

[0036] Figure 2 is a block diagram illustrating a mobile device 200 according to some implementations. Mobile device 200 includes a processing unit 202 coupled to a storage device 204 and one or more communication interfaces 206. Processing unit 202 may execute a program or application that can be configured by a user to backup mobile device content, such as contact information, text messages, music, files, digital pictures, games, etc., from mobile device 200 to partner devices. A user may configure the order or priority in which the information or content should be backed-up. Such application may operate automatically, without user interaction, so that the mobile device backs-up its information in the "background" (e.g., without affecting mobile device operation). Thus, a user can operate the mobile device (e.g., use a cell phone or PDA) without being affected by the background backup application.

[0037] The backup application may first determine whether it has information that should be backed-up. This may be done by determining if new information is stored in the storage device 204. Alternatively, mobile device 200 backs-up information in the storage device periodically.

[0038] If information is to be backed-up, the background backup application may then determine which communication interface and/or protocol should be used. According to one aspect of the invention, mobile device 200 may consider a variety of factors, such as cost, availability, and/or bandwidth of the communication interface in making a selection. Thus, the mobile device is configured to recognize available wired and/or wireless communication interfaces that it can use to communicate with partner devices on one or more different networks and/or protocols.

[0039] According to one implementation, mobile device 200 sends periodic search broadcasts to find potential backup partners through one or more communication interfaces. Once a backup partner is identified and it has agreed to receive backup information from mobile device, mobile device 200 sends a portion of its backup information to it. Such transmissions of backup information may occur through one or more of communication interfaces 206 available to mobile device 200. For instance, communication interfaces 206 may include an IEEE 802.11 wireless interface, a Bluetooth-compliant interface, a Universal Serial Bus (USB) interface, a cellular phone radio frequency interface, a pager radio frequency interface, etc. In some

implementations, the background backup application may utilize a primary communication interface to locate and backup information to a partner device. For instance, where mobile device 200 is a cellular phone, the backup application may use the cellular (radio frequency) interface when not in use by the user, to backup information. In other implementations, the backup application may employ secondary communications interfaces (e.g., those not used for primary communications of the mobile device) to backup information to a partner device.

[0040] In some implementations, the communications and/or backed-up information may be encrypted by mobile device 200 so that it can be secured during transmission and prevent access by unauthorized parties.

[0041] Figure 3 is a block diagram illustrating components and functions of a mobile device 300 according to some implementations. The mobile device 300 includes an information store 302, a partner device locator 304, an information retriever 306, and a communications interface 308. The information store 302 may contain content for the mobile device 300. The partner device locator 304 identifies one or more partner devices to backup the information from the mobile device 300. The information retriever 306 retrieves a portion of the information from the information store 302, as directed by the content backup identifier 310, and sends it to a partner device via communication interface 308. The content backup identifier 310 may determine what portions of the content in the information store 302 are to be backed-up. A backup information restorer 312 serves to restore backed-up information from a plurality of partner devices.

[0042] One or more of the components and functions illustrated in Figures 2 and/or 3 may be rearranged and/or combined into a single component or embodied in several components without departing from the invention. Additional elements or components may also be added without departing from the invention.

[0043] Figure 4 is a block diagram illustrating a partner device 400 according to some implementations. Partner device 400 includes a processing unit 402 coupled to a storage device 404 and one or more communication interfaces 406. In some implementations, partner device 400 may be mobile devices (e.g., cell phones, etc.) that both receives backups from other mobile devices and backs-up its own information to other partner devices. Partner device 400 may include one or more communication interfaces, either wired or wireless, through with it can communicate with mobile

devices, other partner devices, networks, or a centralized server that manages backup information.

[0044] A backup assistant application may operate in processing unit 402 to facilitate backups from mobile devices to partner device 400. The backup assistant application may operate automatically, without user interaction, so that the partner device can back-up its information in the "background" (e.g., without affecting the primary operation of the partner device). That is, in some embodiments the primary function of a partner device is something other than as a backup device for the mobile device or a mere storage device. The backup assistant application may respond to a broadcast or query by a mobile device searching for a partner device. If partner device 400 recognizes the querying mobile station as a "trusted" device with which a backup relationship has been or may be established, then it affirmatively responds to the mobile station. Partner device 400 may also inform the mobile device of the amount of information it is willing to backup for the mobile device. Partner device 400 may have pre-allocated storage area in storage device 404 where it backs-up information for other devices. Alternatively, the backup assistant application may determine how much of storage device 404 capacity can be allocated to backups for other devices.

[0045] Once partner device 400 has received and stored backup information for a mobile device, it informs a centralized server of that it is holding backup information for a particular backup device. That is, the backup assistant application in partner device 400 knows which backup information belongs to which mobile device. It may also know the date of the backup information. Having such information, a centralized server can build a master list of where backup information is held for a particular mobile device.

[0046] Figure 5 is a block diagram illustrating components and functions of a partner device 500 according to some implementations. The partner device 500 includes a backup information storage 502 coupled to an information retriever which communicates through a communication interface 506. Information is received over the communication interface 506 by the information retriever 504 and stored in the backup information storage 504. A trusted device identifier 508 determines whether a mobile device is a trusted device.

[0047] One or more of the components and functions illustrated in Figures 4 and/or 5 may be rearranged and/or combined into a single component or embodied in several

components without departing from the invention. Additional elements or components may also be added without departing from the invention.

[0048] Figure 6 is a block diagram illustrating a centralized server 600 according to some implementations. Centralized server 600 includes a processing unit 602 coupled to a storage device 604 and one or more communication interfaces 606. Communication interfaces 606 may be either wired or wireless enables centralized server 600 to communicate with partner devices or networks to manage backup information. The centralized server 600 may be configured to maintaining an index of the partner devices where backup information is stored. This facilitates the intelligent retrieval, consolidation, and reconstruction of the backed-up data while leaving the backed-up data stored in the partner devices.

[0049] Since the centralized server 600 has information of the date and type of information backed-up for a particular mobile device, it may direct partner devices to remove or delete older backup information for which more current backups exist. According to another implementation, the centralized server may permit multiple copies of the same backup information to be maintained by one or more partner devices. This way, the same information is backed-up in different partner devices, increasing the chances of future recovery if needed. Another feature provides for maintaining versions of the backup information having different backup dates so that information for a particular date can be reconstructed. In another implementation, the centralized server 600 may obtain and store some or all of the backed-up information for later retrieval.

[0050] One or more of the components and functions illustrated in Figure 6 may be rearranged and/or combined into a single component or embodied in several components without departing from the invention. Additional elements or components may also be added without departing from the invention.

[0051] Figure 7 illustrates an index that may be maintained by a centralized server to keep track of backup locations and dates for a mobile device. In this implementation, the centralized server may have index information about the fragments backed-up at various partner devices and the date of the backup. For example, Pictures 1-8 and 14-17 maybe be backed-up in Partner Devices A and B, respectively, and at different dates. Phone numbers may have been backed-up in Partner Devices D and E on different dates and text messages 34-35 is stored in Partner Device C. If a mobile device needs to reconstruct its content, the backups are retrieved via the centralized server. Where the same backup information is found in two or more partner devices, the user is offered the

opportunity to choose between restoring with the most recent backup date or a previous backup, if so desired. By distributing backup information across multiple partner devices, the distributed backup system makes efficient use of surplus storage capacity on partner devices avoiding the transfer time and storage costs associated with storing all information on a single location.

[0052] In another aspect of the invention, the backup information stored in partner devices is periodically sent to the centralized server for storage. This way, the centralized server stores the backup information, freeing storage space from the partner devices.

[0053] Figure 8 is a flow diagram illustrating a method operational on a mobile device to backup information on a partner device. The mobile device determines whether there is information to backup 802. This may be accomplished by keeping track of the new information in the mobile device since a previous backup. Alternatively, the mobile device may be configured to backup all information at certain time intervals (e.g., monthly, weekly etc.). If there is information to backup, the mobile device attempts to locate a partner device to store the backup information 804. This may be done by sending messages with the mobile device's identifier requesting partner devices in the vicinity to reply. Such messages may be broadcasted over a wireless communication interface or sent through a wired communication link. If a partner device is found, the mobile device determines the amount of information that the partner device can backup 806. In some implementations, the partner device may inform the mobile device how much information it is willing to backup for the mobile device. In other implementations, the mobile device may request such information from the partner device. The mobile device then sends the backup information to the partner device for storage 808. In some implementations, the mobile device sends a portion of the total information to be backed-up to the partner device. The remaining information is sent to other partner devices.

[0054] Figure 9 is a flow diagram illustrating a method operational on a partner device to backup information received from a mobile device. The partner device determines whether a mobile device is seeking to backup information 902. Such determination may be based on an indication, such as a broadcast message, from a mobile device seeking a partner device. The partner device then determines whether the mobile device is a trusted device 904. That is, depending on the level of security sought by either the mobile device and/or partner device, a determination is made as to whether

the mobile device should send backup information to a particular partner device or whether the partner device should receive backup information from a particular mobile device. In some instances, a predefined relationship may enable a mobile device to backup information to a particular a partner device. For instance, the partner device may be preconfigured with identifying information for the mobile device.

[0055] The partner device then determines the amount of storage space available to store backup information from the mobile device 906. This storage capacity may be configurable by a user or set, either beforehand or on-the-fly, by the backup assistant application operating on the partner device. The partner device then informs the mobile device that it can send backup information 908, receives the backup information from the mobile device 910, and stores it 912.

[0056] In some embodiments, the partner device informs a centralized server that backup information from mobile device is being stored by partner device 914. The partner device may provide specific identifying information (e.g., backup identifier, backup date, etc.) about the backup to the centralized server to facilitate reconstruction if needed.

[0057] Figure 10 is a flow diagram illustrating a method operational on a centralized server to consolidate backup information received from partner devices. The centralized server receives or obtains index information associated with distributed backups stored in one or more partner devices 1002. This may be as a result of the centralized server requesting, obtaining, or retrieving such index information from the partner devices or simply by the partner devices providing such information. In another implementation, the mobile device that backs-up its information onto partner devices may inform the centralized server, either directly or indirectly, of the location (e.g., partner devices) were its backups are stored). The mobile device may send such message to the centralized server periodically or after it has backed-up some information.

[0058] The centralized server then creates and/or maintains a master index of backup information associated with a particular mobile device 1004. As illustrated in Figure 7, the centralized server may create list of partner devices storing backups for a particular mobile device. This list may be updated when a newer version of the same backup information is found by the centralized server. In some implementations, older versions of mobile device backups are replaced whenever newer versions become available. In such instance, the centralized server may inform the partner device that

stores an older version of backup information that it can delete the older backup information. For example, the centralized server may determine whether there are duplicate versions of the backup information on the one or more partner devices, and, if so, inform the partner device with the oldest version of the backup information that it can be deleted 1006. According to another implementation, the centralized server may permit multiple copies of the same backup information or different versions of the backup information to be maintained by one or more partner devices. This increases the chances of future recovery of such information, since even if some partner devices are lost or unavailable, the backup information can be retrieved if needed. Having different generations (e.g., different backup dates) of the information permits reconstructing information for a particular date. In another implementation, the centralized server 600 may obtain and store some or all of the backed-up information for later retrieval.

[0059] The centralized server facilitates recovery of the distributed backup information. Upon request by a mobile device user, the centralized server obtains the backup information from the one or more partner devices where it is stored to reconstruct the information of a particular mobile device 1008. The retrieved backed-up information may be selected based on the most current date of backup 1010. The retrieved backed-up information is then provided to the requesting user 1012.

[0060] It should be noted that the foregoing embodiments are merely examples and are not to be construed as limiting the invention. The description of the embodiments is intended to be illustrative, and not to limit the scope of the claims. As such, the present teachings can be readily applied to other types of apparatuses and many alternatives, modifications, and variations will be apparent to those skilled in the art.

CLAIMS

WHAT IS CLAIMED IS:

1. A mobile device comprising:
a storage device to store mobile device content; and
a processing unit configured to
locate a first partner device to receive the mobile device content,
obtain a portion of the mobile device content from the storage device, and
send the portion of the mobile device content to the first partner device for backup.

2. The mobile device of 1 further comprising:
one or more communication interfaces coupled to the processing unit, wherein the processing unit is configured to search for the first partner device through the one or more communication interfaces.

3. The mobile device of 2 wherein the one or more interfaces provide a wireless communication link to the first partner device.

4. The mobile device of 2 wherein the one or more interfaces provide a wired communication link to the first partner device.

5. The mobile device of 1 wherein the processing unit is further configured to determine the portions of the mobile device content that should be backed-up.

6. The mobile device of 1 wherein the processing unit is further configured to determine the amount of information the first partner device can backup.

7. The mobile device of 1 wherein the processing unit is further configured to restore the backup information from a plurality of partner devices to the storage device.

8. The mobile device of 1 wherein the processing unit is further configured to
locate a second partner device to receive the mobile device content,
obtain another portion of the mobile device content from the storage device, and
send the another portion of the mobile device content to the second partner device for backup.

9. The mobile device of 1 wherein the processing unit is further configured to determine whether the first partner device is trustworthy to receive the mobile device content.

10. A mobile device comprising:
means for storing information;
means for locating a partner device to backup the information;
means for retrieving a portion of the information; and
means for communicating a portion of the information to the partner device.

11. The mobile device of 10 further comprising:
means for determining the portions of the mobile device content that should be backed-up.

12. The mobile device of 10 further comprising:
means for restoring the backup information from a plurality of partner devices.

13. An apparatus comprising:
a storage device to backup information from a mobile device; and
a processing unit configured to
determine whether a mobile device is a trusted device,
receive information to backup from the mobile device, and
store the received information in the storage device.

14. The apparatus of 13 wherein the information received from the mobile device is a portion of the information available for backing-up at the mobile device.

15. The apparatus of 13 wherein the information is wirelessly received from the mobile device.

16. The apparatus of 13 wherein the processing unit is further configured to determine the amount of information the storage device can receive from the mobile device for backup.

17. The apparatus of 13 wherein the processing unit is further configured to send the backup information to a centralized storage server.

18. The apparatus of 13 wherein the processing unit is further configured to notify a centralized server of the portions of information from the mobile device that are backed-up in the storage device.

19. The apparatus of 13 wherein the processing unit is further configured to remove the received information from the storage device upon receipt of a message from a centralized server.

20. An apparatus comprising:
means for storing backup information from a mobile device;
means for determining whether a mobile device is a trusted device;
means for receiving information to backup from the mobile device; and
means for storing the received information in the storage device.

21 A centralized server comprising:
a communication interface to obtain index information associated with backup information stored in one or more partner devices;
a processing unit configured to
maintain an index of the one or more partner devices where backup information is stored, and
obtain the backup information from the one or more partner devices to reconstruct the information of a mobile device.

22. The centralized server of 21 wherein the processing unit is further configured to determine whether there are duplicate versions of the backup information on the one or more partner devices; and
if there are duplicate versions of the backup information then inform the partner device with the oldest version of the backup information that it can be deleted.

23. A method for use in a mobile device backup system, comprising:
locating a partner device to receive backup information; and
sending a portion of the backup information to the partner device.

24. The method of 23 further comprising:
determining whether the mobile device has information to backup; and

determining the amount of information the partner device can backup.

25. The method of 23 further comprising:
identifying a plurality of partner devices for storing backup information for the mobile device.

26. The method of 25 further comprising:
obtaining the backup information for the mobile device from the plurality of partner devices.

27. The method of 26 further comprising:
consolidating the obtained backup information from the plurality of partner devices.

28. The method of 26 further comprising:
restoring the backup information from the plurality of partner devices to the mobile device.

29. A method for use in a distributed device backup system, comprising:
determining whether a mobile device seeks to backup information in a partner device;
receiving backup information from the mobile device; and
storing the backup information in the partner device.

30. The method of 29 further comprising:
retrieving backup information from the partner device; and
storing the backup information in a centralized server.

31. The method of 29 further comprising:
transferring backup information from the partner device to another partner device.

32. The method of 29 further comprising:
removing the backup information from the partner device if a more recent version of the backed-up information is stored elsewhere.

33. A method for use in a centralized server for indexing backup information, comprising:

obtaining index information associated with distributed backups stored in one or more partner devices; and

maintaining an index of backup information associated with a particular mobile device.

34. The method of 33 further comprising:

obtaining the backup information from the one or more partner devices to reconstruct the information of the particular mobile device;

determining whether there are duplicate versions of the backup information on the one or more partner devices; and

if there are duplicate versions of the backup information then informing the partner device with the oldest version of the backup information that it can be deleted.

35. A machine-readable medium comprising instructions executable by a processor on a mobile device for backing-up information from the mobile device to distributed partner devices, which when executed by a processor, causes the processor to perform operations comprising:

determining whether the mobile device has information to backup; and

locating a partner device to receive backup information; and

sending a portion of the backup information to the partner device.

36. The machine-readable medium of 35 further comprising:

determining the amount of information the partner device can backup; and

determining if the partner device is a trusted device.

37. The machine-readable medium of 35 further comprising:

identifying a plurality of partner devices for storing backup information for the mobile device; and

sending different parts of the backup information to different partner devices from among the plurality of partner devices.

38. A machine-readable medium comprising instructions executable by a processor on a partner device for backing-up information from a mobile device to the partner device, which when executed by a processor, causes the processor to perform operations comprising:

determining whether a mobile device seeks to backup information;
determining if the mobile device is a trusted device; and
receiving backup information from the mobile device; and
storing the received backup information in the partner device.

39. The machine-readable medium of 38 further comprising:
transferring backup information from the partner device to another partner device.

40. The machine-readable medium of 38 further comprising:
sending index information about the backup information to a centralized server.

41. A machine-readable medium comprising instructions executable by a processor on a centralized server for indexing backup information of one or more mobile devices, which when executed by a processor, causes the processor to perform operations comprising

obtaining index information associated with distributed backups stored in one or more partner devices; and

maintaining an index of backup information associated with a particular mobile device.

42. The machine-readable medium of 41 further comprising:

obtaining the backup information from the one or more partner devices to reconstruct the information of a mobile device;

determining whether there are duplicate versions of the backup information on the one or more partner devices; and

if there are duplicate versions of the backup information then informing the partner device with the oldest version of the backup information that it can be deleted.

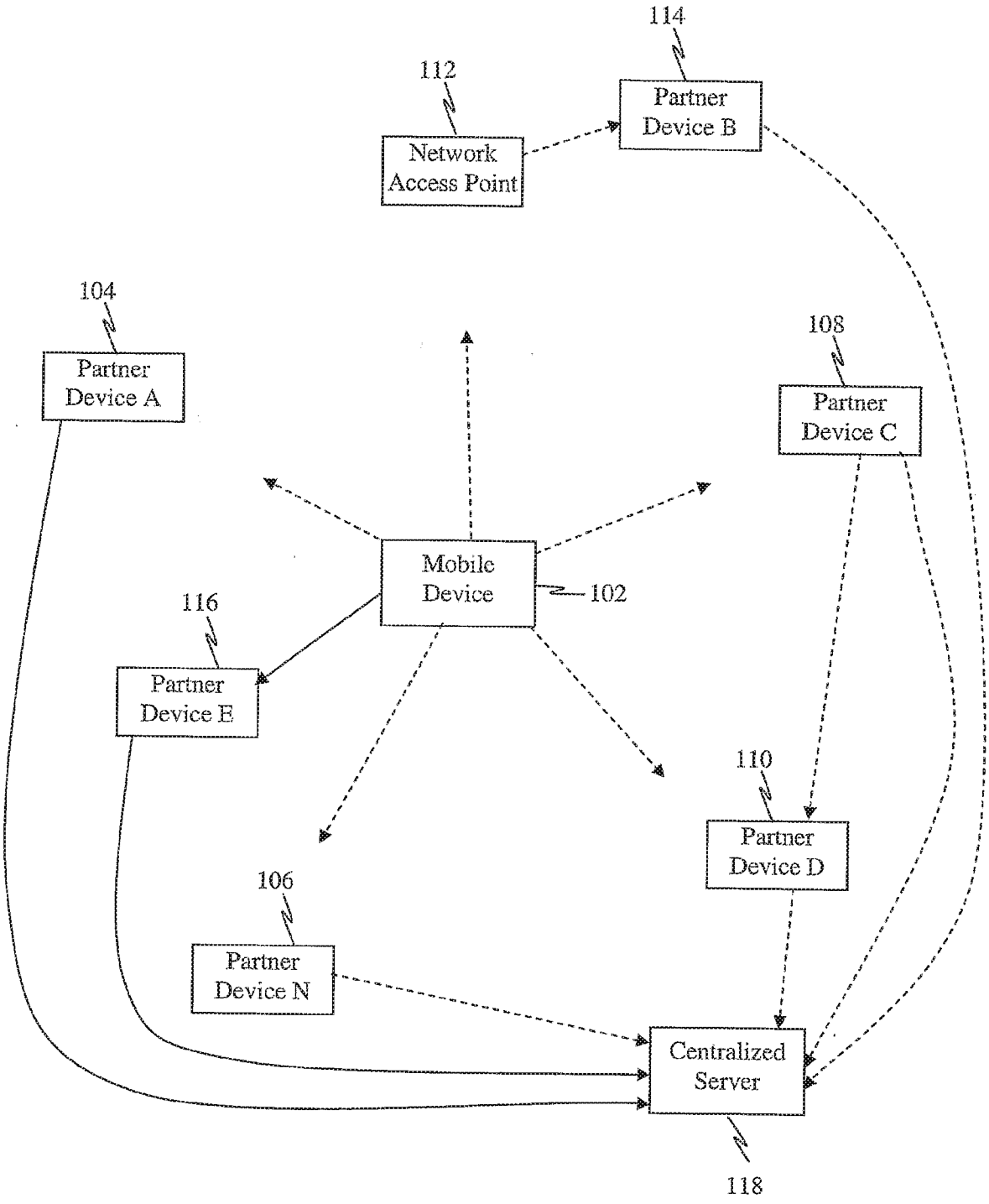

114
112
Partner Device B
Network Access Point
104
Partner Device A
108
Partner Device C
Mobile Device
102
116
Partner Device E
110
Partner Device D
106
Partner Device N
Centralized Server
118

Figure 1

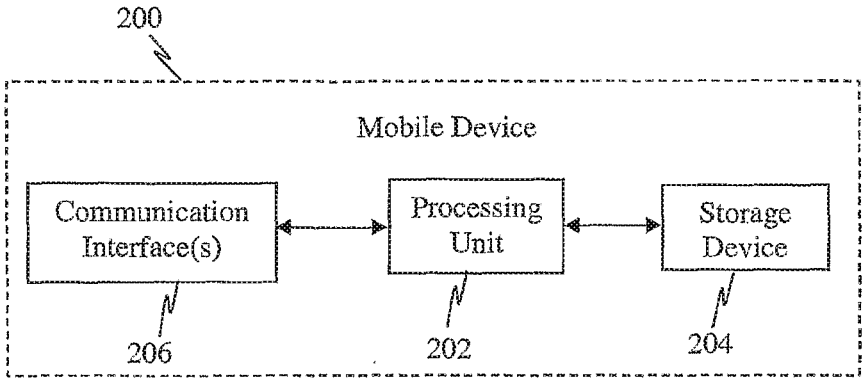


Figure 2

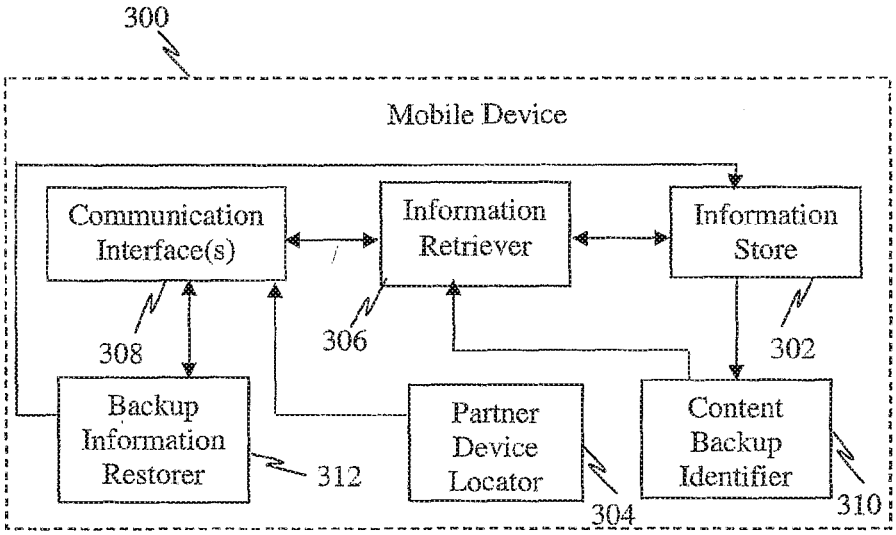


Figure 3

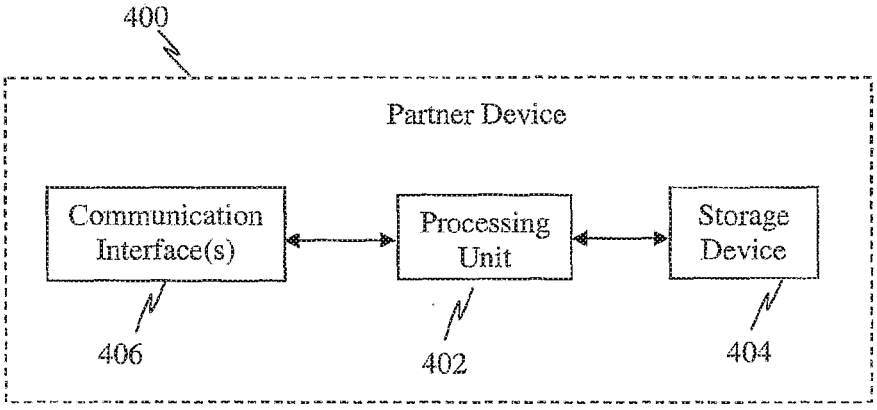


Figure 4

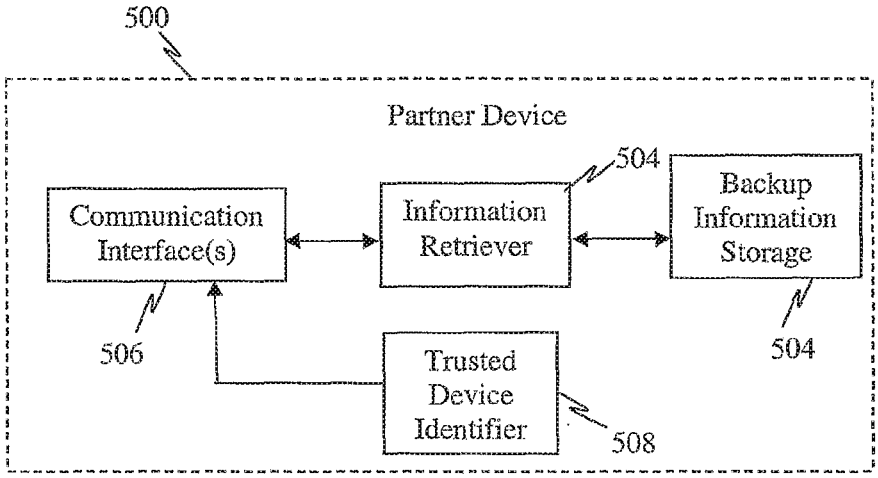


Figure 5

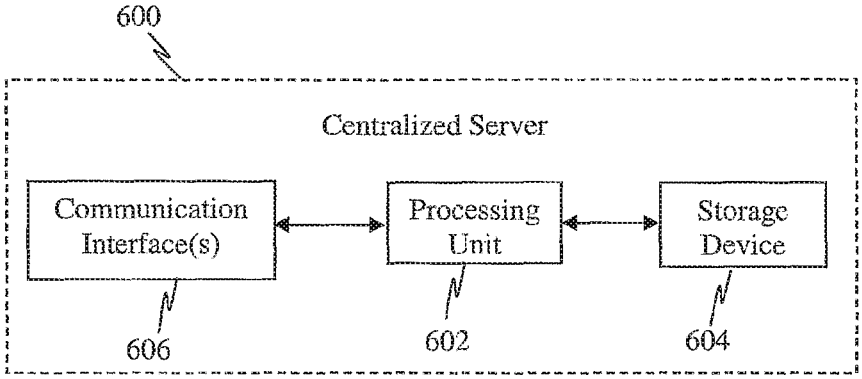


Figure 6

Master Backup Index

Backup Fragment	Location	Date
Pictures 1-8	Partner Device A	01/01/2004
Phone Numbers	Partner Device D	05/09/2004
Text Messages 34-45	Partner Device C	08/07/2005
Phone Numbers	Partner Device E	03/06/2005
Pictures 14-17	Partner Device B	11/26/2004

Figure 7

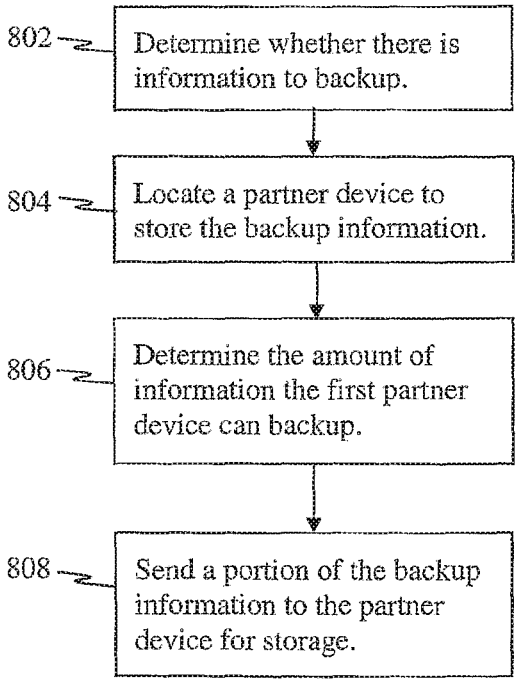


Figure 8

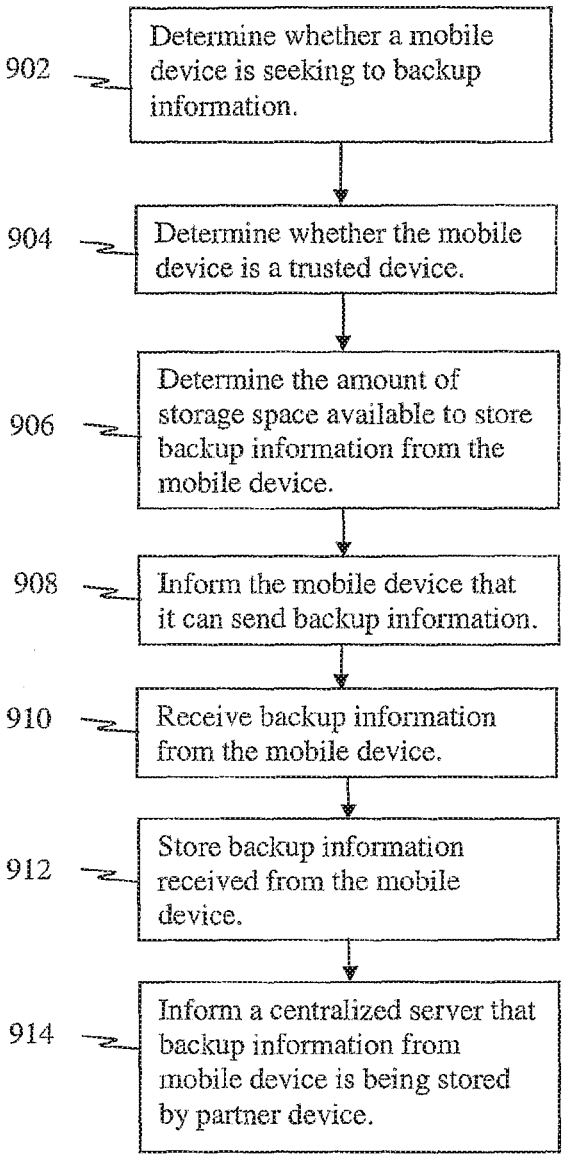

902
Determine whether a mobile device is seeking to backup information.
904
Determine whether the mobile device is a trusted device.
906
Determine the amount of storage space available to store backup information from the mobile device.
908
Inform the mobile device that it can send backup information.
910
Receive backup information from the mobile device.
912
Store backup information received from the mobile device.
914
Inform a centralized server that backup information from mobile device is being stored by partner device.

Figure 9

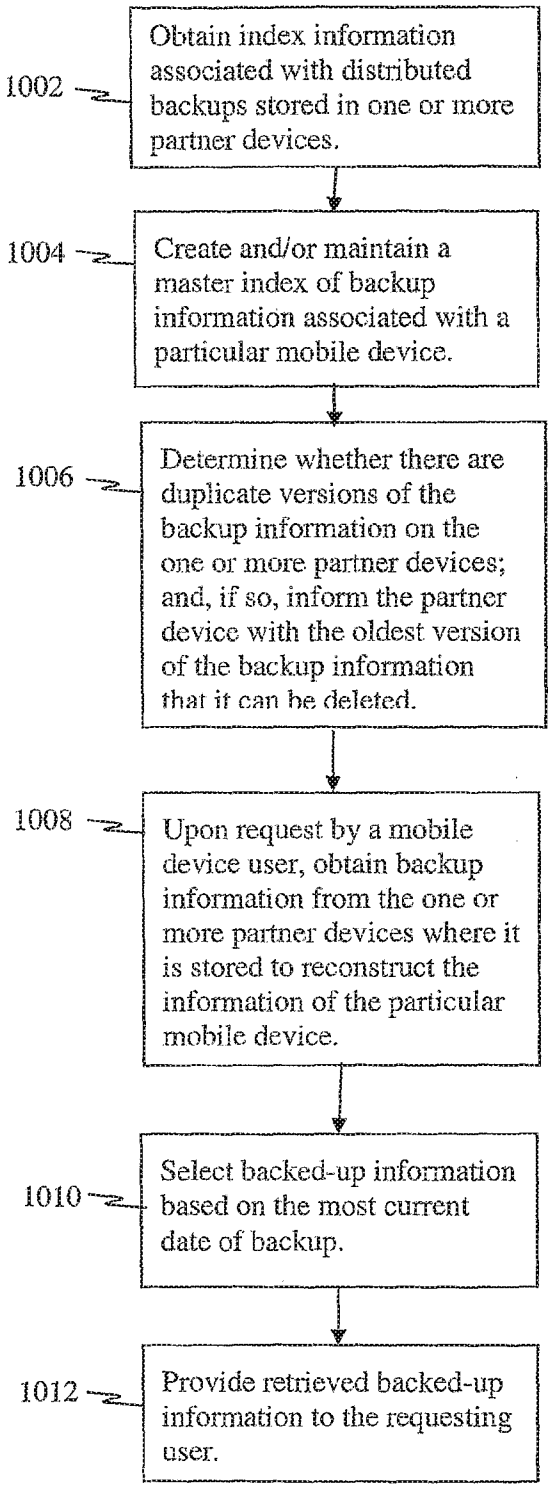

1002
Obtain index information associated with distributed backups stored in one or more partner devices.
1004
Create and/or maintain a master index of backup information associated with a particular mobile device.
1006
Determine whether there are duplicate versions of the backup information on the one or more partner devices; and, if so, inform the partner device with the oldest version of the backup information that it can be deleted.
1008
Upon request by a mobile device user, obtain backup information from the one or more partner devices where it is stored to reconstruct the information of the particular mobile device.
1010
Select backed-up information based on the most current date of backup.
1012
Provide retrieved backed-up information to the requesting user.

Figure 10

Electronic Acknowledgement Receipt

EFS ID:	33508722
Application Number:	16017348
International Application Number:	
Confirmation Number:	3719
Title of Invention:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK
First Named Inventor/Applicant Name:	Michael R. Manzano
Customer Number:	909
Filer:	Ngai Bing Zhang/Margaret Barham
Filer Authorized By:	Ngai Bing Zhang
Attorney Docket Number:	023027-0459211
Receipt Date:	22-AUG-2018
Filing Date:	25-JUN-2018
Time Stamp:	16:34:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	023027-0459211_Corrected_ADS.pdf	139929 615ac675b71e8f4fcdec95184ea85f8fa95ed05f	no	7

Warnings:

Box & Dropbox Exhibit 1009

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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
	Application Number	16/017,348
Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Michael	R.	MANZANO	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Seattle	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

Address 1	5702 35th Avenue NE		
Address 2			
City	Seattle	State/Province	WA
Postal Code	98105	Country	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	00909		
Email Address	docket_ip@pillsburylaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK		
Attorney Docket Number	023027-0459211	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	3	Suggested Figure for Publication (if any)	1

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
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Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	00909		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	14/860289	2015-09-21

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
	Application Number	16/017,348
Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/860289	Continuation of	12/267852	2008-11-10	9143561	2015-09-22

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
12/267852	Claims benefit of provisional	60/986896	2007-11-09

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
	Application Number	16/017,348
Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
	Application Number	16/017,348
Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◉ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
○ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Topia Technology, Inc.

Mailing Address Information For Applicant:

Address 1	1927 Dock St		
Address 2			
City	Tacoma	**State/Province**	WA
Country	US	Postal Code	98402
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
	Application Number	16/017,348
Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Ngai B. Zhang/			Date (YYYY-MM-DD)	2018-08-22
First Name	Ngai	Last Name	Zhang	Registration Number	65473

Additional Signature may be generated within this form by selecting the Add button.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
	Application Number	16/017,348
Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Doc code: Oath
Document Description: Oath or declaration filed

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SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)

Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

This statement is directed to:

☐ The attached application,

OR

☒ United States application or PCT international application number 14/860,289 filed on September 21, 2015.

LEGAL NAME of inventor to whom this substitute statement applies:

(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)

Michael R. MANZANO

Residence (except for a deceased or legally incapacitated inventor):

City	State	Country
Henderson	NV	USA

Mailing Address (except for a deceased or legally incapacitated inventor):

1552 Livingston Drive

City	State	Zip	Country
Henderson	NV	89012	USA

I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.

The above-identified application was made or authorized to be made by me.

I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Relationship to the inventor to whom this substitute statement applies:

- ☐ Legal Representative (for deceased or legally incapacitated inventor only),
- ☒ Assignee,
- ☐ Person to whom the inventor is under an obligation to assign,
- ☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or
- ☐ Joint Inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
- ☐ Inventor is under legal incapacity,
- ■ Inventor cannot be found or reached after diligent effort, or
- ☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: Janine Terrano	Date (Optional):
Signature:	

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name: Topia Technology, Inc.

Title of Person Executing This Substitute Statement: Chief Executive Officer of Topia Technology, Inc.

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City Gig Harbor	State WA	Country USA

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

1119 Pacific Avenue, Suite 200

City Tacoma	State WA	Zip 98402	Country USA

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Inventor(s):	Michael R. MANZANO *et al.*	**Attorney Docket No.:**	023027-0459211
Serial No.:	16/017,348	**Confirmation No.:**	3719
Filing Date:	June 25, 2018	**Examiner:**	N/A
		Art Unit:	N/A

For: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

PRELIMINARY AMENDMENT

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Prior to initial examination on the merits, please amend the above-identified application as follows:

Amendments to the Claims begin on page 2 of this paper.

Remarks begin on page 10 of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. § 1.136(a), and any fees required therefore (including fees for net addition of claims) are hereby authorized to be charged to Deposit Account No. 033975 (**Ref. No. 023027-0459211**).

09/07/2018 SDIRETA1 00000047 033975 16017348

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4820-6193-6496 v1

PAGE 3/12 * RCVD AT 8/20/2018 2:40:49 PM [Eastern Daylight Time] * SVR:W-PTOFAX-002/26 * DNIS:2738300 * CSID:7037707901 * DURATION (mm-ss):03-37

Box & Dropbox Exhibit 1009

This listing of claims will replace all prior versions and listings of claims in the Application.

LISTING OF CLAIMS:

1-20. **(Cancelled)**

21. (New) A system comprising:

a server system comprising one or more processors programmed with computer program instructions that, when executed, cause the server system to:

receive, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

determine that the server system is not in communication with a second client device associated with the user; and

store the copy of the first file on the server system;

automatically transfer, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device.

22. (New) The system of claim 21, wherein the server system is caused to:

store the copy of the first file to a memory device associated with the server system, wherein the copy of the first file is stored on the memory device associated with the server system responsive to determining that the server system is not in communication with the second client device; and

automatically transfer the copy of the first file to the second client device to replace the older version of the first file stored on the second client device with the copy of the first file, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device.

PAGE 4/12 * RCVD AT 8/20/2018 2:40:49 PM [Eastern Daylight Time] * SVR:W-PTOFAX-002/26 * DNIS:2738300 * CSID:7037707901 * DURATION (mm-ss):03-37

Box & Dropbox Exhibit 1009
Page 486

23. (New) The system of claim 21, wherein the server system is caused to:

receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and

automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device.

24. (New) The system of claim 23, wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

25. (New) The system of claim 23, wherein availability of the version of the first file is presented at the second client device based on the first metadata.

26. (New) The system of claim 21, wherein the server system is caused to:

receive a copy of a second file from the second client device associated with the user, wherein the copy of the second file is automatically received from the second client device responsive to the user modifying a content of the second file stored on the second client device, the copy of the second file being a version of the second file that is generated from the user modifying the content of the second file;

determine that the server system is in communication with the first client device associated with the user; and

automatically transfer the copy of the second file to the first client device associated with the user to replace an older version of the second file stored on the first client device, responsive to (i) determining that the server system is in communication with the first client device and (ii) receiving the copy of the first file from the first client device.

PAGE 5/12 * RCVD AT 8/20/2018 2:40:49 PM [Eastern Daylight Time] * SVR:W-PTOFAX-002/26 * DNIS:2738300 * CSID:7037707901 * DURATION (mm-ss):03-37

Box & Dropbox Exhibit 1009

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27. (New) The system of claim 21, wherein the server system is caused to:

periodically perform a pull request, wherein the copy of the first file is automatically received from the first client device responsive to (i) the pull request and (ii) the user modifying a content of the first file stored on the first client device.

28. (New) The system of claim 21, wherein the copy of the first file is automatically received from the first client device responsive to (i) a push request of the first client device and (ii) the user modifying a content of the first file stored on the first client device.

29. (New) The system of claim 21, wherein the copy of the first file is automatically received from a first application at the first client device, and wherein the first application comprises a runtime environment for one or more mobile-agent objects.

30. (New) The system of claim 29, wherein the first application is configured to create a first mobile object, and wherein the first mobile object is configured to create a proxy object at the server system.

31. (New) The system of claim 30, wherein the first mobile object is configured to provide the copy of the first file to the proxy object.

32. (New) The system of claim 31, wherein the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

33. (New) A method being implemented by a server system comprising one or more processors executing computer program instructions that, when executed, perform the method, the method comprising:

receiving, by the server system, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

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determining, by the server system, whether the server system is in communication with a second client device associated with the user; and

automatically transferring, by the server system, over a network, the copy of the first file to the second client device associated with the user to replace an older version of the first file stored on the second client device, responsive to (i) determining that the server system is in communication with the second client device and (ii) receiving the copy of the first file from the first client device.

34. (New) The method of claim 33, further comprising:

initially determining, by the server system, that the server system is not in communication with the second client device associated with the user; and

automatically transferring, by the server system, the copy of the first file to the second client device to replace the older version of the first file stored on the second client device with the copy of the first file, responsive to (i) resuming communication with the second client device, (ii) determining that the server system is in communication with the second client device, (iii) and receiving the copy of the first file from the first client device.

35. (New) The method of claim 33, further comprising:

storing, by the server system, the copy of the first file to a memory device associated with the server system, wherein the copy of the first file is stored on the memory device associated with the server system responsive to initially determining that the server system is not in communication with the second client device.

36. (New) The method of claim 33, further comprising:

receiving, by the server system, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and

automatically transferring, by the server system, the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device.

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37. (New) The method of claim 36, wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

38. (New) The method of claim 33, wherein the copy of the first file is automatically received from a first application at the first client device, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, and the first mobile object is configured to create a proxy object at the server system and to provide the copy of the first file to the proxy object.

39. (New) The method of claim 38, wherein the proxy object is configured to store the copy of the first file on a memory device associated with the server system

40. (New) A system comprising:

a server system comprising one or more processors programmed with computer program instructions that, when executed, cause the server system to:

receive, over a network, a copy of a first file from a first client device associated with a user, wherein the copy of the first file is automatically received from the first client device responsive to the user modifying a content of the first file stored on the first client device, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

determine that the server system is not in communication with a second client device associated with the user;

store the copy of the first file on the server system; and

automatically transfer, over a network, the copy of the first file to the second client device associated with the user, responsive to (i) resuming communication with the second client device and (ii) receiving the copy of the first file from the first client device,

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wherein, responsive to transferring the copy of the first file to the second client device, an older version of the first file stored on the second client device is automatically caused to be replaced with the copy of the first file such that the copy of the first file is stored on the second client device in lieu of the older version of the first file.

41. (New) The system of claim 40, wherein the server system is caused to:

receive, from the first client device, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and

automatically transfer the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device,

wherein at least one of the server system or the first client device comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the server system or the first client device assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

42. (New) The system of claim 40, wherein the copy of the first file is automatically received from a first application at the first client device, wherein the first application comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, the first mobile object is configured to create a proxy object at the server system and to provide the copy of the first file to the proxy object, and the proxy object is configured to store the copy of the first file on a memory device associated with the server system.

43. (New) A method being implemented by a first computer system comprising one or more processors executing computer program instructions that, when executed, perform the method, the method comprising:

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receiving, by the first computer system, over a network, a copy of a first file from a second computer system associated with a user, wherein the copy of the first file is automatically received from the second computer system responsive to the user modifying a content of the first file stored on the second computer system, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

determining, by the first computer system, that the first computer system is not in communication with a third computer system associated with the user;

storing, by the first computer system, the copy of the first file on the first computer system; and

automatically transferring, by the first computer system, over a network, the copy of the first file to the third computer system associated with the user to replace an older version of the first file stored on the third computer system, responsive to (i) resuming communication with the third computer system and (ii) receiving the copy of the first file from the second computer system.

~~44~~. (New) The method of claim 43, further comprising:

receiving, by the first computer system, from the second computer system, first metadata associated with the version of the first file that is generated from the user modifying the content of the first file, the first metadata being assigned a first priority greater than a second priority assigned to the copy of the first file; and

automatically transferring, by the first computer system, the first metadata to the second client device based on the first priority being greater than the second priority such that the first metadata is transferred to the second client device prior to the copy of the first file being transferred to the second client device,

wherein at least one of the first computer system or the second computer system comprises a priority assignment configuration to assign greater priority to metadata associated with files than priority assigned to the files such that at least one of the first computer system or the second computer system assigns the first priority to the first metadata and the second priority to the copy of the first file based on the priority assignment configuration.

45. (New) The method of claim 43, wherein the copy of the first file is automatically received from a first application at the second computer system, wherein the first application

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comprises a runtime environment for one or more mobile-agent objects, and wherein the first application is configured to create a first mobile object, the first mobile object is configured to create a proxy object at the first computer system and to provide the copy of the first file to the proxy object, and the proxy object is configured to store the copy of the first file on a memory device associated with the first computer system.

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REMARKS

By this Preliminary Amendment, claims 1-20 have been cancelled without prejudice or disclaimer, and claims 21-45 have been newly added. Thus, claims 21-45 are pending. Support for the instant amendments is provided throughout the as-filed Specification. Thus, no new matter has been added.

Prompt examination and allowance of all the claims pending in the application are respectfully solicited. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

Date: August 20, 2018

PILLSBURY WINTHROP SHAW PITTMAN LLP

By: /Ngai B. Zhang/
Ngai B. Zhang
Registration No. 65,473

Customer No. 00909

P.O. Box 10500
McLean, Virginia 22102
Direct Dial: 703.770.7532
Main: 703.770.7900
Fax: 703.770.7901

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Doc Code: TRAN.LET

Document Description: Transmittal Letter

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TRANSMITTAL FORM

(To be used for all correspondence after initial filing)

Total Number of Pages in This Submission	12

Application Number	16/017,348
Filing Date	June 25, 2018
First Named Inventor	Michael R. MANZANO
Art Unit	To be assigned
Examiner Name	To be assigned
Attorney Docket Number	023027-0459211

ENCLOSURES *(Check all that apply)*

- [x] Fee Transmittal Form
  - [ ] Fee Attached
- [x] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Reply to Missing Parts/ Incomplete Application
  - [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
  - [ ] Landscape Table on CD
- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
- [ ] Proprietary Information
- [ ] Status Letter
- [ ] Other Enclosure(s) (please identify below).

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Pillsbury Winthrop Shaw Pittman LLP		
Signature	/Ngai B Zhang/		
Printed name	Ngai B Zhang		
Date	August 20, 2018	Reg No	65473

CERTIFICATE OF TRANSMISSION/MAILING

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Typed or printed name	Ngai B Zhang	Date	August 20, 2018

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AUG 20 2018

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FEE TRANSMITTAL

Complete if known	
Application Number	16/017,348
Filing Date	June 25, 2018
First Named Inventor	Michael R. MANZANO
Examiner Name	To be assigned
Art Unit	To be assigned
Practitioner Docket No.	023027-0459211

☒ Applicant asserts small entity status. See 37 CFR 1.27.
☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously

TOTAL AMOUNT OF PAYMENT ($) 250.00

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: 503672 Deposit Account Name: _____

For the above-identified deposit account, the Director is hereby authorized to (check all that apply):

☒ Charge fee(s) indicated below ☒ Charge fee(s) indicated below, **except for the filing fee**

☒ Charge any additional fee(s) or underpayment of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayment of fee(s)

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES (U = undiscounted fee; S = small entity fee; M = micro entity fee)

	FILING FEES			SEARCH FEES			EXAMINATION FEES			
Application Type	U ($)	S ($)	M ($)	U ($)	S ($)	M ($)	U ($)	S ($)	M ($)	Fees Paid ($)
Utility	300	150*	75	660	330	165	760	380	190	
Design	200	100	50	160	80	40	600	300	150	
Plant	200	100	50	420	210	105	620	310	155	
Reissue	300	150	75	660	330	165	2,200	1,100	550	
Provisional	280	140	70	0	0	0	0	0	0	

* The $150 small entity status filing fee for a utility application is further reduced to $75 for a small entity status applicant who files the application via EFS-Web

2. EXCESS CLAIM FEES

Fee Description	Undiscounted Fee ($)	Small Entity Fee ($)	Micro Entity Fee ($)
Each claim over 20 (including Reissues)	100	50	25
Each independent claim over 3 (including Reissues)	460	230	115
Multiple dependent claims	820	410	205

Total Claims		Extra Claims		Fee ($)		Fee Paid ($)
25	-20 or HP =	5	x	50.00	=	250.00

HP = highest number of total claims paid for, if greater than 20.

Multiple Dependent Claims	
Fee ($)	Fee Paid ($)

Indep. Claims		Extra Claims		Fee ($)		Fee Paid ($)
	-3 or HP =		x		=	

HP = highest number of independent claims paid for, if greater than 3

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $400 ($200 for small entity) ($100 for micro entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets		Extra Sheets		Number of each additional 50 or fraction thereof		Fee ($)		Fee Paid ($)
	- 100 =		/ 50 =		(round up to a whole number) x		=	

4. OTHER FEE(S)

	Fees Paid ($)
Non-English specification, $130 fee (no small or micro entity discount)	
Non-electronic filing fee under 37 CFR 1.16(t) for a utility application, $400 fee ($200 small or micro entity)	
Other (e.g., late filing surcharge): _____	

SUBMITTED BY

Signature	/Ngai B. Zhang/	Registration No (Attorney/Agent) 65473	Telephone 7037707532
Name (Print/Type)	Ngai B. Zhang		Date August 20, 2018

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/017,348	Filing Date 06/25/2018	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $230 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	08/20/2018	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 25	Minus	** 25	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/ROBERT J TALBERT/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

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PLUS Search Results for S/N 16017348, Searched Wed Aug 15 12:26:27 EDT 2018

The Patent Linguistics Utility System (PLUS) is a USPTO automated search system for U.S. Patents from 1971 to the present PLUS is a query-by-example search system which produces a list of patents that are most closely related linguistically to the application searched. This search was prepared by the staff of the Scientific and Technical Information Center, SIRA.

20090138528 99
9143561 91
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/017,348	06/25/2018	Michael R. Manzano	023027-0459211	3719

909 7590 08/01/2018

Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

EXAMINER	

ART UNIT	PAPER NUMBER
2161	

NOTIFICATION DATE	DELIVERY MODE
08/01/2018	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Doc Code:
TRACK1.GRANT

Decision Granting Request for Prioritized Examination (Track I or After RCE)	Application No.: 16/017,348

1. THE REQUEST FILED June 25, 2018 IS **GRANTED.**

The above-identified application has met the requirements for prioritized examination

A. ☒ for an original nonprovisional application (Track I).
B. ☐ for an application undergoing continued examination (RCE).

2. **The above-identified application will undergo prioritized examination.** The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:

A. filing a **petition for extension of time** to extend the time period for filing a reply;

B. filing an **amendment to amend the application to contain more than four independent claims, more than thirty total claims**, or a multiple dependent claim;

C. filing a **request for continued examination**;

D. filing a notice of appeal;

E. filing a request for suspension of action;

F. mailing of a notice of allowance;

G. mailing of a final Office action;

H. completion of examination as defined in 37 CFR 41.102; or

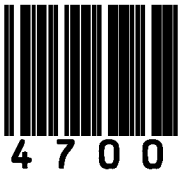
I. abandonment of the application.

Telephone inquiries with regard to this decision should be directed to Cheryl Gibson-Baylor at (571)272-3213, Office of Petitions. In his/her absence, calls may be directed to Brian W. Brown, (571)272-5338.

Cheryl Gibson-Baylor
/Cheryl Gibson-Baylor/
[*Signature*]

Petitions Paralegal Specialist
(Title)

Office of Petitions: Routing Sheet



Application No. 16017348

This application is being forwarded to your office for further processing. A decision has been rendered on a petition filed in this application, as indicated below. For details of this decision, please see the document PET.OP.DEC filed on the same date as this document.

- [X] **GRANTED**
- [ ] **DISMISSED**
- [ ] **DENIED**

Office of Petitions: Decision Count Sheet

Mailing Month: 7

Application No.: 16017348

16017348

For US serial numbers: enter number only, no slashes or commas. Ex: 10123456
For PCT: enter "51+single digit of year of filing+last 5 numbers", Ex. for PCT/US05/12345, enter 51512345

Deciding Official: GIBSON-BAYLOR, CHERYL

Count (1) - Palm Credit 16017348

Decision: GRANT

FINANCE WORK NEEDED
☐ Select Check Box for YES

GRANT

Decision Type: 643 - Track One request

643

Notes:

Count (2)

Decision: n/a

FINANCE WORK NEEDED
☐ Select Check Box for YES

Decision Type: NONE

Notes:

Count (3)

Decision: n/a

FINANCE WORK NEEDED
☐ Select Check Box for YES

Decision Type: NONE

Notes:

Initials of Approving Official (if required)

If more than 3 decisions, attach 2nd count sheet & mark this box ☐

Printed on: 7/27/2018

Office of Petitions Internal Document - Ver. 5.0

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/017,348	06/25/2018		1095	023027-0459211	20	4

CONFIRMATION NO. 3719

909
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

FILING RECEIPT

OC000000100961037

Date Mailed: 07/17/2018

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Michael R. Manzano, Seattle, WA;

Applicant(s)

Michael R. Manzano, Seattle, WA;

Assignment For Published Patent Application

Topia Technology, Inc., Tacoma, WA

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 14/860,289 09/21/2015
which is a CON of 12/267,852 11/10/2008 PAT 9143561
which claims benefit of 60/986,896 11/09/2007

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: No

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 07/12/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/017,348**

Projected Publication Date: 10/25/2018

Non-Publication Request: No

Early Publication Request: No
** **SMALL ENTITY** **
Title

ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/017,348	06/25/2018	Michael R. Manzano	023027-0459211

CONFIRMATION NO. 3719

909
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

INFORMAL NOTICE

OC000000100961038

Date Mailed: 07/17/2018

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
  Michael R. Manzano

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sibrahim/

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 16/017,348

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	75		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	330		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 50 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4 minus 3 =	* 1	x 230 =	230			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	1015		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/017,348	06/25/2018	Michael R. Manzano	023027-0459211

CONFIRMATION NO. 3719

IMPROPER CPOA LETTER

909
Pillsbury Winthrop Shaw Pittman, LLP
PO Box 10500
McLean, VA 22102

OC000000100960974

Date Mailed: 07/17/2018

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the power of attorney filed 06/25/2018. The power of attorney in this application is not accepted for the reason(s) listed below:

- The power of attorney has not been accepted because the party who is giving power has not been identified. Power of attorney may only be signed by the applicant for patent (37 CFR 1.42) or the patent owner. A party who is not the applicant must become the applicant in accordance with 37 CFR 1.46(c) and appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. For a reissue application, reexamination proceeding, or supplemental examination proceeding, a patent owner who was not the applicant under 37 CFR 1.46 must appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. See 37 CFR 1.32(b)(4).

/jchen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PTO/AIA/15 (03-13)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995 no persons are required to respond to a collection of information unless it displays a valid OMB control number

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	023027-0459211
First Named Inventor	Michael R. MANZANO
Title	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED I
Express Mail Label No.	Via EFS Web

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☐ **Fee Transmittal Form** (PTO/SB/17 or equivalent)
2. ☑ **Applicant asserts small entity status.** See 37 CFR 1.27
3. ☐ **Applicant certifies micro entity status.** See 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent.
4. ☑ **Specification** [*Total Pages* 26] Both the claims and abstract must start on a new page. *(See MPEP § 608.01(a) for information on the preferred arrangement)*
5. ☑ **Drawing(s)** (35 U.S.C. 113) [*Total Sheets* 3]
6. **Inventor's Oath or Declaration** [*Total Pages* ____] *(including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e))*
   a. ☐ Newly executed (original or copy)
   b. ☐ A copy from a prior application (37 CFR 1.63(d))
7. ☑ **Application Data Sheet** ** See note below.* See 37 CFR 1.76 (PTO/AIA/14 or equivalent)
8. **CD-ROM or CD-R** In duplicate, large table, or Computer Program (*Appendix*)
   ☐ Landscape Table on CD
9. **Nucleotide and/or Amino Acid Sequence Submission** (*If applicable, items a. – c. are required*)
   a. ☐ Computer Readable Form (CRF)
   b. ☐ Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ Paper
   c. ☐ Statements verifying identity of above copies

ADDRESS TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**

ACCOMPANYING APPLICATION PAPERS

10. ☑ **Assignment Papers** (cover sheet & document(s)) Name of Assignee TOPIA TECHNOLOGY, INC.
11. ☑ **37 CFR 3.73(c) Statement** (*when there is an assignee*) ☑ **Power of Attorney**
12. ☐ **English Translation Document** (*if applicable*)
13. ☐ **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
    ☐ Copies of citations attached
14. ☐ **Preliminary Amendment**
15. ☐ **Return Receipt Postcard** (*MPEP § 503*) (*Should be specifically itemized*)
16. ☐ **Certified Copy of Priority Document(s)** (*if foreign priority is claimed*)
17. ☐ **Nonpublication Request** Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
18. ☑ **Other:** Certification and Request for Prioritized Examination under 37 C.F.R. 1.102(e)

***Note:** (1) Benefit claims under 37 CFR 1.78 and foreign priority claims under 1.55 **must** be included in an Application Data Sheet (ADS).
(2) For applications filed under 35 U.S.C. 111, the application must contain an ADS specifying the applicant if the applicant is an assignee, person to whom the inventor is under an obligation to assign, or person who otherwise shows sufficient proprietary interest in the matter. See 37 CFR 1.46(b).

19. CORRESPONDENCE ADDRESS

☑ The address associated with Customer Number: 00909 **OR** ☐ Correspondence address below

Name					
Address					
City		State		Zip Code	
Country		Telephone		Email	

Signature	/Ngai B. Zhang/	Date	2018-06-25
Name (Print/Type)	Ngai B. Zhang	Registration No. (Attorney/Agent)	65,473

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: TRACK1.REQ
Document Description: TrackOne Request

PTO/AIA/424 (04-14)

CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION UNDER 37 CFR 1.102(e) (Page 1 of 1)

First Named Inventor:	Michael R. MANZANO	Nonprovisional Application Number (If known):	New
Title of Invention:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK		

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.

1. The processing fee set forth in 37 CFR 1.17(i)(1) and the prioritized examination fee set forth in 37 CFR 1.17(c) have been filed with the request. The publication fee requirement is met because that fee, set forth in 37 CFR 1.18(d), is currently $0. The basic filing fee, search fee, and examination fee are filed with the request or have been already been paid. I understand that any required excess claims fees or application size fee must be paid for the application.

2. I understand that the application may not contain, or be amended to contain, more than four independent claims, more than thirty total claims, or any multiple dependent claims, and that any request for an extension of time will cause an outstanding Track I request to be dismissed.

3. The applicable box is checked below:

I. ☑ Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)

i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.

---OR---

(b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.

ii. An executed inventor's oath or declaration under 37 CFR 1.63 or 37 CFR 1.64 for each inventor, **or** the application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) is filed with the application.

II. ☐ Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)

i. A request for continued examination has been filed with, or prior to, this form.
ii. If the application is a utility application, this certification and request is being filed via EFS-Web.
iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature /Ngai B. Zhang/	Date 2018-06-25
Name (Print/Typed) Ngai B. Zhang	Practitioner Registration Number 65473

Note: *This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required.**

☑ *Total of 1 forms are submitted.

PTO/SB/14 (07-07)
Approved for use through 06/30/2010. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
	Application Number	
Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Applicant Information:

Applicant 1

Applicant Authority ◉ Inventor ○ Legal Representative under 35 U.S.C. 117 ○ Party of Interest under 35 U.S.C. 118

Prefix	Given Name	Middle Name	Family Name	Suffix
	Michael	R.	MANZANO	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Seattle	State/Province	WA	Country of Residence	US

Citizenship under 37 CFR 1.41(b) US

Mailing Address of Applicant:

Address 1	5702 35th Avenue NE		
Address 2			
City	Seattle	State/Province	WA
Postal Code	98105	Country	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	00909		
Email Address	Docket_IP@pillsburylaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK		
Attorney Docket Number	023027-0459211	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	3	Suggested Figure for Publication (if any)	1

PTO/SB/14 (07-07)
Approved for use through 06/30/2010. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
	Application Number	
Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

Publication Information:

☐	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐	**Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S. C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Enter either Customer Number or complete the Representative Name section below. If both sections are completed the Customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	00909		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	14/860289	2015-09-21

Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/860289	Continuation of	12/267852	2008-11-10	9143561	2015-09-22

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12/267852	non provisional of	60/986896	2007-11-09

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	023027-0459211
	Application Number	
Title of Invention	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK	

Remove

Application Number	Country[i]	Parent Filing Date (YYYY-MM-DD)	Priority Claimed
			○ Yes ◉ No

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Assignee Information:

Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of Title 37 of the CFR to have an assignment recorded in the Office.

Assignee 1

If the Assignee is an Organization check here. ☒

Organization Name	Topia Technology, Inc.		
Mailing Address Information:			
Address 1	1927 Dock Street		
Address 2			
City	Tacoma	**State/Province**	WA
Country[i]	US	Postal Code	98402
Phone Number		Fax Number	
Email Address			

Additional Assignee Data may be generated within this form by selecting the **Add** button.

Signature:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature.

Signature	/Ngai B. Zhang/			Date (YYYY-MM-DD)	2018-06-25
First Name	Ngai B.	Last Name	Zhang	Registration Number	65473

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

PTO/AIA/80 (07-12)
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POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

☒ Practitioners associated with Customer Number: 00909

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

☒ The address associated with Customer Number: 00909

OR

☐	Firm or Individual Name			
	Address			
	City		State	Zip
	Country			
	Telephone		Email	

Assignee Name and Address: TOPIA TECHNOLOGY, INC.
1119 Pacific Avenue, Suite 200
Tacoma, WA 98402

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record
The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	Janine Terrano	Date	11/03/15
Name	Janine Terrano	Telephone	
Title	President, CEO		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Topia Technology, Inc.

Application No./Patent No.: New Filed/Issue Date: On even date herewith (June 25, 2018)

Titled: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

Topia Technology, Inc., a Corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☑ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

   1. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.

   2. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

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This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

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☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Ngai B. Zhang/	2015-06-25
Signature	Date
Ngai B. Zhang	65,473
Printed or Typed Name	Title or Registration Number

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Michael R. Manzano	Attorney Docket No.	TPTC-1-1026
Serial No.	12/267,852	Group Art Unit:	2876
Filing Date:	November 10, 2008	Examiner:	Unknown.

Title: ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

ASSIGNMENT

WHEREAS, I, Michael R. Manzano, residing at 819 Virginia Avenue, #1706, Seattle, WA 98101, am the inventor named in the above-identified United States patent application;

AND, WHEREAS, Topia Technology, a Washington corporation, having a principal address at 1119 Pacific Avenue, Suite 1600, Tacoma, WA 98402 (hereinafter referred to as ASSIGNEE), is desirous of acquiring the entire right, title, and interest in and to the patent application and related inventions;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and intending to be legally bound, I hereby assign and transfer to ASSIGNEE the entire right, title, and interest in and to the patent application and related inventions, including all improvements, variations, derivations and inventive subject matter directly or indirectly related to the patent application and inventions, and all provisional or nonprovisional patent applications or issued patents that have been or may be granted thereon, including without limitation all reissues, divisions, continuations, continuations-in-part, and extensions of the patent applications or patents, or any other form of protection for the inventions related to the patent application, in the United States and foreign countries; all rights of action arising from the inventions and all applications and patents on the inventions; all claims for damages by reason of past and future infringement of the inventions and all applications and

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Seattle, Washington 98104
206.381.3300 • F: 206.381.3301

patents on the inventions, and the right to sue and collect damages for such infringement; all of the foregoing assigned rights to be held and enjoyed by the ASSIGNEE for its own use and benefit and for its successors and assigns as the same would have been held by me had this assignment not been made.

I do hereby further agree and promise to execute all instruments and render all such assistance as ASSIGNEE may request in order to: make and prosecute any and all applications on the inventions, maintain and enforce any and all patents on the inventions, and confirm in ASSIGNEE legal title to the inventions and all applications and patents on the inventions in the United States and foreign countries, all without charge to ASSIGNEE but at no expense to me. In the event that ASSIGNEE is unable for any reason, after reasonable effort, to secure my signature on any document needed in connection with the actions specified in this paragraph, or to otherwise perfect in ASSIGNEE the entire right, title, and interest in and to the patent application and related inventions, I hereby irrevocably designate and appoint the ASSIGNEE and its duly authorized officers and agents as my agent and attorney-in-fact, to act for and in my behalf to execute, verify and file any such documents and to do all other lawfully permitted acts to further the purposes of this assignment with the same legal force and effect as if executed by me. I hereby waive and quitclaim to the ASSIGNEE any and all claims, of any nature whatsoever, which I now or may hereafter have for infringement of any proprietary rights assigned to the ASSIGNEE.

If any provision of this assignment is held by any court to be unenforceable, such provision shall be interpreted to accomplish the objectives of the original provision to the fullest extent allowed by law, and the remainder of this assignment shall remain in full force and effect.

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EXECUTED at Tacoma (city), WA (state), on Jan 23, 2009.

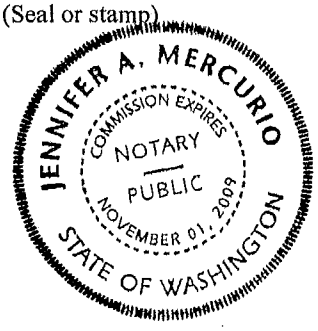
Michael R. Manzano

STATE OF WASHINGTON)
) ss.
COUNTY OF -)

I certify that I know or have satisfactory evidence that **Michael R. Manzano** is the person who appeared before me and signed this instrument and acknowledged such signature to be a voluntary act for the purposes mentioned in the instrument.

Dated: 1-23-09

(Seal or stamp)



Signature
Printed Name: Jennifer A Mercurio
Notary Public
My appointment expires 11-1-09

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701 Fifth Avenue, Suite 4800
Seattle, Washington 98104
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ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of U.S. Patent Application No. 14/860,289, filed September 21, 2015, which is a continuation of U.S. Patent Application No. 12/267,852, filed November 10, 2008, which claims priority to U. S. Provisional Application No. 60/986,896 entitled "ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK" and filed November 9, 2007, the contents of which are hereby incorporated by reference in their entirety.

FIELD OF THE INVENTION

[0002] This invention relates generally to computer-implemented processes and, more specifically, to sharing of electronic files among computer systems.

BACKGROUND OF THE INVENTION

[0003] Users of modern computing systems are increasingly finding themselves in constantly-connected, high-speed networked environments. The Web continues to be a killer application, second only to email, on the Internet. Further, customers are increasingly using more than one computing device; a customer may have a desktop computer at home, one at work, and a constantly connected "smart phone". Due to the confluence of these two trends, file management across these devices has become a problem.

[0004] Although modern devices are easily connected, they do not provide the customer a seamless environment; the customer must manually handle many aspects of that connection. With regards to file management, customers must manually move files

between their devices using some protocol like email, ftp, or by posting them on the Web. These practices lead to problems that include:

[0005] • The proliferation of redundant file copies. This proliferation creates a confusing environment where the customer is unclear where the "official" or newest version of a file exists.

[0006] • The creation of an error-prone environment. Some documents, such as those associated with word processing and desktop publishing, externally reference other files. Copying such a document can break these references causing errors that the customer has to handle manually. An example of such a document is a desktop publishing document that contains a reference to an image. If that image file is not transferred along with the desktop publishing file, the image will appear as a broken link.

[0007] • Unnecessary complexity. Because devices tend to have their own filing system, customers must manage a different filing model on each of his devices. For example, instead of having a single "Movies" folder, he may have to deal with many "Movies" folders, which may be in different locations on each of his devices. Each device may also have its own security model, further complicating the matter.

[0008] That a customer has to manually move files around to ensure their accessibility on his devices is unnecessary, and is an indicator of a lack of customer-focused design in modern file systems. File systems in use today are direct offspring of systems used when graphical customer interfaces were nonexistent. Modern file system customer interfaces, such as Windows® Explorer and Mac OS X's Finder are just now starting to provide experiences that are more in line to a customer's workflow. Whereas, before, these interfaces were concerned with representing files with abstracted icons, the file's actual contents are becoming paramount in how files are organized and presented.

[0009] Problems still exist with how these newer customer interfaces are implemented. They are not completely integrated with applications, suffer from

performance problems, and do not generally work well outside of a device's local file system.

[0010] There are several solutions to this problem that are in one way or another inadequate to the task:

[0011] Remote Desktop software allows a customer to remotely "see" his desktop. Remote desktop software screen-scrapes a remote machine's screen (a "server") and displays it on a screen local to the customer (a "client"). Remote desktop gives a customer access to not only his files, but also to his applications. However, this approach requires that the host machine be turned on and connected to the internet at all times. Consequently, this approach would not be appropriate for mobile hosts such as laptops. Remote desktop does not use the resources of a local machine. For full accessibility, the customer would have to keep all files and application on the host machine as any files stored on a client are not guaranteed to be accessible.

[0012] Distributed File Systems, like remote desktop software, place data on an always-connected host machine. Unlike remote desktop software, the host machine is not one on which the customer performs computing tasks. The host machine is used as a storage mechanism, and any computation performed on that machine serves to supports its use as such. Distributed file systems generally provide the right functionality for customers to share files between their devices. However, distributed file systems are usually deployed as a shared resource; that is, other customers have access to it. Because of this sharing, a customer's files may be buried deep in a filing structure, and it may not always be immediately evident to customers what kind of access they have to a particular file. Further, to use a distributed file system, the customer must always be connected to it. Files stored on a distributed file system are generally inaccessible if the customer's machine is not connected to it, unless the customer has copied or moved the files to his machine's local hard drive. However, doing so immediately creates the problem of having two filing systems for the same file, creating a mental burden on the customer.

[0013] Additionally, accessing a file located on a distributed file system tends to be slower than accessing files on the local hard drive. Modern applications are usually written to assume that the files they access are located locally, and thus are not optimized to access remote files. When these applications are used with remote files, they can lose performance by an order of magnitude. This problem can be fixed by automatically caching often-used files on the local file system, and only synchronizing them when they have been changed. However, this separate synchronization step introduces another problem: because the synchronization process can be lengthy, the customer is never entirely sure if the file he is remotely accessing is the latest version of the file, versus an earlier one that has been marked to be updated. Further, the directory may not reflect the existence of the file at all until synchronization finishes.

[0014] FTP is similar to a distributed file system with regards to files being hosted on a remote server. However FTP generally does manifest as a "disk drive" on the customer's desktop; the customer must use special FTP client software to access an FTP server. It shares the same problem as distributed file systems, with the additional problem of weak integration with applications. Applications can generally write and read files directly to and from a distributed file system. This is not the case with FTP, as the customer has to manually use the client software to perform these operations as a separate task.

[0015] Email was originally invented for messaging. From the beginning, the model it employs to make files accessible remotely is necessarily inefficient. Email's model for making files accessible is in the form of an email "attachment". Attachments are so named because they piggy-back on a message sent from one customer to another. A customer can make a file remotely available using email by attaching the file to an email and sending it to himself. He can then retrieve the file from a remote location by accessing the message on the email server. Email used in this way is even worse than FTP as the process is even more manual: a customer must find the message containing

the file before he can even access it. Further, the location in which the attachment lives is read only. If the customer, for example, were to open the file, change it, then save it back out, the results would be ambiguous to the user because the email application, not the user, specified its location. Usually, the saved file would end up buried in an email file cache in an undisclosed area of the file system.

[0016] Flash Drives and External Disk Drives, although seemingly the most "primitive" way to ensure file availability, avoid all the problems related to network latency. However, these devices must be physically connected to the computer on which the files will be accessed. These restrictions preclude the customer from employing several effective work-flows including: using more than one computer to complete a single task (the files can only be accessed on one computer) and setting up an automated backup (the computer running the backup can't guarantee that the storage device will be connected come backup time). Further, to ensure full availability of the files, the customer must carry the device with them at all times, and must follow the associated protocols for mounting and dismounting the device.

[0017] Other problems with the prior art not described above can also be overcome using the teachings of embodiments of the present invention, as would be readily apparent to one of ordinary skill in the art after reading this disclosure.

SUMMARY OF THE INVENTION

[0018] In certain embodiments, automatic modification-triggered transfer of a file among two or more computer systems associated with a user. In some embodiments, a copy of a first file may be received, via a first application at a first computer system, from a second application at a second computer system associated with a user. The first file copy may be automatically received from the second application responsive to the user modifying a content of the first file, where the first file copy is a version of the first

file that is generated from the user modifying the content of the first file. Responsive to receiving the first file copy from the second computer system, the first file copy may be automatically transferred via the first application to a third computer system associated with the user to replace an older version of the first file stored on the third computer system.

BRIEF DESCRIPTION OF THE DRAWING

[0019] Preferred and alternative embodiments of the present invention are described in detail below with reference to the following drawings.

[0020] FIG. 1 is a schematic view of an exemplary operating environment in which an embodiment of the invention can be implemented;

[0021] FIG. 2 is a functional block diagram of an exemplary operating environment in which an embodiment of the invention can be implemented; and

[0022] FIG. 3 is a functional block diagram illustrating file sharing and/or synchronization according to an embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0023] An embodiment of the invention leverages remote programming concepts by utilizing processes called mobile agents (sometimes referred to as mobile objects or agent objects). Generally speaking, these concepts provide the ability for an object (the mobile agent object) existing on a first ("host") computer system to transplant itself to a second ("remote host") computer system while preserving its current execution state. The operation of a mobile agent object is described briefly below.

[0024] The instructions of the mobile agent object, its preserved execution state, and other objects owned by the mobile agent object are packaged, or "encoded," to generate a string of data that is configured so that the string of data can be transported by

all standard means of communication over a computer network. Once transported to the remote host, the string of data is decoded to generate a computer process, still called the mobile agent object, within the remote host system. The decoded mobile agent object includes those objects encoded as described above and remains in its preserved execution state. The remote host computer system resumes execution of the mobile agent object which is now operating in the remote host environment.

[0025] While now operating in the new environment, the instructions of the mobile agent object are executed by the remote host to perform operations of any complexity, including defining, creating, and manipulating data objects and interacting with other remote host computer objects.

[0026] File transfer and/or synchronization, according to an embodiment, may be accomplished using some or all of the concepts described in commonly owned U. S. Patent App. No. 11/739,083, entitled "Electronic File Sharing," the entirety of which is incorporated by reference as if fully set forth herein.

[0027] FIG. 1 illustrates an example of a suitable computing system environment 100 in which one or more embodiments of the invention may be implemented. The computing system environment 100 is only one example of a suitable computing environment and is not intended to suggest any limitation as to the scope of use or functionality of the invention. Neither should the computing environment 100 be interpreted as having any dependency or requirement relating to any one or combination of components illustrated in the exemplary operating environment 100.

[0028] Embodiments of the invention are operational with numerous other general purpose or special purpose computing system environments or configurations. Examples of well known computing systems, environments, and/or configurations that may be suitable for use with the invention include, but are not limited to, personal computers, server computers, hand-held or laptop devices, multiprocessor systems, microprocessor-based systems, set top boxes, programmable consumer electronics,

network PCs, minicomputers, mainframe computers, distributed computing environments that include any of the above systems or devices, and the like.

[0029] Embodiments of the invention may be described in the general context of computer-executable instructions, such as program modules, being executed by a computer and/or by computer-readable media on which such instructions or modules can be stored. Generally, program modules include routines, programs, objects, components, data structures, etc. that perform particular tasks or implement particular abstract data types. The invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, program modules may be located in both local and remote computer storage media including memory storage devices.

[0030] With reference to FIG. 1, an exemplary system for implementing the invention includes a general purpose computing device in the form of a computer 110. Components of computer 110 may include, but are not limited to, a processing unit 120, a system memory 130, and a system bus 121 that couples various system components including the system memory to the processing unit 120. The system bus 121 may be any of several types of bus structures including a memory bus or memory controller, a peripheral bus, and a local bus using any of a variety of bus architectures. By way of example, and not limitation, such architectures include Industry Standard Architecture (ISA) bus, Micro Channel Architecture (MCA) bus, Enhanced ISA (EISA) bus, Video Electronics Standards Association (VESA) local bus, and Peripheral Component Interconnect (PCI) bus also known as Mezzanine bus.

[0031] Computer 110 typically includes a variety of computer readable media. Computer readable media can be any available media that can be accessed by computer 110 and includes both volatile and nonvolatile media, removable and non-removable media. By way of example, and not limitation, computer readable media may comprise

computer storage media and communication media. Computer storage media includes both volatile and nonvolatile, removable and non-removable media implemented in any method or technology for storage of information such as computer readable instructions, data structures, program modules or other data. Computer storage media includes, but is not limited to, RAM, ROM, EEPROM, flash memory or other memory technology, CD-ROM, digital versatile disks (DVD) or other optical disk storage, magnetic cassettes, magnetic tape, magnetic disk storage or other magnetic storage devices, or any other medium which can be used to store the desired information and which can accessed by computer 110. Communication media typically embodies computer readable instructions, data structures, program modules or other data in a modulated data signal such as a carrier wave or other transport mechanism and includes any information delivery media. The term "modulated data signal" means a signal that has one or more of its characteristics set or changed in such a manner as to encode information in the signal. By way of example, and not limitation, communication media includes wired media such as a wired network or direct-wired connection, and wireless media such as acoustic, RF, infrared and other wireless media. Combinations of the any of the above should also be included within the scope of computer readable media.

[0032] The system memory 130 includes computer storage media in the form of volatile and/or nonvolatile memory such as read only memory (ROM) 131 and random access memory (RAM) 132. A basic input/output system 133 (BIOS), containing the basic routines that help to transfer information between elements within computer 110, such as during start-up, is typically stored in ROM 131. RAM 132 typically contains data and/or program modules that are immediately accessible to and/or presently being operated on by processing unit 120. By way of example, and not limitation, FIG. 1 illustrates operating system 134, application programs 135, other program modules 136, and program data 137.

[0033] The computer 110 may also include other removable/non-removable, volatile/nonvolatile computer storage media. By way of example only, FIG. 1 illustrates a hard disk drive 140 that reads from or writes to non-removable, nonvolatile magnetic media, a magnetic disk drive 151 that reads from or writes to a removable, nonvolatile magnetic disk 152, and an optical disk drive 155 that reads from or writes to a removable, nonvolatile optical disk 156 such as a CD ROM or other optical media. Other removable/non-removable, volatile/nonvolatile computer storage media that can be used in the exemplary operating environment include, but are not limited to, magnetic tape cassettes, flash memory cards, digital versatile disks, digital video tape, solid state RAM, solid state ROM, and the like. The hard disk drive 141 is typically connected to the system bus 121 through a non-removable memory interface such as interface 140, and magnetic disk drive 151 and optical disk drive 155 are typically connected to the system bus 121 by a removable memory interface, such as interface 150.

[0034] The drives and their associated computer storage media discussed above and illustrated in FIG. 1, provide storage of computer readable instructions, data structures, program modules and other data for the computer 110. In FIG. 1, for example, hard disk drive 141 is illustrated as storing operating system 144, application programs 145, other program modules 146, and program data 147. Note that these components can either be the same as or different from operating system 134, application programs 135, other program modules 136, and program data 137. Operating system 144, application programs 145, other program modules 146, and program data 147 are given different numbers here to illustrate that, at a minimum, they are different copies. A user may enter commands and information into the computer 20 through input devices such as a keyboard 162 and pointing device 161, commonly referred to as a mouse, trackball or touch pad. Other input devices (not shown) may include a microphone, joystick, game pad, satellite dish, scanner, or the like. These and other input devices are often connected to the processing unit 120 through a user input interface 160 that is coupled to the system

bus, but may be connected by other interface and bus structures, such as a parallel port, game port or a universal serial bus (USB). A monitor 191 or other type of display device is also connected to the system bus 121 via an interface, such as a video interface 190. In addition to the monitor, computers may also include other peripheral output devices such as speakers 197 and printer 196, which may be connected through an output peripheral interface 190.

[0035] The computer 110 may operate in a networked environment using logical connections to one or more remote computers, such as a remote computer 180. The remote computer 180 may be a personal computer, a server, a router, a network PC, a peer device or other common network node, and typically includes many or all of the elements described above relative to the computer 110, although only a memory storage device 181 has been illustrated in FIG. 1. The logical connections depicted in FIG. 1 include a local area network (LAN) 171 and a wide area network (WAN) 173, but may also include other networks. Such networking environments are commonplace in offices, enterprise-wide computer networks, intranets and the Internet.

[0036] When used in a LAN networking environment, the computer 110 is connected to the LAN 171 through a network interface or adapter 170. When used in a WAN networking environment, the computer 110 typically includes a modem 172 or other means for establishing communications over the WAN 173, such as the Internet. The modem 172, which may be internal or external, may be connected to the system bus 121 via the user input interface 160, or other appropriate mechanism. In a networked environment, program modules depicted relative to the computer 110, or portions thereof, may be stored in the remote memory storage device. By way of example, and not limitation, FIG. 1 illustrates remote application programs 185 as residing on memory device 181. It will be appreciated that the network connections shown are exemplary and other means of establishing a communications link between the computers may be used.

[0037] Referring now to FIG. 2, an embodiment of the present invention can be described in the context of an exemplary computer network system 200 as illustrated. System 200 includes electronic user devices 210, 280, such as personal computers or workstations, that are linked via a communication medium, such as a network 220 (*e.g.*, the Internet), to an electronic device or system, such as a server 230. The server 230 may further be coupled, or otherwise have access, to a database 240, electronic storage 270 and a computer system 260. Although the embodiment illustrated in FIG. 2 includes one server 230 coupled to two user devices 210, 280 via the network 220, it should be recognized that embodiments of the invention may be implemented using two or more such user devices coupled to one or more such servers.

[0038] In an embodiment, each of the user devices 210, 280 and server 230 may include all or fewer than all of the features associated with the computer 110 illustrated in and discussed with reference to FIG. 1. User devices 210, 280 include or are otherwise coupled to a computer screen or display 250, 290, respectively. User devices 210, 280 can be used for various purposes including both network- and local-computing processes.

[0039] The user devices 210, 280 are linked via the network 220 to server 230 so that computer programs, such as, for example, a browser or other applications, running on one or more of the user devices 210, 280 can cooperate in two-way communication with server 230 and one or more applications running on server 230. Server 230 may be coupled to database 240 and/or electronic storage 270 to retrieve information therefrom and to store information thereto. Additionally, the server 230 may be coupled to the computer system 260 in a manner allowing the server to delegate certain processing functions to the computer system.

[0040] Referring now to FIG. 3, illustrated is functionality of an embodiment of the invention allowing a user (not shown) who owns or otherwise controls devices 210, 280 to automatically maintain file synchronization between at least devices 210, 280, or any other user devices on which principles of the present invention are implemented. In

an embodiment, an administrator (not shown) of the server 230 or other appropriate electronic device transfers a file-transfer and/or synchronization application to the user devices 210, 280 for installation thereon. Once installed on the user devices 210, 280, the file-transfer application provides file-transfer clients 310, 320 executable by the user devices 210, 280, respectively. Each of the file-transfer clients 310, 320 may, but need not, include a respective mobile-agent runtime environment 330, 340. The mobile-agent runtime environment 330, 340 include portions of memory of the user devices 210, 280 dedicated to allowing a mobile object the ability to perform operations that the mobile object is programmed to carry out. Also included in the file-transfer application are user interfaces 350, 360 that are displayable on the displays 250, 290, respectively. In an embodiment, the interfaces 350, 360 allow a user to view, access and/or organize files to be synched among the various user devices.

[0041] Generally, all files that the user desires to be synched or shared may at some point be uploaded by one or more of the user devices 210, 280 and stored in storage 270. Upon receiving the files to be synched, the server 230 can store such files in the storage 270 and/or transfer the files to one or more of the respective hard drives of the user devices 210, 280, thereby enabling each respective user device to access such files. In this manner, the server 230 is operable to treat each hard drive of the respective user devices 210, 280 as a local document cache for files received by the server. Typically, the server 230 will store one or more of the received files to the storage 270 only if the destination user device is offline or otherwise temporarily not in communication with the server 230. Upon resuming communication with the destination user device, the server 230 will transfer the temporarily stored files to the destination device.

[0042] In operation, according to an embodiment, the user may open and modify a file 370, such as a word-processing document or other electronic file. Alternatively, the user may create a first instance of the file 370. The user may have previously have associated, or may now associate, the file 370 with the transfer client 310. Upon a

predetermined and user-configurable triggering event, the transfer client 310 transfers the modified file 370, or a copy of the modified file, to the server 230. Such a triggering event may include, but be not limited to, the user saving the file, the elapsing of a predetermined amount of time during which the file has been opened, or the re-initiation of a communication session between the device 210 and the server 230.

[0043] The file 370 is transferred to the server 230 on which is executing a synchronization application 380, which may include a mobile-agent runtime environment. Through user configuration, the synch application 380 monitors a set of user devices to which the file 370 should be transferred to effect file synchronization. In the illustrated embodiment, this set of user devices includes the user device 280. The synch application 380 polls the device 280 to determine whether the device 280 is in communication with the server 230. If the device 280 is in communication with the server 230, the synch application 380 transfers the file 370 to the device 280, whereupon the transfer client 320 resident on the device 280 replaces the previous version of the file 370, previously cached on the device 280, with the latest version of the file 370 modified on the user device 210. If the device 280 is not currently in communication with the server 230, the synch application 380 may store the file 370 in the storage 270 until such time as communication between the device 280 and server 230 is reestablished. As illustrated in Figure 3, a similar reverse-direction synchronization process may be performed by the synch application 380 and the transfer clients 310, 320 with regard to a file 315 modified on device 280 and synchronized to device 210.

[0044] In an embodiment, the user interfaces 350, 360 may include a list of the customer's documents and related metadata, as well as any one-to-one or one-to-many relationships between the documents and metadata. An embodiment can always provide customers with an accurate "picture" of their document collection, regardless of whether their devices physically contain the documents. As alluded to earlier, a problem with distributed file systems and FTP is the latency between a file being put onto a file system

and it showing up on a remote machine. To prevent this problem, an embodiment directory is decoupled from the movement of files. An embodiment's directory update system updates at a higher priority than the documents to be synchronized. This feature ensures that when a customer browses or searches through his set of documents, they appear even if they have not yet been cached locally on the user device. An indicator signifying a document's availability may be prominently displayed adjacent to the document's representation so that customers are aware of the document's availability.

[0045] An embodiment may include a stand-alone application that allows customers to find and manage documents associated with transfer clients 310, 320 by visualizing relationships between documents and their metadata. It allows customers to tag documents with any number of identifiers. Customers can relate both documents and tags with each other in any number of user-specified one-to-one and one-to-many relationships, and an embodiment provides a user interface to browse and search on these relationships. To mitigate the customers' learning curve, an embodiment can implement relationships common to contemporary file systems, including a folder hierarchy. In addition to this, an embodiment provides direct support for methods that the customer uses to organize documents by manifesting them as user interface idioms. This is unlike conventional document filing systems which require the customer to work within a strict folder metaphor for organization.

[0046] Some alternate methods that an embodiment supports for organizing documents include:

[0047] • Allow customers to organize their documents by application. Many times customers remember the application used to create a document instead of the document's name or its location in a hierarchy.

[0048] • Allow customers to organize their documents by most recent access. Customers are likely to access a document they've accessed in the near past. Usually, such documents are part of a task that the customer is actively working.

[0049] • Allow customers to organize their documents by project or subproject.

[0050] • Allow customers to organize their documents by people. Many times, especially in the context of a collaboration, a document is directly related to one or more people other than the customer.

[0051] • Allow the customer to organize their document by process stage. Documents may represent one or more stages of a process. Customers need a method for organizing documents by process stage, and a mechanism for moving the document through a set of predefined stages.

[0052] • Allow customers to organize their documents by any of the aforementioned methods concurrently. These organization methods are not mutually exclusive.

[0053] An embodiment presents an interface that allows a customer to locate one or more documents associated with the transfer clients 310, 320 and open such document into a separate software application. Since this interface is intended to be used from within the separate application, that application may need to know how to invoke such interface. Advantageously, this invocation behavior can be provided to the application using the application's plug-in API.

[0054] An embodiment presents an interface that allows a customer to synchronize a currently opened document according to processes described elsewhere herein. This interface can be invoked within an application and can be made available to the application in the manner described above in connection with the application's plug-in API.

[0055] Some files associated with the transfer clients 310, 320 are dependent on other files associated with the transfer clients 310, 320. For example, a desktop publishing document may include images that are stored in files separate from the main document. Previous file-synching solutions treat these files as separate. Because of this, for example, a document synchronized from the device 210 to the device 280 may be

opened by the user of the device 280 before the image files have been fully transferred to the device 280. This causes the document to fail to open, or break, since the image files don't exist or are incomplete. An embodiment prevents this by: (1) always ensuring the file catalog (*e.g.*, the stand-alone application that allows customers to find and manage documents associated with transfer clients 310, 320, as discussed above herein) is synchronized before any file data is synchronized, and (2) pausing any file access by any program until the file contents have been fully synchronized. In such an embodiment, if a user attempts, using a software program, to open a file whose related files haven't yet finished transferring to the local (hard drive) cache, if that software attempts to open the related files, the software program is blocked by an embodiment until the requested files are downloaded and ready to access.

[0056] Other file sending and synchronizing software requires the user to upload their data to a storage device owned by the operator of the service. An embodiment treats storage as a participant in the synchronization process; this means that the user can choose the service or device where their files will be stored. The file transfer/synching is abstracted from the storage system allowing any storage to be used. An embodiment treats storage like any other synch target, such as a desktop computer, or a cell phone. As such, any device owned or otherwise controlled by the user and running a synch application, such as synch application 380, as provided in an embodiment of the invention can perform the storage and/or synching functions described elsewhere herein. That is, the user device 280 or user device 210, rather than the server 230, may perform such functions.

[0057] While a preferred embodiment of the invention has been illustrated and described, as noted above, many changes can be made without departing from the spirit and scope of the invention. For example, as an alternative to the approach described with reference to Figure 3, wherein the transfer clients 310, 320 function to "push" modified or created files to the synch application 380, the synch application 380 may instead

function to periodically "pull" or otherwise actively retrieve such files from the transfer clients 310, 320 Instead, the invention should be determined entirely by reference to the claims that follow.

WHAT IS CLAIMED IS:

1. A system comprising:

a first computer system comprising one or more processors programmed with computer program instructions that, when executed, cause the first computer system to:

receive, over a network via a first application at the first computer system, a copy of a first file from a second application at a second computer system associated with a user, wherein the copy of the first file is automatically received from the second application responsive to the user modifying a content of the first file stored on the second computer system, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

determine whether the first computer system is in communication with a third computer system associated with the user;

automatically send, over a network via the first application, the copy of the first file to a third application at the third computer system responsive to the determination that the first computer system is in communication with the third computer system and responsive to receiving the copy of the first file from the second computer system;

receive, over a network via the first application, a copy of a second file from the third application at the third computer system, wherein the copy of the second file is automatically received from the third application responsive to the user modifying a content of the second file stored on the third computer system, the copy of the second file being a version of the second file that is generated from the user modifying the content of the second file;

determine whether the first computer system is in communication with the second computer system; and

automatically send, over a network via the first application, the copy of the second file to the second application at the second computer system responsive to the determination that the first computer system is in communication with the

second computer system and responsive to receiving the copy of the second file from the third computer system,

wherein, responsive to sending the copy of the first file to the third computer system, an older version of the first file stored on the third computer system is automatically caused to be replaced with the copy of the first file such that the copy of the first file is stored on the third computer system in lieu of the older version of the first file, and

wherein, responsive to sending the copy of the second file to the second computer system, an older version of the second file stored on the second computer system is automatically caused to be replaced with the copy of the second file such that the copy of the second file is stored on the second computer system in lieu of the older version of the second file.

2. The system of claim 1, wherein at least one of the second application or the third application comprises a runtime environment for mobile-agent objects.

3. The system of claim 1, wherein the first computer system is caused to:

store, via the first application, the copy of the first file to a memory device associated with the first computer system.

4. The system of claim 4, wherein the copy of the first file is stored on the memory device associated with the first computer system in lieu of an older version of the first file copy that was stored on the memory device associated with the first computer system.

5. The system of claim 4, wherein the copy of the first file is stored on the memory device associated with the first computer system responsive to a determination that the first computer system is not in communication with the third computer system.

6. The system of claim 6, wherein the first computer system is caused to:

responsive to resuming communication with the third computer system, automatically send, over a network via the first application, the copy of the first file to the

third computer system to cause the older version of the first file stored on the third computer system to be replaced with the copy of the first file.

7. The system of claim 1, wherein the second application is operable to create a first mobile object, and wherein the first mobile object is operable to create a proxy object at the first computer system.

8. The system of claim 8, wherein the first mobile object is operable to provide the copy of the first file to the proxy object.

9. The system of claim 9, wherein the proxy object is operable to store the copy of the first file on a memory device associated with the first computer system.

10. A method being implemented by one or more processors executing computer program instructions that, when executed, perform the method, the method comprising:

receiving, over a network via a first application at the first computer system, a copy of a first file from a second application at a second computer system associated with a user, wherein the copy of the first file is automatically received from the second application responsive to the user modifying a content of the first file stored on the second computer system, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

determining whether the first computer system is in communication with a third computer system associated with the user;

automatically sending, over a network via the first application, the copy of the first file to a third application at the third computer system to replace an older version of the first file stored on the third computer system, responsive to the determination that the first computer system is in communication with the third computer system and responsive to receiving the copy of the first file from the second computer system;

receiving, over a network via the first application, a copy of a second file from the third application at the third computer system, wherein the copy of the second file is automatically received from the third application responsive to the user modifying a

content of the second file stored on the third computer system, the copy of the second file being a version of the second file that is generated from the user modifying the content of the second file;

determining whether the first computer system is in communication with the second computer system; and

automatically sending, over a network via the first application, the copy of the second file to the second application at the second computer system to replace an older version of the second file stored on the second computer system, responsive to the determination that the first computer system is in communication with the second computer system and responsive to receiving the copy of the second file from the third computer system.

11. The method of claim 10, wherein at least one of the second application or the third application comprises a runtime environment for mobile-agent objects.

12. The method of claim 10, further comprising:

storing, via the first application, the copy of the first file to a memory device associated with the first computer system,

wherein the copy of the first file is stored on the memory device associated with the first computer system in lieu of an older version of the first file copy that was stored on the memory device associated with the first computer system.

13. The method of claim 12, further comprising:

responsive to resuming communication with the third computer system, automatically sending, via the first application, the copy of the first file to the third computer system to cause the older version of the first file stored on the third computer system to be replaced with the copy of the first file.

14. The method of claim 11, wherein the second application is operable to create a first mobile object, and wherein the first mobile object is operable to create a proxy object at the first computer system.

15. The method of claim 14, wherein the first mobile object is operable to provide the copy of the first file to the proxy object.

16. The method of claim 15, wherein the proxy object is operable to store the copy of the first file on a memory device associated with the first computer system.

17. A system comprising:

a first computer system comprising one or more processors programmed with computer program instructions that, when executed, cause the first computer system to:

receive, via a first application at the first computer system, a copy of a first file from a second application at a second computer system associated with a user, wherein the copy of the first file is automatically received from the second application responsive to the user modifying a content of the first file stored on the second computer system, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

automatically transfer, via the first application, the copy of the first file to a third computer system associated with the user responsive to receiving the copy of the first file from the second computer system;

receive, via the first application, a copy of a second file from a third application at the third computer system, wherein the copy of the second file is automatically received from the third application responsive to the user modifying a content of the second file stored on the third computer system, the copy of the second file being a version of the second file that is generated from the user modifying the content of the second file; and

automatically transfer, via the first application, the copy of the second file to the second application at the second computer system responsive to receiving the copy of the second file from the third computer system,

wherein, responsive to transferring the copy of the first file to the third computer system, an older version of the first file stored on the third computer system is automatically caused to be replaced with the copy of the first file such

that the copy of the first file is stored on the third computer system in lieu of the older version of the first file, and

wherein, responsive to transferring the copy of the second file to the second computer system, an older version of the second file stored on the second computer system is automatically caused to be replaced with the copy of the second file such that the copy of the second file is stored on the second computer system in lieu of the older version of the second file.

18. The system of claim 17, wherein the first computer system is caused to:

store, via the first application, the copy of the first file to a memory device associated with the first computer system, wherein the copy of the first file is stored on the memory device associated with the first computer system responsive to a determination that the first computer system is not in communication with the third computer system; and

responsive to resuming communication with the third computer system, automatically transfer, over a network via the first application, the copy of the first file to the third computer system to cause the older version of the first file stored on the third computer system to be replaced with the copy of the first file.

19. A method being implemented by one or more processors executing computer program instructions that, when executed, perform the method, the method comprising:

receiving, via a first application at the first computer system, a copy of a first file from a second application at a second computer system associated with a user, wherein the copy of the first file is automatically received from the second application responsive to the user modifying a content of the first file stored on the second computer system, the copy of the first file being a version of the first file that is generated from the user modifying the content of the first file;

automatically transferring, via the first application, the copy of the first file to a third computer system associated with the user to replace an older version of the first file stored on the third computer system, responsive to receiving the copy of the first file from the second computer system;

receiving, via the first application, a copy of a second file from a third application at the third computer system, wherein the copy of the second file is automatically received from the third application responsive to the user modifying a content of the second file stored on the third computer system, the copy of the second file being a version of the second file that is generated from the user modifying the content of the second file; and

automatically transferring, via the first application, the copy of the second file to the second computer system to replace an older version of the second file stored on the second computer system, responsive to receiving the copy of the second file from the third computer system.

20. The method of claim 19, further comprising:

storing, via the first application, the copy of the first file to a memory device associated with the first computer system, wherein the copy of the first file is stored on the memory device associated with the first computer system responsive to a determination that the first computer system is not in communication with the third computer system; and

responsive to resuming communication with the third computer system, automatically transferring, over a network via the first application, the copy of the first file to the third computer system to cause the older version of the first file stored on the third computer system to be replaced with the copy of the first file.

ABSTRACT OF THE DISCLOSURE

In certain embodiments, automatic modification-triggered transfer of a file among two or more computer systems associated with a user. In some embodiments, a copy of a first file may be received, via a first application at a first computer system, from a second application at a second computer system associated with a user. The first file copy may be automatically received from the second application responsive to the user modifying a content of the first file, where the first file copy is a version of the first file that is generated from the user modifying the content of the first file. Responsive to receiving the first file copy from the second computer system, the first file copy may be automatically transferred via the first application to a third computer system associated with the user to replace an older version of the first file stored on the third computer system.

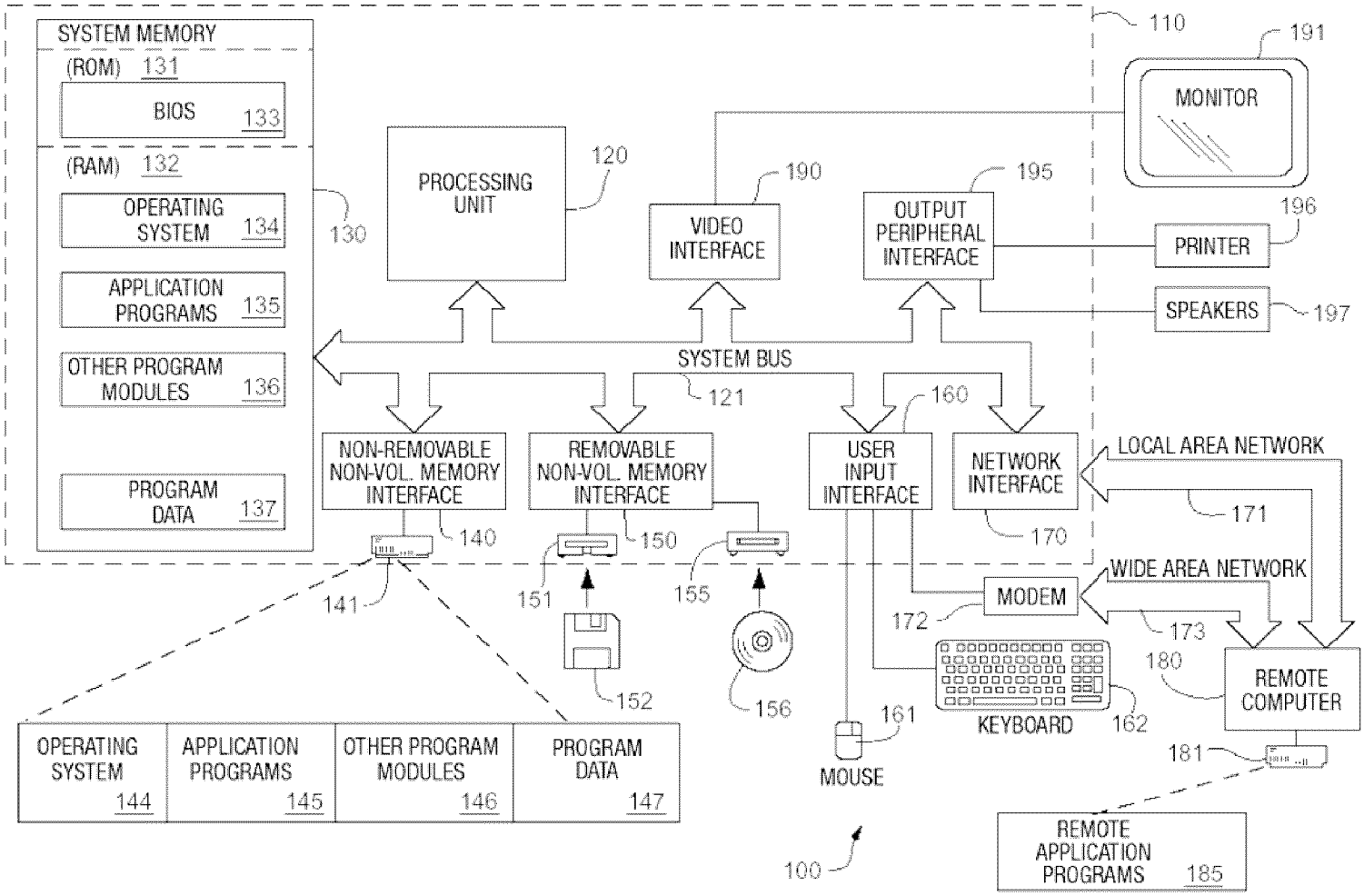

SYSTEM MEMORY
(ROM) 131
BIOS 133
(RAM) 132
OPERATING SYSTEM 134
APPLICATION PROGRAMS 135
OTHER PROGRAM MODULES 136
PROGRAM DATA 137
130
PROCESSING UNIT
120
VIDEO INTERFACE
190
OUTPUT PERIPHERAL INTERFACE
195
MONITOR
191
PRINTER
196
SPEAKERS
197
110
SYSTEM BUS
121
NON-REMOVABLE NON-VOL. MEMORY INTERFACE
REMOVABLE NON-VOL. MEMORY INTERFACE
USER INPUT INTERFACE
160
NETWORK INTERFACE
170
LOCAL AREA NETWORK
171
WIDE AREA NETWORK
MODEM
172
173
140
150
141
151
155
152
156
161
MOUSE
KEYBOARD
162
180
REMOTE COMPUTER
181
REMOTE APPLICATION PROGRAMS 185
100
OPERATING SYSTEM 144
APPLICATION PROGRAMS 145
OTHER PROGRAM MODULES 146
PROGRAM DATA 147

FIG. 1

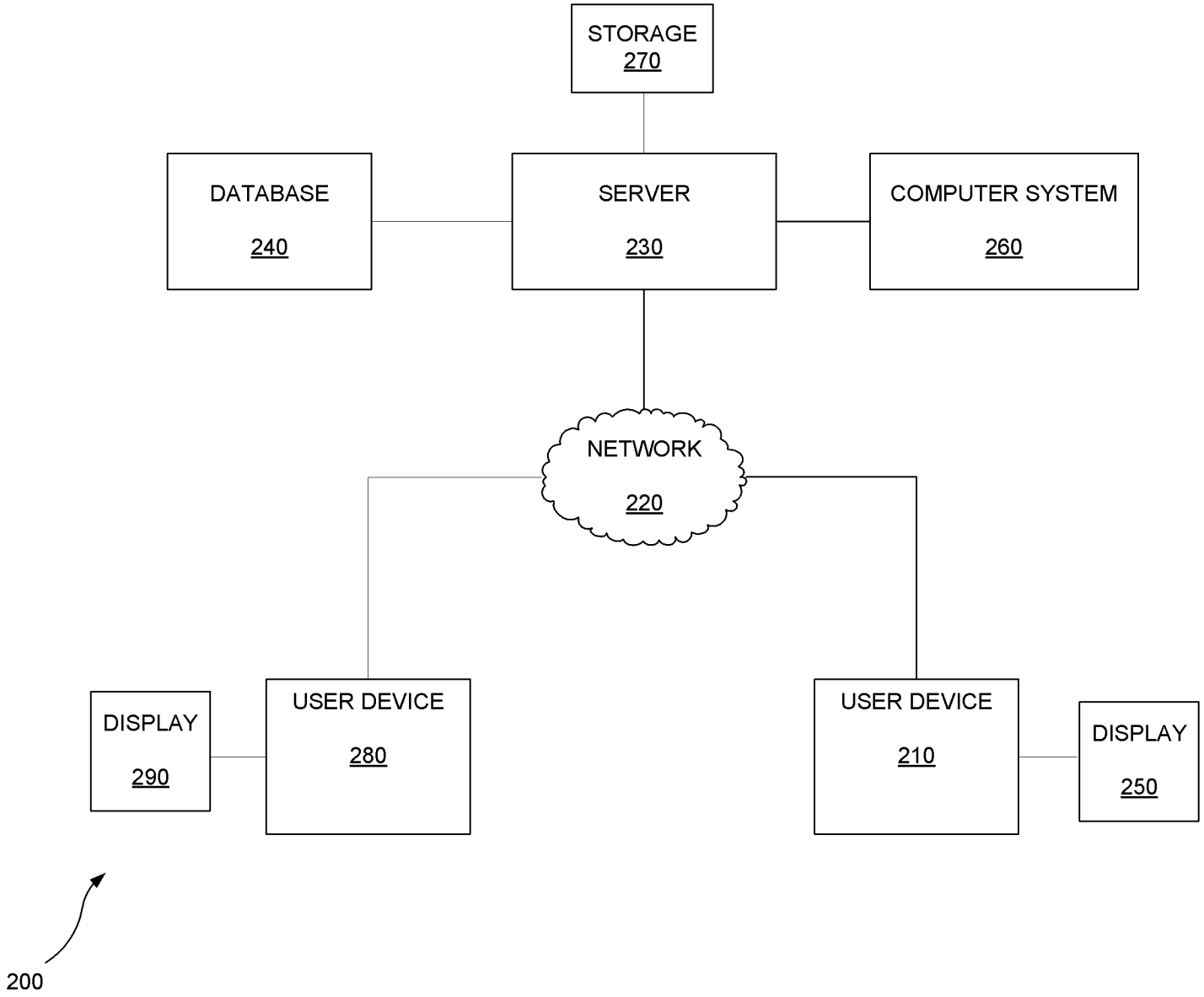

STORAGE
270
DATABASE
240
SERVER
230
COMPUTER SYSTEM
260
NETWORK
220
DISPLAY
290
USER DEVICE
280
USER DEVICE
210
DISPLAY
250
200

FIG. 2

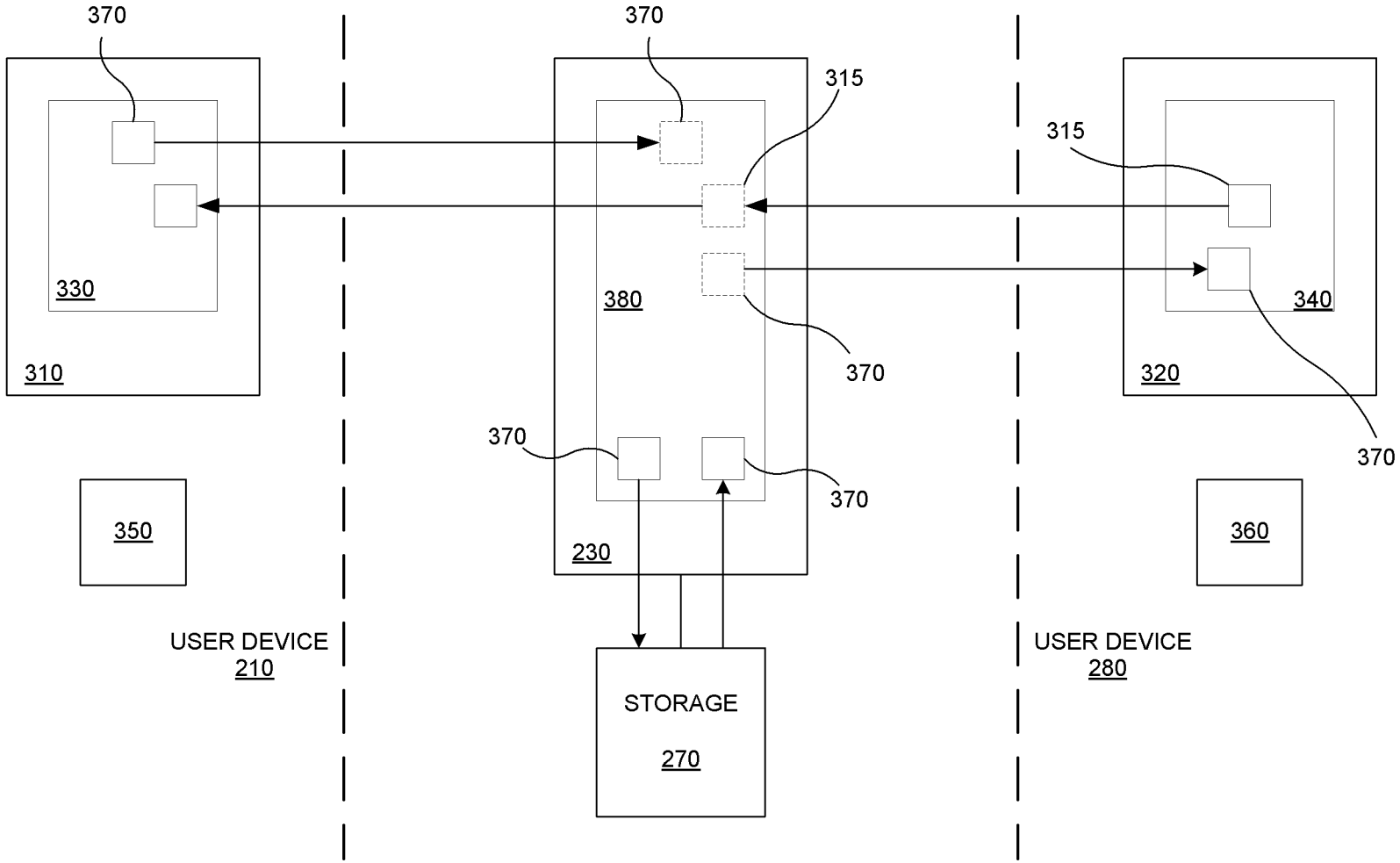

370
370
315
315
330
380
340
310
370
320
370
370
370
350
360
230
USER DEVICE
210
USER DEVICE
280
STORAGE
270

FIG. 3

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK
First Named Inventor/Applicant Name:	Michael R. Manzano
Filer:	Ngai Bing Zhang/Miriam Nelsen Awan
Attorney Docket Number:	023027-0459211

Filed as Small Entity

Filing Fees for Track I Prioritized Examination - Nonprovisional Application under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	75	75
UTILITY SEARCH FEE	2111	1	330	330
UTILITY EXAMINATION FEE	2311	1	380	380
REQUEST FOR PRIORITIZED EXAMINATION	2817	1	2000	2000
Pages:				
Claims:				
INDEPENDENT CLAIMS IN EXCESS OF 3	2201	1	230	230
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
PROCESSING FEE, EXCEPT PROV. APPLS.	2830	1	70	70

Petition:	
Patent-Appeals-and-Interference:	
Post-Allowance-and-Post-Issuance:	
Extension-of-Time:	
Miscellaneous:	
Total in USD ($)	**3085**

Electronic Acknowledgement Receipt

EFS ID:	32994812
Application Number:	16017348
International Application Number:	
Confirmation Number:	3719
Title of Invention:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK
First Named Inventor/Applicant Name:	Michael R. Manzano
Customer Number:	909
Filer:	Ngai Bing Zhang/Miriam Nelsen Awan
Filer Authorized By:	Ngai Bing Zhang
Attorney Docket Number:	023027-0459211
Receipt Date:	25-JUN-2018
Filing Date:	
Time Stamp:	15:58:11
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$3085
RAM confirmation Number	062618INTEFSW00002722033975
Deposit Account	033975
Authorized User	Miriam Awan

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		023027-0459211_ApplicationPapers.pdf	345866 a6942b405ea9c7850d27bf30bb35875723f77c42	yes	11

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal of New Application	1	1
	TrackOne Request	2	2
	Application Data Sheet	3	5
	Power of Attorney	6	11

Warnings:

Information:

2		023027-0459211_Specification_final.pdf	130169 6152457fffceac23efcb3e4f3c8544a1aa8d18f0	yes	26

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Specification	1	18
	Claims	19	25
	Abstract	26	26

Warnings:

Information:

3	Drawings-only black and white line drawings	023027-0459211_Drawings_final.pdf	126461 2720e9344ccee07605e088c9c2b57c04983e1302	no	3

Warnings:

Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	41967 812a8afa1e2345c1317480c13fda77baf04c308d	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	644463	

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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