

# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE UNITED STATES DEPARTMENT OF COMMIT United States Patent and Trademark office Address: CommissionEr For Patents P.O. Box 1450 Alexandria, Vignia 22313-1450 www.uspto.gov

APPLICATION NUMBER PATENT NUMBER GROUP ART UNIT FILE WRAPPER LOCATION

60/986,896



### Correspondence Address/Fee Address Change

The following fields have been set to Customer Number 16579 on 10/24/2011

- Correspondence Address
- Maintenance Fee Address

The address of record for Customer Number 16579 is:

16579 **Foster Pepper PLLC** 1111 3rd Avenue Suite 3400 Seattle, WA 98101-3299



#### 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

FILING or GRP ART APPLICATION 371(c) DATE FIL FEE REC'D ATTY.DOCKET.NO TOT CLAIMS IND CLAIMS NUMBER UNIT 60/986,896 11/09/2007 105 TPTC-1-1021

**CONFIRMATION NO. 3096** 

FILING RECEIPT

25315 BLACK LOWE & GRAHAM, PLLC 701 FIFTH AVENUE **SUITE 4800** SEATTLE, WA 98104

Date Mailed: 12/17/2007

Receipt is acknowledged of this provisional patent application. It will not be examined for patentability and will become abandoned not later than twelve months after its filing date. 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 write to the Office of Initial Patent Examination's Filing Receipt Corrections. 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

Applicant(s)

Mike R. Manzano, Seattle, WA;

**Power of Attorney:** The patent practitioners associated with Customer Number 25315

If Required, Foreign Filing License Granted: 12/14/2007

The country code and number of your priority application, to be used for filing abroad under the Paris Convention,

is **US 60/986,896** 

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No Early Publication Request: No

\*\* SMALL ENTITY \*\*

Title

ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

#### 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 page 1 of 3

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 (1-866-999-4158).

# 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).

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			Attorn	Attorney Docket Number TPTC-1-1021									
Applic	cation Data	a Sneet	37 CFF	R 1.76	Applic	ation Nu	ımbe	er			***************************************		
Title of	Invention	ARCHITEC	TURE FO	OR MAN	IAGEMEN	T OF DI	GITA	L FILES A	ACROS	S DISTRIBU	ITED NET	WORK	
bibliograp This doc	ication data shee phic data arrange ument may be o nt may be printed	ed in a forma completed ele	t specified ectronically	by the U	nited States bmitted to t	s Patent a	nd Tr	ademark O	ffice as	outlined in 37	CFR 1.76.		
Secre	cy Order	37 CFF	R 5.2										
	rtions or all of t CFR 5.2 (Pa												suant to
Applic	cant Infor	mation											
Applica	ant 1												
Applica	ant Authority	• Invento	or OL	egal Re	presentati	ve under	35 (	U.S.C. 11	7	OParty of I	nterest un	der 35 U.S	.C. 118
Prefix	Given Name			N	liddle Na	ıme	****		Fam	ily Name			Suffix
	Mike			R					Manz	ano			
Reside	ence Informa	tion (Sele	ct One)	<b>⊙</b> US	S Residen	су С	) No	on US Res	sidency	O Activ	e US Mili	tary Service	3
City	Seattle			State	/Provinc	e W	4	Countr	y of R	esidence i	US		
Citizen	ship under 3	7 CFR 1.4	1(b) i	US									
Mailing	Address of	Applican	t:		······								
Addres	ss 1	5702	35th Ave	nue NE									
Addres	ss 2												
City	Seattle						Stat	e/Provin	ice	WA			
Postal	Code	98105	5			Coun	tryi	US					
l .	entors Must ted within this					Informa	tion	blocks	may b	e	Add		
Corre	sponden	ce Info	rmatic	n:									
	either Custon ther informa				the Cor	respond	dend	e Inform	nation	section be	low.		
Ar	Address is	being pro	vided fo	or the c	orrespo	ndence	Info	rmation	of thi	s applicati	on.		
Custon	ner Number	25:	315										
Email A	Address									Add E	Email	Remove	Email
Applic	ation Info	ormatio	on:										
Title of	the Inventio	n AF	RCHITEC	TURE F	OR MANA	AGEMEN	IT OF	DIGITAL	FILES	ACROSS D	ISTRIBU	TED NETW	/ORK
Attorne	ey Docket Nu	ımber TF	TC-1-102	21			Si	mall Ent	ity Sta	tus Claime	ed 🗵		
Application Type Provisional													
Subjec	t Matter	Ut	lity										
	sted Class (if	any)		<del></del>			s	ub Class	s (if an	ıy)			
Sugges	sted Technol	ogy Cent	er (if any	<i>(</i> )									
Total Number of Drawing Sheets (if any)							S	uggeste	d Figu	re for Pub	lication	(if any)	

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 of the a collection of information upless it contains a valid OMB control number.

Under the Paperw	ork Reduction Act of 1995, no per	rsons are required to respond to a collect	T		is a valid OMB control number
Application Data S	Sheet 37 CFR 1.76	Attorney Docket Number	TPTC-1-10	21	
		Application Number			
Title of Invention AR	CHITECTURE FOR MANA	AGEMENT OF DIGITAL FILES	ACROSS DIS	TRIBUTED N	NETWORK
Publication Info	rmation:				
Request Early Pub	lication (Fee required a	t time of Request 37 CFR 1.3	219)		
C. 122(b) and certi	ify that the invention dis in another country, or ι	eby request that the attached sclosed in the attached application and internation and internation at the school and the school and the school and the school are school as the school are school are school are school as the school are school are school are school as the school are school as the school are school are school are school as the school are schoo	cation has n	ot and will	not be the subject of
	on should be provided for lication Data Sheet does n	or all practitioners having a protection of attorners the second the second constitute a power of attorners the second constitute of the second co		ation (see 37	
		r the Representative Information		ssing.	
Please Select One:	Customer Number	r US Patent Practitions	er O Lir	mited Recogi	nition (37 CFR 11.9)
Customer Number	25315				
entry from a PCT applicati	applicant to either claim bon. Providing this informat	enefit under 35 U.S.C. 119(e), 1 ion in the application data sheet CFR 1.78(a)(4), and need not other than the control of the	constitutes th	ne specific re	ference required by
Prior Application Stat	us			Re	emove
Application Number	Continuity -	Type Prior Applicat	ion Number	Filing Da	ate (YYYY-MM-DD)
Additional Domestic Be by selecting the <b>Add</b> bu		ta may be generated within t	his form		
Foreign Priority I	nformation:				
		of foreign priority and to identify tion data sheet constitutes the c			
		:			move
Application Number	Country	y I Parent Filing D	ate (YYYY-N	vm-DD)	Priority Claimed
Additional Foreign Prior Add button.	ity Data may be genera	ated within this form by selec	ting the		◯ Yes ⊙ No
Assignee Informa	ation:				
Providing this information i		et does not substitute for compli	ance with any	requirement	of part 3 of Title 37
of the CFR to have an ass			<b>,</b>		or part of or rido or

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 Numb	er TPTC-1-102	11		
Application Da	ita Sileet 37 CFR 1.70	Application Number				
Title of Invention	ARCHITECTURE FOR MANA	AGEMENT OF DIGITAL FIL	ES ACROSS DIST	RIBUTED NETWORK		
If the Assignee is a	an Organization check here.					
Prefix	Given Name	Middle Name	Family Name	Suffix		
Mailing Address I	nformation:					
Address 1						
Address 2						
City		State/Pr	State/Province			
Country i		Postal C				
Phone Number		Fax Num	ber			
Email Address	Email Address					
Additional Assigne button.	e Data may be generated v	vithin this form by selecti	ng the <b>Add</b>			
Signature:						

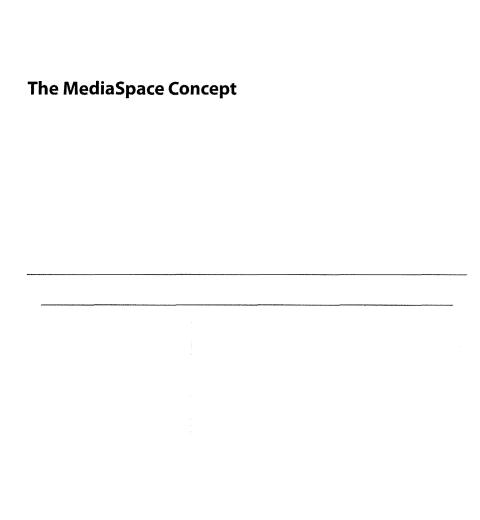
## ignature:

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	/P.G. Scott Born/			Date (YYYY-MM-DD)	2007-11-09		
First Name P.G. Scott Last Name Born Registration Number 405					40523		

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.

# ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK

This provisional patent application is intended to describe one or more embodiments of the present invention. It is to be understood that the use of absolute terms, such as "must," "will," and the like, as well as specific quantities, is to be construed as being applicable to one or more of such embodiments, but not necessarily to all such embodiments. As such, embodiments of the invention may omit or include a modification of one or more features or functionalities described in the context of such absolute terms.



#### **❖** Introduction

Purpose of this Document

This document is a description of MediaSpace, a Topia product that provides its customers with a seamless experience for administering their documents<sup>1</sup> across a distributed network of machines.

¹ This document defines "documents" as files in a particular domain in which a customer works; i.e., a file that a customer "cares" about. For example, a document for a photographer can be a TIFF file. A document for a software developer may be a text file containing source code. Files not generally considered documents include system configuration files, executable binaries, and image files included in a web page (although the web page itself might be considered a document).

#### Market Definition and Product Strategy

#### Market Overview

#### > The problem space

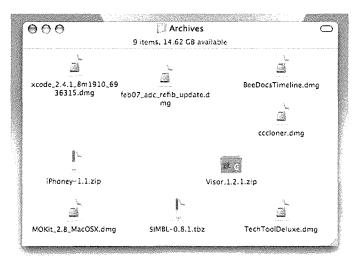
Customers of the modern computing systems are increasingly finding themselves in constantly-connected, high-speed networked environments. The Web continues to be a killer app, second only to email, on the Internet. Further, customers are increasingly using more than one computing device; a customer may 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 prominent problem.

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 it on the Web. These practices lead to problems that include:

- 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.
- The creation of an error-prone environment—some documents, such as ones for 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.
- 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.

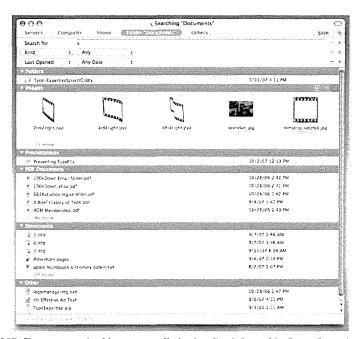
That a customer has to manually move files around to ensure their accessibility on his devices is unnecessary, but is really an indicator of a lack of customer-focused design in modern file systems. File systems in

use today² are direct offspring of systems used when graphical customer interfaces were non existent. 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.



"Old-style" UI: files are minimally differentiated. All files treated the same.

<sup>&</sup>lt;sup>2</sup> We make no distinction between the actually file system layer in an operating system and the way it is presented to the customer. For this customer-focused discussion, the difference is unimportant; as far as the customer is concerned, the method by which they access the file system is indistinguishable from the file system itself.



"New-style" UI: files are organized by type; media is visualized; "searching", not "browsing".

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.

#### ▶ Current approaches to providing file accessibility

There are several solutions to this problem that are in one way or another inadequate to the task. The solutions discussed here are chosen because they are common methods that customers employ for providing accessibility to their files.

**REMOTE DESKTOP** software allows a customer to remotely "see" his desktop. Remote desktop software includes Microsoft RDC, Citrix, GoToMyPC and VNC. 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.

DISTRIBUTED FILE SYSTEMS, like remote desktop software, place data on an always-connected host machine. These systems include NFS, WebDAV, and Microsoft's SMB. 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.

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.

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.

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.

FLASH DRIVES, EXTERNAL DISK DRIVES AND IPODS, 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.

#### > Current approaches to file presentation

The two applications that most customer use to interact with their filesystems are Windows Explorer and Mac Finder. Although these applications (and others of their type) differ in specific implementation, they provide the same core functionality: the spatial presentation of a folder hierarchy. Although this type of presentation is useful for certain tasks, it is only optimal for a small number of use cases.

A significant technique to organize files is to have an application "own" and manage files that belong to a domain in which the application has specific expertise. The application itself is the primary interface by which to browse its files; that job is not delegated to a different application like the Mac Finder or the Windows Explorer. This technique allows users to greatly limit the number of files that he must search or browse through by limiting his context.

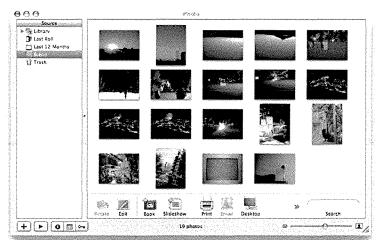


Image files are "owned" and managed by iPhoto, and displayed appropriately.

A disadvantage to this approach becomes evident when working with more than one application to finish a particular task. Because an application "owns" its list of files, they are not readily available to other applications. For an application to use an image from the album depicted above, that application would have to know how to deal with iPhoto. The advantage of direct filesystems access over this approach is that the filesystem provides a "common ground" for making files available.

#### The Product: MediaSpace

MediaSpace provides a single-access experience. It provides a single logical area for customers to store and access their documents. It relegates IP addresses, URLs, disk drives, and networks to a position secondary to customer experience, accessibility, find-ability, collaboration and integration. MediaSpace also provides a customer experience in which the customer's files are the most important element. It serves as "common ground" between applications for accessing each others' files. When coupled with its single-storage experience, it also provides "common ground" to web-based applications, not just applications running locally on a customer's device.

A core goal of MediaSpace is to allow user to treat their documents as if they exist in a "cloud". If documents could be moved across the Internet instantaneously, it would be possible to craft a system in which customers would not have to be exposed to a document's locality. MediaSpace exposes certain aspects of a document's locality to a customer in its user interface.

An embodiment informs the user that a document is not immediately available, and advises when and how that document may be made available.

The MediaSpace is comprised of several notional components. These components should not necessarily be treated as literal components so as to not stifle design creativity when creating an implementation.

#### > Storage

MediaSpacemay have a storage component separate from the customer's set of "everyday" devices. Having a separate storage component provides an "in-between" space for files and configuration information. Without this storage component, a file transfer from one of the customer's devices to another may require that both devices are both on and connected to a network, such is the case with FTP.

The Storage component is the seat of security and is responsible for segregating documents by customer. Unlike traditional filesystems, a MediaSpace is a single-customer construct. For a customer to access a document, that document can be in his MediaSpace.

#### Cache

To mitigate document access latency, MediaSpace treats the customer device's hard drive as a local document cache for the files located in the "cloud". MediaSpace synchronizes documents in the cloud with a device's local cache. This feature proactively downloads a document so that when a user goes to access it, there is no delay. Because hard drives in contemporary machines are large enough to contain all of an average user's files, the cache will likely contain all of the user's files, ensuring adequate file access performance.

The entire caching process is invisible to the user, so although files are being duplicated locally, the duplicates are being completely managed by MediaSpace.

#### Directory

The Directory is the 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.

MediaSpace can always provide customers with an accurate "picture" of their document collection, regardless of whether his devices physically contain the documents. As mentioned 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, MediaSpace's directory is decoupled from the movement of files.

MediaSpace's directory update system updates at 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 device. An indicator signifying a document's availability  $_{may}$  be prominently displayed adjacent to the document's representation in the MediaSpace so that customers are aware of the document's availability.

#### Navigator

The Navigatormay be a stand-alone application that allows customers to find and manage documents in the MediaSpace 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, the Navigator can implement relationships common to contemporary file systems, including a folder hierarchy. In addition to this, the Navigator 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.

Some alternate methods that Navigator supports for organizing documents include:

- 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.
- 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.
- Allow customers to organize their documents by project or subproject.
- Allow customers to organize their documents by people. Many times, especially in context to a collaboration, a document is directly related to one or more people other than the customer.
- 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.

 Allow customer to organize their documents by any of the aforementioned methods concurrently. These organization methods are not mutually exclusive.

#### > Document Chooser

The Document Chooser presents an interface that allows a customer to locate one or more documents in the MediaSpace to be opened into an application. Since the Document Chooser is intended to be used from within an application, that application can know how to invoke it.

Advantageously, this invocation behavior can be provided to the application using the application's plug-in API.

The Document Chooser visualizes the MediaSpace using the same idioms defined by the Navigator.

#### Document Filer

The Document Filer presents an interface that allows a customer to file a currently-opened document into the MediaSpace. As with the Document Chooser, the Document Filer can be invoked within an application and can be made available to the application in the same way. Additionally, as with the Document Chooser, it can represent the MediaSpace using the same idioms defined by the Navigator.

#### Disk Icon Interface

Not all application will have a plug-in API that allows the Document Chooser and Filer to be invoked. The Disk Icon Interface is a mounted drive that exposes the MediaSpace to the customer as an operating system-level filesystem. This interface allows any application to access the MediaSpace using a strict folder hierarchy relationship.

this method for accessing the MediaSpace can be used by any application  $\underline{.}\,$ 

Current approaches provide the *potential* for document accessibility, but they do not directly provide it.

Strategies for alleviating sharing vs. replicating; a hybrid approach includes intelligent caching and customer-directed fetch.

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:	Mike R. Manzano								
Filer:	Michael Stevens Smith/Susan Rodriguez								
Attorney Docket Number:	TF	PTC-1-1021							
Filed as Small Entity									
Provisional Filing Fees									
Description		Fee Code	Quantity	Amount	Sub-Total in USD(\$)				
Basic Filing:									
Provisional Application filing fee		2005	1	105	105				
Pages:									
Claims:									
Miscellaneous-Filing:									
Petition:									
Patent-Appeals-and-Interference:									
Post-Allowance-and-Post-Issuance:									
Extension-of-Time:			Box &	& Dropbox Exl	 nibit 1015				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
	Tota	105		

Electronic Acknowledgement Receipt					
EFS ID:	2451294				
Application Number:	60986896				
International Application Number:					
Confirmation Number:	3096				
Title of Invention:	ARCHITECTURE FOR MANAGEMENT OF DIGITAL FILES ACROSS DISTRIBUTED NETWORK				
First Named Inventor/Applicant Name:	Mike R. Manzano				
Customer Number:	25315				
Filer:	Michael Stevens Smith/Susan Rodriguez				
Filer Authorized By:	Michael Stevens Smith				
Attorney Docket Number:	TPTC-1-1021				
Receipt Date:	09-NOV-2007				
Filing Date:					
Time Stamp:	18:01:57				
Application Type:	Provisional				
Payment information:					

# Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	\$105
RAM confirmation Number	2806
Deposit Account	

# File Listing:

Document	Document Description	File Name	File Size(Bytes)	Multi	Pages
Number	Document Description	File Name	/Message Digest	Part /.zip	(if appl.)

		Total Files Size (in bytes)	91	9783	
Information:					
Warnings:					
	. 20 11011011011 (1 1 0 00)	i i i i i i i i i i i i i i i i i i i	2cf88684fb4a5be9112efc7301e02bc4e f189078		_
2	Fee Worksheet (PTO-06) fee-info.pdf		8174	no	2
Information:					
Warnings:					
	Specifica	4		15	
	Application Da	1	3		
	Document De	Start	E	nd	
	Multipa	rt Description/PDF files in	.zip description		
		TFTO-T-T02TASFiled.pdf	59e8aa45f971fd231a770d3dc13903c0f f2bf6e9	yes	
1		TPTC-1-1021AsFiled.pdf	911609	V00	15

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.