



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
13/184,799	07/18/2011	Jeyhan Karaoguz	106861-1370

CONFIRMATION NO. 1131

POA ACCEPTANCE LETTER

121312
Foley & Lardner LLP/ Broadcom Corporation
3000 K Street N.W
Suite 600
Washington, DC 20007-5109



Date Mailed: 03/17/2017

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/09/2017.

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/



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
13/184,799	07/18/2011	Jeyhan Karaoguz	14528.00134

16378
BGL/Broadcom
P.O. Box 10395
Chicago, IL 60610

CONFIRMATION NO. 1131
POWER OF ATTORNEY NOTICE



OC000000089952448*

Date Mailed: 03/17/2017

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/09/2017.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. 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.

/mmasfaw/

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(b).

I hereby appoint:

☒ Practitioners associated with the Customer Number: 121312

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 assignment documents attached to this form in accordance with 37 CFR 3.73(b).

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

☒ The address associated with Customer Number: 121312

OR

<input type="checkbox"/> Firm or Individual Name			
Address			
City	State	Zip	
Country			
Telephone	Fax		


Assignee Name and Address:

Broadcom Corporation
5300 California Ave.
Irvine, California 92617

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, 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

Company Name	BROADCOM CORPORATION		
Name	Bradley D. Blanche		
Signature		Date	February 17, 2014
Title	Associate General Counsel	Telephone	949-926-3656

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.

Electronic Acknowledgement Receipt	
EFS ID:	28577588
Application Number:	13184799
International Application Number:	
Confirmation Number:	1131
Title of Invention:	AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION
First Named Inventor/Applicant Name:	Jeyhan Karaoguz
Customer Number:	16378
Filer:	Christopher J. McKenna/Amanda LaFollette
Filer Authorized By:	Christopher J. McKenna
Attorney Docket Number:	14528.00134
Receipt Date:	09-MAR-2017
Filing Date:	18-JUL-2011
Time Stamp:	09:37:21
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		13184799_373StatementAndP OA.pdf	114390	yes	2
			cfece44dea4a05753730060159f5934f7ae0 23a6		

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Assignee showing of ownership per 37 CFR 3.73	1	1
	Power of Attorney	2	2
Warnings:			
Information:			
Total Files Size (in bytes):		114390	
<p>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.</p> <p><u>New Applications Under 35 U.S.C. 111</u> 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.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> 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.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> 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.</p>			

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(b)Applicant/Patent Owner: Jeyhan KARAOGUZ et al. Attorney Docket Number: 106861-1370Application No./Patent No.: 13/184799 Filed/Issue Date: 7/18/2011Titled: AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATIONBroadcom Corporation
(Name of Assignee)Corporation
(Type of Assignee, e.g., corporation, partnership, university,
government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest;
2. ☐ an assignee of less than the entire right, title, and interest
(The extent (by percentage) of its ownership interest is %); or
3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

in the patent application/patent identified above by virtue of either:

- 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 030152 Frame 0411, or for which a copy thereof is attached.

OR

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

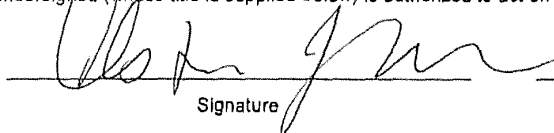
1. From: _____ To: _____
The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.
2. From: _____ To: _____
The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.
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.

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

- ☐ As required by 37 CFR 3.73(b)(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 document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, if the assignment is to be recorded 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.



Signature



Date

Christopher J. McKenna (Reg. No. 53,302)

Printed or Typed Name

Attorney for Applicant

Title

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 1.14. 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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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/184,799	09/18/2012	8270992	14528.00134	1131

16378 7590 08/29/2012
Broadcom/BHGL
P.O. Box 10395
Chicago, IL 60610

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):

Jeyhan Karaoguz, Irvine, CA;
James D. Bennett, Hroznetin, CZECH REPUBLIC;

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), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (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)

16378 7590 05/21/2012
Broadcom/BHGL
P.O. Box 10395
Chicago, IL 60610

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 facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

Lawrence M. Chen	(Depositor's name)
/Lawrence M. Chen/	(Signature)
August 17, 2012	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/184,799	07/18/2011	Jeyhan Karaoguz	14528.00134	1131

TITLE OF INVENTION: AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1740	\$300	\$0	\$2040	08/21/2012

EXAMINER	ART UNIT	CLASS-SUBCLASS
LAM, DUNG LE	2617	455-452200

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 03-02 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 Brinks Hofer Gilson & Lione
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 has been filed for recordation as set forth in 37 CFR 1.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Broadcom Corporation

US

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

4a. The following fee(s) are submitted:

- ☒ Issue Fee
☒ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 23-1925 (enclose an extra copy of this form).

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

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature /Lawrence M. Chen/

Date August 17, 2012

Typed or printed name Lawrence M. Chen

Registration No. 67,768

This collection of information 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 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, 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.

Electronic Patent Application Fee Transmittal				
Application Number:		13184799		
Filing Date:		18-Jul-2011		
Title of Invention:		AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION		
First Named Inventor/Applicant Name:		Jeyhan Karaoguz		
Filer:		Lawrence Chen/Michelle Marsh		
Attorney Docket Number:		14528.00134		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
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	1501	1	1740	1740
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				2040

Electronic Acknowledgement Receipt	
EFS ID:	13520754
Application Number:	13184799
International Application Number:	
Confirmation Number:	1131
Title of Invention:	AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION
First Named Inventor/Applicant Name:	Jeyhan Karaoguz
Customer Number:	16378
Filer:	Lawrence Chen/Maggie Pieczonka
Filer Authorized By:	Lawrence Chen
Attorney Docket Number:	14528.00134
Receipt Date:	17-AUG-2012
Filing Date:	18-JUL-2011
Time Stamp:	12:03:46
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$2040
RAM confirmation Number	8714
Deposit Account	231925
Authorized User	
<p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)</p>	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 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	Transmittal Letter	14528-134-Transmittal.pdf	77993	no	1
			1ad30dc0111c1bbaf5ac9b29729d966910a1be58		
Warnings:					
Information:					
2	Post Allowance Communication - Incoming	14528-134_Comments_on_Reasons_for_Allowance.pdf	78636	no	2
			ab67a3ee4d3384a9f3a215290b181dad18284cf		
Warnings:					
Information:					
3	Issue Fee Payment (PTO-85B)	14528-134_BU3297C3_Issue_Fee_Transmittal.pdf	108876	no	1
			bc17acad65f2fb0d32bd70514255165f4063a691		
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	32264	no	2
			9db988fa2b4f36fa7e449a1109c16eb0d7392715		
Warnings:					
Information:					
Total Files Size (in bytes):			297769		

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.

<p align="center">CERTIFICATE OF EFS FILING UNDER 37 CFR §1.8</p> <p>I hereby certify that this correspondence is being electronically transmitted to the United States Patent and Trademark Office, Commissioner for Patents, via the EFS pursuant to 37 CFR §1.8 on the below date:</p> <p>Date: <u>August 17, 2012</u> Name: <u>Lawrence M. Chen</u> Signature: <u>/Lawrence M. Chen/</u></p>		
--	--	--

**BRINKS
HOFER
GILSON
& LIONE**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Jeyhan Karaoguz, et al.

Appln. No.: 13/184,799

Filed: July 18, 2011

For: Automatic Quality of Service Based
Allocation

Attorney Docket No.: 14528.00134

Examiner: Dung L. Lam

Art Unit: 2617

Conf. No.: 1131

TRANSMITTAL

Mail Stop Issue Fee
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Attached is/are:

☒ Comments on Reasons for Allowance; Issue Fee Transmittal.

Fee calculation:

☐ No additional fee is required.

☐ Small Entity.

☐ An extension fee in an amount of \$_____ for a _____-month extension of time under 37 CFR § 1.136(a).

☐ A petition or processing fee in an amount of \$_____ under 37 CFR § 1.17(_____).

☐ An additional filing fee has been calculated as shown below:

					Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee	OR	Rate	Add'l Fee
Total		Minus			x \$30=			x \$60=	
Indep.		Minus			x 125=			x \$250=	
First Presentation of Multiple Dep. Claim					+\$225=			+ \$450=	
					Total	\$		Total	\$

Fee payment:

☒ Please charge Deposit Account No. 23-1925 in the amount of \$2,040 for Issue Fee (\$1,740) and Publication Fee (\$300).

☐ Payment by credit card in the amount of \$_____ (Form PTO-2038 is attached).

☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,

August 17, 2012
Date

/Lawrence M. Chen/
Lawrence M. Chen (Reg. No. 67,768)

**BRINKS
HOFER
GILSON
& LIONE**

BRINKS HOFER GILSON & LIONE
NBC Tower – Suite 3600, 455 N. Cityfront Plaza Drive, Chicago, IL 60611-5599

CERTIFICATE OF EFS FILING UNDER 37 CFR §1.8

I hereby certify that this correspondence is being electronically transmitted to the United States Patent and Trademark Office, Commissioner for Patents, via the EFS pursuant to 37 CFR §1.8 on the below date:

Date: August 17, 2012 Name: Lawrence M. Chen Signature: /Lawrence M. Chen/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Jeyhan Karaoguz

Appln. No.: 13/184,799

Filed: July 18, 2011

For: Automatic Quality of Service Based
Allocation

Attorney Docket No.: 14528.00134

Examiner: Dung L. Lam

Art Unit: 2617

Conf. No.: 1131

COMMENTS ON REASONS FOR ALLOWANCE

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The Applicant recognizes that in accordance with M.P.E.P. § 1302.14, the reasons for allowance provided by the Examiner do not necessarily include all of the reasons why the claims are allowed. The Applicant does not concede that the stated reasons for allowance are the only grounds for patentability of the allowed claims or that any element excluded from the Examiner's Reasons for Allowance is taught or suggested by the art of record.

Further, the Applicant does not concede that all of the elements identified by the Examiner are required to distinguish the prior art of record or to satisfy the requirements of 35 U.S.C. § 112. In addition, the Examiner does not assert, and the Applicant would not agree, that the stated reasons for allowance have any bearing on the patentability of claims in any other applications.

Each dependent claim stands on its own and is allowable based on its own elements or in combination with one or more elements recited in its base claim(s). The combination of elements need not include all of the elements identified in the stated reasons for allowance.

Respectfully submitted,

Dated: August 17, 2012

/Lawrence M. Chen/
Lawrence M. Chen, Reg. No. 67,768
Attorney for Assignee

BRINKS HOFER GILSON & LIONE
PO BOX 10395
CHICAGO, IL 60610
(312) 321-4200



UNITED STATES PATENT AND TRADEMARK OFFICE

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NOTICE OF ALLOWANCE AND FEE(S) DUE

16378 7590 05/21/2012
Broadcom/BHGL
P.O. Box 10395
Chicago, IL 60610

EXAMINER	
LAM, DUNG LE	
ART UNIT	PAPER NUMBER
2617	

DATE MAILED: 05/21/2012

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/184,799	07/18/2011	Jeyhan Karaoguz	14528.00134	1131

TITLE OF INVENTION: AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1740	\$300	\$0	\$2040	08/21/2012

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 SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

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: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (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)

16378 7590 05/21/2012
Broadcom/BHGL
P.O. Box 10395
Chicago, IL 60610

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 facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/184,799	07/18/2011	Jeyhan Karaoguz	14528.00134	1131

TITLE OF INVENTION: AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1740	\$300	\$0	\$2040	08/21/2012

EXAMINER	ART UNIT	CLASS-SUBCLASS
LAM, DUNG LE	2617	455-452200

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 03-02 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 has been filed for recordation as set forth in 37 CFR 3.11. 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. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

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

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information 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 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, 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.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/184,799	07/18/2011	Jeyhan Karaoguz	14528.00134	1131
16378	7590	05/21/2012	EXAMINER	
Broadcom/BHGL P.O. Box 10395 Chicago, IL 60610			LAM, DUNG LE	
			ART UNIT	PAPER NUMBER
			2617	
DATE MAILED: 05/21/2012				

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

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

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 Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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.	Applicant(s)	
	13/184,799	KARAOGUZ ET AL.	
	Examiner	Art Unit	
	DUNG LAM	2617	

-- 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 3/16/12.

2. ☒ The allowed claim(s) is/are 38-57.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
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 a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ 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. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material	5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____ 7. <input type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____.
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/Dung Lam/ Examiner, Art Unit 2617	/KAMRAN AFSHAR/ Supervisory Patent Examiner, Art Unit 2617
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Allowable Subject Matter

In view of amended claims, approved Terminal Disclaimer, and further search, claims 38-57 are allowed.

The following is an examiner's statement of reasons for allowance:

Claims 38-57 are allowed for the reasons as set forth in applicant's response filed on 3/16/12.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUNG LAM whose telephone number is (571)272-6497. The examiner can normally be reached on M - F 9 - 5:30 pm, Every Other Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamran Afshar can be reached on (571) 272-7667. The fax phone number for the organization where this 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). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dung Lam/
Examiner, Art Unit 2617

/KAMRAN AFSHAR/
Supervisory Patent Examiner, Art Unit 2617

<i>Search Notes</i> 	Application/Control No. 13184799	Applicant(s)/Patent Under Reexamination KARAOGUZ ET AL.
	Examiner DUNG LAM	Art Unit 2617

SEARCHED			
Class	Subclass	Date	Examiner
455	452.1,452.2,552.1,553.1	5/9/12	dl
370	331, 332, 333	5/9/12	dl

SEARCH NOTES		
Search Notes	Date	Examiner
Assignee and Inventor search	5/9/12	DL
East Text Search with subclasses	5/9/12	DL
SPE Kamran Afshar discussed allowability	4/25/12	DL

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	Interference search see search history	5/9/12	dl

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S367	0	(chang\$3 (hand\$3 near2 (over off))) near35 (deliver\$3 send\$3 stream\$3 transmit\$4) near12 (multimedia (digital near2 media) video) near35 (higher better) near2 (quality bandwidth) near35 (second another) near4 (network provider system)	US-PGPUB; USPAT	OR	OFF	2012/05/02 14:38
S368	11	(deliver\$3 send\$3 stream\$3 transmit\$4) near12 (multimedia (digital near2 media) video) near35 (higher better) near2 (quality bandwidth) near35 (second another) near4 (network provider system)	US-PGPUB; USPAT	OR	OFF	2012/05/02 14:39
S369	22	(deliver\$3 send\$3 stream\$3 transmit\$4) near35 (multimedia (digital near2 media) video) near35 (higher better) near2 (quality bandwidth) near35 (second another) near4 (network provider system)	US-PGPUB; USPAT	OR	OFF	2012/05/02 14:40
S370	11	S369 not S368	US-PGPUB; USPAT	OR	OFF	2012/05/02 14:40
S371	23	((deliver\$3 send\$3 stream\$3 transmit\$4) near35 (multimedia (digital near2 media) video) and (higher better) near25 (quality bandwidth) near35 (second another) near4 (network provider system)).clm.	US-PGPUB; USPAT	OR	OFF	2012/05/02 14:42
S372	1	13/184799	US-PGPUB; USPAT	OR	OFF	2012/05/02 14:42
S373	4	((deliver\$3 send\$3 stream\$3 transmit\$4) near35 (multimedia (digital near2 media) video) and (determin\$3 find\$3 found) near25 (higher better) near25 (quality bandwidth) near35 (second another) near4 (network provider system)).clm.	US-PGPUB; USPAT	OR	OFF	2012/05/02 14:47
S374	4	((deliver\$3 send\$3 stream\$3 transmit\$4) near35 (multimedia (digital near2 media) video) and (determin\$3 find\$3 found) near35 (higher better) near25 (quality bandwidth) near35 (second another) near4 (network provider system)).clm.	US-PGPUB; USPAT	OR	OFF	2012/05/02 14:47
S378	1	13/275632	US-PGPUB; USPAT	OR	OFF	2012/05/02 18:39
S379	1	("8041370").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2012/05/02 18:42

S380	10694	(broadcom).as.	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:51
S381	943	(karaoguz and jeyhan).in.	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:51
S382	3458	455/452.1,452.3,452.2.ccls.	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:51
S383	1551	(james and bennett).in.	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:51
S384	682394	(download\$3 transfer\$3) with (data content music webpage music video mp3 mpg)	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:51
S385	15638	S381 S383 S382 S380	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:51
S386	248	S385 and S384 and ((3g and 2g) (4g and 3g))	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:51
S387	2648701	((second or 2nd or another or different) near (system\$2 or device\$1 or apparatus)) or desktop or workstation or pc or pcs or computer	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:52
S388	4117291	resource\$1 or capabilit\$3 or processing or decoding or encoding or codingworkstation or pc or pcs or computer	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:52
S389	576060	((WIRELESS OR WIFI OR WIFI OR BLUETOOTH OR BLUETOOTH OR PERSONAL OR SHORT\$RANGE OR SHORTRANGE) near2 (LINK\$2 OR CONNECTION\$1 OR NETWORK)) OR WLAN OR WLANS OR WPAN OR WPANS OR PAN OR PANS OR PICONET	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:52
S390	81512	S389 near4 (establish\$3 or creat\$3 or initiat\$3 or originat\$5 or sets\$up or setup or connecting or linking or use or using)	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:52
S391	456576	(deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) near15 (video media multimedia music video content)	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:55
S392	1011	(second new different another) near15 (network provider connection) near15 (better higher more) near6 (bandwidth quality)	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:56
S393	87	S391 same S392	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:57
S394	902	(deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) near15 (video media multimedia music video content) near15 (current near15 (quality bandwidth))	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:57
S395	0	S394 same2 S392	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:58
S396	1210	(deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) near25 (video media	US-PGPUB;	OR	OFF	2012/05/09 03:59

		multimedia music video content) near25 (current near25 (quality bandwidth))	USPAT			
S397	9	S394 and S392	US-PGPUB; USPAT	OR	OFF	2012/05/09 03:59
S398	6728	455/436,437,438.ccls.	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:15
S399	7549	(deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) near25 (video media multimedia music video content) near25 (better higher more) near15 (quality bandwidth)	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:16
S400	28	S398 and S399	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:16
S401	2	S400 and @rlad<"20030922"	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:17
S402	78148	(deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) near25 (video media multimedia music video content) and (better higher more) near15 (quality bandwidth qos)	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:19
S403	82	S398 and S402 and @rlad<"20030922"	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:20
S404	1923	((deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) near25 (video media multimedia music video content) and (better higher more) near15 (quality bandwidth qos)).clm.	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:22
S405	1	S398 and S404 and @rlad<"20030922"	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:22
S406	454	S404 and @rlad<"20030922"	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:22
S407	786	((deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) near25 (video media multimedia music video content) same (better higher more) near15 (quality bandwidth qos)).clm.	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:23
S408	1	S398 and S407 and @rlad<"20030922"	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:23
S409	174	S407 and @rlad<"20030922"	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:23
S410	279	((deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) near25 (video media multimedia music video content) same (better higher more) near15 (quality bandwidth qos) and (second another different) near15 (network provider system)).clm.	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:25
S411	66	S410 and @rlad<"20030922"	US-PGPUB;	OR	OFF	2012/05/09 04:25

			USPAT			
S412	164	((deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) near25 (video media multimedia music video content) same (better higher more) near15 (quality bandwidth qos) and (second another different) near4 (network provider system)).clm.	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:29
S413	38	S412 and @rlad<"20030922"	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:29
S414	134	((deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) near25 (video media multimedia music video content) with (better higher more) near15 (quality bandwidth qos) and (second another different) near4 (network provider system)).clm.	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:34
S415	31	S414 and @rlad<"20030922"	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:34
S416	385	((deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) near25 (video media multimedia music video content) and (better higher more) near8 (quality bandwidth qos) and (second another different) near4 (network provider system)).clm.	US-PGPUB; USPAT	OR	OFF	2012/05/09 04:37
S421	1	("20020184645").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2012/05/10 13:37
S422	1	("20040122975").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2012/05/10 13:40
S423	1	("20030236906").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2012/05/10 13:41
S424	2	((("20030236906") or ("20050123058")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2012/05/10 13:46
S425	89	((deliver\$3 send\$3 stream\$3 transmit\$4) same (multimedia (digital near2 media) video) and (deliver\$3 send\$3 stream\$3 transmit\$4 us\$3 utiliz\$3 select\$3) near35 (higher better) near35 (quality bandwidth) near35 (second another)).clm.	US-PGPUB; USPAT	OR	OFF	2012/05/10 17:57
S426	76	((deliver\$3 send\$3 stream\$3 transmit\$4) same (multimedia (digital near2 media) video) and (deliver\$3 send\$3 stream\$3 transmit\$4 us\$3 utiliz\$3 select\$3) near35 (higher better) near35 (quality bandwidth) near35 (second another) and (network connect\$3 server system)).clm.	US-PGPUB; USPAT	OR	OFF	2012/05/10 17:59
S441	1	13/184799	US-PGPUB;	OR	OFF	2012/05/14 21:41


			USPAT			
S451	2	omnidirectional near2 sounding near2 pulse	US-PGPUB; USPAT	OR	OFF	2012/05/15 09:15
S452	2	((("20040015567") or ("20060123053")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2012/05/15 10:58
S453	1	S452 and (client near2 (type profile))	US-PGPUB; USPAT	OR	OFF	2012/05/15 11:17
S454	1	10/544378	US-PGPUB; USPAT	OR	OFF	2012/05/15 12:55
S455	1	("7206612").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2012/05/15 16:18
S456	8489	455/435.2,436,437,438,442,443.ccls.	US-PGPUB; USPAT	OR	OFF	2012/05/15 21:34
S457	692	S456 and (media multimedia video) same (better higher increas\$3)	US-PGPUB; USPAT	OR	OFF	2012/05/15 21:39
S458	366	S456 and (media multimedia video) same (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same (better higher increas\$3)	US-PGPUB; USPAT	OR	OFF	2012/05/15 21:40
S459	202	S456 and (media multimedia video) same (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same (better higher increas\$3) and bandwidth	US-PGPUB; USPAT	OR	OFF	2012/05/15 21:41
S460	3284	(media multimedia video) same (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same ((current first) near10 bandwidth)	US-PGPUB; USPAT	OR	OFF	2012/05/15 21:48
S461	7	S459 and S460	US-PGPUB; USPAT	OR	OFF	2012/05/15 21:48
S462	8489	455/435.2,436,437,438,442,443.ccls.	US-PGPUB; USPAT	OR	OFF	2012/05/16 05:55
S463	0	S462 and ((media multimedia video) same (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same (better higher increas\$3) and bandwidth and "s4590").clm.	US-PGPUB; USPAT	OR	OFF	2012/05/16 05:55
S464	202	S462 and (media multimedia video) same (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same (better higher increas\$3) and bandwidth	US-PGPUB; USPAT	OR	OFF	2012/05/16 05:56
S465	2	S462 and ((media multimedia video) same (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same (better higher increas\$3) and bandwidth and ((media multimedia video) same (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same (better higher increas\$3))) .clm.	US-PGPUB; USPAT	OR	OFF	2012/05/16 05:57

EAST Search History

S466	2	S462 and ((media multimedia video) same3 (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same (better higher increas\$3) and bandwidth and ((media multimedia video) same (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same3 (better higher increas\$3))).clm.	US-PGPUB; USPAT	OR	OFF	2012/05/16 05:59
S467	159553	"455"/\$.ccls.	US-PGPUB; USPAT	OR	OFF	2012/05/16 05:59
S468	26	S467 and ((media multimedia video) same3 (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same (better higher increas\$3) and bandwidth and ((media multimedia video) same (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same3 (better higher increas\$3))).clm.	US-PGPUB; USPAT	OR	OFF	2012/05/16 05:59
S469	5	S467 and ((media multimedia video) same3 (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same (better higher increas\$3) and bandwidth and ((media multimedia video) same (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same3 (better higher increas\$3)) same3 (second new another) near5 (system provider network)).clm.	US-PGPUB; USPAT	OR	OFF	2012/05/16 06:01
S470	2	S467 and ((media multimedia video) and (transmit\$3 transmission send\$3 deliver\$3 stream\$3) near38 (curent present) neaer38 bandwidth and ((media multimedia video) same3 (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same3 (better higher increas\$3)) same3 (second new another) near10 (system provider network)).clm.	US-PGPUB; USPAT	OR	OFF	2012/05/16 06:05

5/ 16/ 2012 6:16:03 AM

C:\Users\dlam2\Documents\EAST\Workspaces\13184799.wsp

Issue Classification 	Application/Control No. 13184799	Applicant(s)/Patent Under Reexamination KARAOGUZ ET AL.
	Examiner DUNG LAM	Art Unit 2617

ORIGINAL						INTERNATIONAL CLASSIFICATION												
CLASS		SUBCLASS				CLAIMED					NON-CLAIMED							
455		452.2				H	0	4	W	72 / 00 (2009.01.01)								
CROSS REFERENCE(S)																		
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)																	
455	452.1	462	451															

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input checked="" type="checkbox"/> T.D. <input type="checkbox"/> R.1.47															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	38	17	54												
2	39	18	55												
3	40	19	56												
4	41	20	57												
5	42														
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7	44														
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13	50														
14	51														
15	52														
16	53														

/DUNG LAM/ Examiner.Art Unit 2617 (Assistant Examiner)	5/14/12 (Date)	Total Claims Allowed: 20	
/KAMRAN AFSHAR/ Supervisory Patent Examiner.Art Unit 2617 (Primary Examiner)	05/16/2012 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 3

EAST Search History

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S375	4	((deliver\$3 send\$3 stream\$3 transmit\$4) near35 (multimedia (digital near2 media) video) and (determin\$3 find\$3 found) near35 (higher better) near25 (quality bandwidth) near35 (second another) near4 (network provider system)).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/02 14:48
S376	4	((deliver\$3 send\$3 stream\$3 transmit\$4) near35 (multimedia (digital near2 media) video) and (determin\$3 find\$3 found) near35 (higher better) near35 (quality bandwidth) near35 (second another) near4 (network provider system)).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/02 14:49
S377	24	((deliver\$3 send\$3 stream\$3 transmit\$4) near35 (multimedia (digital near2 media) video) and (higher better) near35 (quality bandwidth) near35 (second another) near4 (network provider system)).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/02 14:52
S417	397	((deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) near25 (video media multimedia music video content) and (better higher more) near8 (quality bandwidth qos) and (second another different) near4 (network provider system)).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/09 04:37
S418	101	S417 and @rlad<"20030922"	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/09 04:40
S419	64	((deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) near25 (video media multimedia music video content) and (better higher more) near8 (quality bandwidth qos) with (second another different) near4 (network provider system)).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/09 04:41
S420	12	S419 and @rlad<"20030922"	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/09 04:42
S427	620	((deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) and (video media multimedia music video content) and (better higher more) near8 (quality bandwidth qos) and (second another different) near4 (network provider system)).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/10 17:41
S428	388	((deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) and (video media multimedia music video content) and (compar\$3 select\$3) and (better higher	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/10 17:41


		more) near8 (quality bandwidth qos) and (second another different) near4 (network provider system)).clm.				
S429	378	((deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) and (video media multimedia music video content) and (compar\$3 select\$3) and (better higher more) near8 (quality bandwidth qos) and (second another different) near4 (network provis306 and 2der system)).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/10 17:51
S430	6120	(broadcom).as.	USPAT; UPAD	OR	OFF	2012/05/10 17:51
S431	749	(james and bennett).in.	USPAT; UPAD	OR	OFF	2012/05/10 17:51
S432	207	(karaoguz and jeyhan).in.	USPAT; UPAD	OR	OFF	2012/05/10 17:51
S433	6726	S430 S431 S432	USPAT; UPAD	OR	OFF	2012/05/10 17:51
S434	3	S433 and S429	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/10 17:51
S435	1543	((deliver\$3 stream\$3 download\$3 transmit\$4 send\$3) and (video media multimedia music video content) and (better higher more) near8 (quality bandwidth qos) and (second another different) and (network provider system)).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/10 17:53
S436	16	S433 and S435	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/10 17:53
S437	138	((deliver\$3 send\$3 stream\$3 transmit\$4) same (multimedia (digital near2 media) video) and (higher better) near35 (quality bandwidth) near35 (second another)).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/10 17:55
S438	91	((deliver\$3 send\$3 stream\$3 transmit\$4) same (multimedia (digital near2 media) video) and (deliver\$3 send\$3 stream\$3 transmit\$4 us\$3 utiliz\$3 select\$3) near35 (higher better) near35 (quality bandwidth) near35 (second another)).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/10 17:56
S439	54	((deliver\$3 send\$3 stream\$3 transmit\$4) same (multimedia (digital near2 media) video) and (deliver\$3 send\$3 stream\$3 transmit\$4 us\$3 utiliz\$3 select\$3) near35 (higher better) near35 (quality bandwidth) near35 (second another) and (network connect\$3)).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/10 17:58
S440	78	((deliver\$3 send\$3 stream\$3 transmit\$4) same (multimedia (digital near2 media) video) and (deliver\$3 send\$3 stream\$3 transmit\$4 us\$3 utiliz\$3 select\$3) near35 (higher better) near35 (quality bandwidth) near35 (second another) and (network connect\$3 server system)).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/10 17:58

S442	2211292	resource\$1 or capabilit\$3 or processing or decoding or encoding or codingworkstation or pc or pcs or computer	USPAT; UPAD	OR	OFF	2012/05/14 21:51
S443	1306927	((second or 2nd or another or different) near (system\$2 or device\$1 or apparatus)) or desktop or workstation or pc or pcs or computer	USPAT; UPAD	OR	OFF	2012/05/14 21:51
S444	250714	((WIRELESS OR WI\$FI OR WIFI OR BLUETOOTH OR BLUE\$TOOTH OR PERSONAL OR SHORT\$RANGE OR SHORTRANGE) near2 (LINK\$2 OR CONNECTION\$1 OR NETWORK)) OR WLAN OR WLANS OR WPAN OR WPANS OR PAN OR PANS OR PICONET	USPAT; UPAD	OR	OFF	2012/05/14 21:51
S445	10	(S444 near4 (establish\$3 or creat\$3 or initiat\$3 or originat\$5 or sets\$up or setup or connecting or linking or use or using) with S443 with S442 with video).clm.	USPAT; UPAD	OR	OFF	2012/05/14 21:51
S446	21	(S444 with (establish\$3 or creat\$3 or initiat\$3 or originat\$5 or sets\$up or setup or connecting or linking or use or using) with S443 with S442 with video).clm.	USPAT; UPAD	OR	OFF	2012/05/14 21:51
S447	11	S446 not S445	USPAT; UPAD	OR	OFF	2012/05/14 21:51
S448	2211292	resource\$1 or capabilit\$3 or processing or decoding or encoding or codingworkstation or pc or pcs or computer	USPAT; UPAD	OR	OFF	2012/05/14 22:02
S449	1306927	((second or 2nd or another or different) near (system\$2 or device\$1 or apparatus)) or desktop or workstation or pc or pcs or computer	USPAT; UPAD	OR	OFF	2012/05/14 22:02
S450	27	((compar\$3 determin\$3) near12 S448 near12 S449 with (better higher faster more) near8 (quality speed processing) near8 (establish\$3 or creat\$3 or initiat\$3 or originat\$5 or sets\$up or setup or connecting or linking or use or using)).clm.	USPAT; UPAD	OR	OFF	2012/05/14 22:02
S472	160146	"455"/\$.ccls.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/16 06:05
S473	2	S472 and ((media multimedia video) and (transmit\$3 transmission send\$3 deliver\$3 stream\$3) near38 (curent present) neaer38 bandwidth and ((media multimedia video) same3 (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same3 (better higher increas\$3)) same3 (second new another) near10 (system provider network)).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/16 06:05
S474	42	((media multimedia video) and (transmit\$3 transmission send\$3 deliver\$3 stream\$3) near38 (curent present) neaer38 bandwidth and ((media multimedia video) same3 (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same3 (better higher increas\$3)) same3	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/16 06:06

		((second new another) near10 (system provider network)).clm.				
S475	42	((media multimedia video) and (transmit\$3 transmission send\$3 deliver\$3 stream\$3) near38 (curent present) neaer10 bandwidth and ((media multimedia video) same3 (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same3 (better higher increas\$3)) same3 (second new another) near10 (system provider network)).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/16 06:07
S476	1	13/184799	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/16 06:08
S478	1	((media multimedia video) and (transmit\$3 transmission send\$3 deliver\$3 stream\$3) near38 (curent present) neaer10 bandwidth and ((media multimedia video) same3 (transmit\$3 transmission send\$3 deliver\$3 stream\$3) same3 (better higher increas\$3)) same3 (hand\$1off hand\$over (hand near2 (over off))))).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2012/05/16 06:13

5/ 16/ 2012 6:17:20 AM

C:\Users\dlam2\Documents\EAST\Workspaces\13184799.wsp

Application Number 	Application/Control No.	Applicant(s)/Patent under Reexamination	
	13/184,799	KARAOGUZ ET AL.	
Document Code - DISQ		Internal Document – DO NOT MAIL	

TERMINAL DISCLAIMER	<input checked="" type="checkbox"/> APPROVED	<input type="checkbox"/> DISAPPROVED
Date Filed : 05/01/2012	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:

Dorethea Lawrence

U.S. Patent and Trademark Office

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) 14528.00134								
In re Application of: Jeyhan Karaoguz, et al. Application No. 13/184,799 Filed: July 18, 2011 For: Automatic Quality of Service Based Resource Allocation									
<p>The owner*, <u>Broadcom Corporation</u>, of <u>100</u> 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. 7,983,689 as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and 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.</p> <p>In making the above disclaimer, the owner does not disclaim the terminal part 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:</p> <ul style="list-style-type: none"> 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. <p>Check either box 1 or 2 below, if appropriate.</p> <p>1. <input type="checkbox"/> For submissions on behalf of a business/organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the business/organization.</p> <p>I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.</p> <p>2. <input checked="" type="checkbox"/> The undersigned is an attorney or agent of record. Registration No. <u>67,768</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center; border-bottom: 1px solid black;">/Lawrence M. Chen/</td> <td style="width: 50%; text-align: center; border-bottom: 1px solid black;">May 1, 2012</td> </tr> <tr> <td style="text-align: center;">Signature</td> <td style="text-align: center;">Date</td> </tr> <tr> <td style="width: 50%; text-align: center; border-bottom: 1px solid black;">Lawrence M. Chen</td> <td style="width: 50%; text-align: center; border-bottom: 1px solid black;">312 321 4200</td> </tr> <tr> <td style="text-align: center;">Typed or Printed Name</td> <td style="text-align: center;">Telephone No.</td> </tr> </table> <p><input checked="" type="checkbox"/> Terminal disclaimer fee under 37 CFR 1.20(d) is included. <input type="checkbox"/> A check in the amount of the fee is enclosed. <input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any fees which may be required or credit any overpayment to Deposit Account No. 23-1925.</p> <p><u>WARNING:</u> 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.</p> <p><small>*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner). Form PTO/SB/96 may be used for making this certification. See MPEP § 324.</small></p>		/Lawrence M. Chen/	May 1, 2012	Signature	Date	Lawrence M. Chen	312 321 4200	Typed or Printed Name	Telephone No.
/Lawrence M. Chen/	May 1, 2012								
Signature	Date								
Lawrence M. Chen	312 321 4200								
Typed or Printed Name	Telephone No.								

Electronic Patent Application Fee Transmittal				
Application Number:		13184799		
Filing Date:		18-Jul-2011		
Title of Invention:		AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION		
First Named Inventor/Applicant Name:		Jeyhan Karaoguz		
Filer:		Lawrence Chen/Karen Imundo		
Attorney Docket Number:		14528.00134		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
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	1814	1	160	160
Total in USD (\$)				160

Electronic Acknowledgement Receipt	
EFS ID:	12672090
Application Number:	13184799
International Application Number:	
Confirmation Number:	1131
Title of Invention:	AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION
First Named Inventor/Applicant Name:	Jeyhan Karaoguz
Customer Number:	16378
Filer:	Lawrence Chen/Maggie Pieczonka
Filer Authorized By:	Lawrence Chen
Attorney Docket Number:	14528.00134
Receipt Date:	01-MAY-2012
Filing Date:	18-JUL-2011
Time Stamp:	12:36:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$160
RAM confirmation Number	12035
Deposit Account	231925
Authorized User	
<p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)</p>	

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Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 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	Transmittal Letter	14528-134_transmittal-1.pdf	77724	no	1
			9134d4a2e89dc3020e06b5a8678afa6a153bb447		

Warnings:

Information:

2	Terminal Disclaimer Filed	14528-134_Terminal_Disclaimer.pdf	66934	no	1
			a8550b861c392d8bdd5118158dd015c79eb05b5		

Warnings:

Information:

3	Fee Worksheet (SB06)	fee-info.pdf	30438	no	2
			06faec6edc8677e4289e185932cc86b2bd152198		

Warnings:

Information:

Total Files Size (in bytes): 175096

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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.

<p align="center">CERTIFICATE OF EFS FILING UNDER 37 CFR §1.8</p> <p>I hereby certify that this correspondence is being electronically transmitted to the United States Patent and Trademark Office, Commissioner for Patents, via the EFS pursuant to 37 CFR §1.8 on the below date:</p> <p>Date: <u>May 1, 2012</u> Name: <u>Lawrence M. Chen</u> Signature: <u>/Lawrence M. Chen/</u></p>		
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**BRINKS
HOFER
GILSON
& LIONE**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: **Jeyhan Karaoguz et al.**

Appln. No.: **13/184,799**

Filed: **July 18, 2011**

For: **Automatic Quality of Service Based
Resource Allocation**

Attorney Docket No.: **14528.00134**

Examiner: **Dung Le Lam**

Art Unit: **2617**

Conf. No.: **1131**

TRANSMITTAL

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Attached is/are:

☒ Terminal Disclaimer.

Fee calculation:

☐ No additional fee is required.

☐ Small Entity.

☐ An extension fee in an amount of \$_____ for a _____-month extension of time under 37 CFR § 1.136(a).

☐ A petition or processing fee in an amount of \$_____ under 37 CFR § 1.17(_____).

☐ An additional filing fee has been calculated as shown below:

					Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee	OR	Rate	Add'l Fee
Total		Minus			x \$30=			x \$60=	
Indep.		Minus			x 125=			x \$250=	
First Presentation of Multiple Dep. Claim					+\$225=			+ \$450=	
					Total	\$		Total	\$

Fee payment:

☒ Please charge Deposit Account No. 23-1925 in the amount of **\$160** for Terminal Disclaimer.

☐ Payment by credit card in the amount of \$_____ (Form PTO-2038 is attached).

☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,

May 1, 2012
Date

/Lawrence M. Chen/
Lawrence M Chen (Reg. No. 67,762)

**BRINKS
HOFER
GILSON
& LIONE**

BRINKS HOFER GILSON & LIONE
NBC Tower – Suite 3600, 455 N. Cityfront Plaza Drive, Chicago, IL 60611-5599

Certificate Under 37 CFR 1.8

I hereby certify that this correspondence is being electronically transmitted to the U.S. Patent and Trademark Office, Commissioner for Patents, via the EFS on March 16, 2012.

/Lawrence M. Chen/

Lawrence M. Chen, Reg. No. 67,768

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Jeyhan Karaoguz, et al.

Appln. No.: 13/184,799

Filed: July 18, 2011

For: AUTOMATIC QUALITY OF
SERVICE BASED ALLOCATION

Attorney Docket No: 14528.00134

Examiner: Dung L. Lam

Art Unit: 2617

Confirmation No. 1131

AMENDMENT AND RESPONSE TO OFFICE ACTION

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

Dear Commissioner:

In response to the Non-Final Office Action mailed December 16, 2011 ("Office Action"), Assignee requests reconsideration and allowance of the present claims in view of the following amendments and remarks.

Amendments to the Claims begin on page 2 of this response.

Remarks begin on page 8 of this response.

AMENDMENTS TO THE CLAIMS

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

LISTING OF CLAIMS

1-37. (Canceled)

38. (Currently Amended) In a portable system, a method for providing a digital media service to a user, the method comprising:

~~providing a~~ delivering digital media content having a current quality level ~~service~~
to a user ~~at a current quality level~~;

determining that a network connection with a second system is available and is
characterized by a communication bandwidth that is high enough to provide the digital
media ~~service~~ content to the user at a quality level higher than the current quality level;
and

~~in response to at least said determining, utilizing the network connection to~~
~~provide the digital media service to the user at a quality level higher than the current~~
~~quality level.~~

using the network connection to obtain the digital media content at the higher
quality level from the second system; and

delivering the digital media content at the higher quality level to the user instead
of the digital media content at the current quality level.

39. (Currently Amended) The method of claim 38, where the digital media content ~~service~~ is

a-video media ~~service~~.

40. (Currently Amended) The method of claim 38, where the digital media content ~~service~~ is
~~an~~-audio media ~~service~~.

41. (Currently Amended) The method of claim 38, wherein said determining comprises
communicating information of the communication bandwidth with ~~[[a]]~~the second system.

42. (Currently Amended) The method of claim 38, where the portable system automatically
performs, without user interaction, ~~said providing~~, said determining, ~~and said utilizing using, and~~
said delivering the digital media content at the higher quality level to the user.

43. (Currently Amended) A portable system for providing a digital media service to a
user, the portable system comprising:

at least one component operable to, at least:

~~provide a~~ deliver digital media content having a current quality level
~~service to a user at a current quality level;~~

determine that a network connection with a second system is available and
is characterized by a communication bandwidth that is high enough to provide the
digital media ~~service~~ content to the user at a quality level higher than the current
quality level; ~~and;~~

~~in response to at least said determining, utilize the network connection to~~
~~provide the digital media service to the user at a quality level higher than the~~

~~current quality level.~~

use the network connection to obtain the digital media content at the
higher quality level from the second system; and
deliver the digital media content at the higher quality level to the user
instead of the digital media content at the current quality level.

44. (Currently Amended) The portable system of claim 43, where the digital media content service is ~~a video media service~~.

45. (Currently Amended) The portable system of claim 43, where the digital media content service is ~~an audio media service~~.

46. (Currently Amended) The portable system of claim 43, where said at least one component is operable to determine that a network connection is available and characterized by a communication bandwidth that is high enough to provide the digital media service to the user at a quality level higher than the current quality level by, at least in part, operating to communicate information of the communication bandwidth with ~~[[a]]~~the second system.

47. (Currently Amended) The portable system of claim 43, where the at least one component is operable to automatically perform, without user interaction, ~~said providing,~~ said determining, and said utilizing using, and said delivering the digital media content at the higher quality level to the user.

48. (Currently Amended) In a portable system, a method for providing a digital media service to a user, the method comprising:

~~providing a~~ delivering digital media content having a current quality level service
to a user ~~at a current quality level;~~

communicating with a second system regarding communication bandwidth of
a network connection ~~provided by~~ with the second system;

determining, based at least in part on said communicating, that the network
connection is available and characterized by at least a minimum ~~required~~ determined
communication bandwidth; ~~and~~

in response to at least said determining, utilizing the network connection to
~~provide~~ receive the digital media content service ~~to the user~~ at a quality level higher
than the current quality level; and

delivering the digital media content at the higher quality level to the user instead
of the digital media content at the current quality level.

49. (Currently Amended) The method of claim 48 where the digital media content service is
~~a video media service.~~

50. (Currently Amended) The method of claim 48, where the digital media content service is
~~an audio media service.~~

51. (Currently Amended) The method of claim 48, where the portable system
automatically performs, without user interaction, said communicating, said determining and

said utilizing.

52. (Previously Presented) The method of claim 48, comprising communicating with the second system regarding sources of information to which the second system has access.

53. (Currently Amended) A portable system for providing a digital media service to a user, the portable system comprising:

at least one component operable to, at least:

~~provide a~~ deliver digital media content having a current quality level ~~service~~ to a user ~~at a current quality level~~;

communicate with a second system regarding communication bandwidth of a network connection ~~provided by~~ with the second system;

determine, based at least in part on said communicating, that the network connection is available and characterized by at least a minimum ~~required~~ determined communication bandwidth; ~~and~~

in response to at least said determining, utilize the network connection to ~~provide~~ receive the digital media content ~~service to the user~~ at a quality level higher than the current quality level; and

deliver the digital media content at the higher quality level to the user instead of the digital media content at the current quality level.

54. (Currently Amended) The portable system of claim 53, where the digital media content ~~service~~ is a video media service.

55. (Currently Amended) The portable system of claim 53, where the digital media content service is ~~an~~ audio media-service.

56. (Currently Amended) The portable system of claim 53, where the at least one component is operable to automatically perform, without user interaction, said communicating, said determining and said utilizing.

57. (Previously Presented) The portable system of claim 53, where the at least one component is operable to communicate with the second system regarding sources of information to which the second system has access.

REMARKS

I. Summary

The present application includes claims 38-57. Claims 38-57 are rejected by the Office Action. By this amendment, claims 38-51 and 53-56 have been amended. No new matter has been added. Support for the claim amendments can be found throughout the specification, including, at least, at paragraphs [26]-[29], [39], and [49]-[52].

II. Rejections under 35 U.S.C. § 103

Claims 38-57 are rejected under 35 U.S.C. §103(a) as being unpatentable over Jagadeesan et al., U.S. Patent App. Pub. No. 2005/0059400 (“Jagadeesan”) in view of Kayama et al., U.S. Patent App. Pub. No. 2003/0017838 (“Kayama”).

Claims 38-57

As amended, claim 38 recites in part:

delivering digital media content having a current quality level to a user;
...
using the network connection to **obtain the digital media content at the higher quality level from the second system**; and
delivering the digital media content at the higher quality level to the user instead of the digital media content at the current quality level.

(Emphasis added). Thus, claim 1 recites delivering digital media content at a current quality level to a user, obtaining the digital media content at a higher quality level from a second system, and delivering the digital media content at the higher quality level to the user. Assignee submits Jagadeesan and Kayama, whether taken alone or in combination, fail to disclose at least the above-emphasized features of claim 38.

Jagadeesan generally discloses a method for handing off a call between networks. (Jagadeesan, Abstract). Specifically, Jagadeesan monitors the quality of **communication links** from which a mobile station may communicate, such as a WLAN communication link or a cellular network communication link. (Jagadeesan, paragraphs [0032] and [0033]). However, though Jagadeesan may disclose a mobile station switching between communication links based on link quality, the source of the **content** transmitted across the communication links (*i.e.*, the voice data) remains the same. Indeed, Jagadeesan specifically states “[a] **handoff of the existing call** may occur” if the link quality of a second communication link is greater than the link quality of the communication link currently used by the mobile station. (Jagadeesan, paragraph [0035], Emphasis added). That is, in Jagadeesan, prior to transmission by either the WLAN or the cellular network, the voice data is the same. And as a whole, Jagadeesan fails to disclose or suggest obtaining voice data from another source, let alone obtaining digital media content at a higher quality level from the second system, as recited in claim 38. As such, Jagadeesan also necessary fails to teach, disclose, or suggest delivering the digital media content at the higher quality level to the user instead of the digital media content at the current quality level, as recited in claim 38. Thus, Assignee submits Jagadeesan fails to teach, disclose, or suggest all the features recited in claim 38.

Kayama fails to remedy the deficiencies of Jagadeesan. Kayama generally discloses a method through which a mobile station selects from a plurality of radio base stations to communicate through. (Kayama, Abstract.) Kayama, like Jagadeesan, relates to selection of a communication medium, and fails to disclose, teach, or suggest obtaining digital media content at a higher quality level from the second system, as recited in claim 38. As such, Assignee

Application Serial No. 13/184,799
Response dated March 16, 2012
Non-Final Office Action mailed on December 16, 2011

submits claim 38 is patentable over Jagadeesan and Kayama, taken alone or in combination, and respectfully requests the rejection of claim 38 be withdrawn.

Although different in scope, Assignee submits claims 43, 48, and 53, which recite features consistent to claim 38, are also patentable over the cited references for consistent reasons as discussed above. Assignee further submits claims 39-42; claims 44-47; claims 49-52; and claims 54-57, which depend directly from claims 38, 43, 48, and 53 respectively, are also patentable over the cited references for at least the reasons discussed above. Thus, Assignee respectfully requests the rejections of claims 39-57 also be withdrawn as well.

CONCLUSION

In view of the above amendments and remarks, Assignee respectfully submits that this application is in condition for allowance and such action is earnestly requested. The Examiner is invited and encouraged to contact the undersigned attorney at the number below for further assistance to expedite allowance of this application.

Respectfully submitted,

Date: March 16, 2012

/Lawrence M. Chen/
Lawrence M. Chen
Registration No. 67,768
Attorney for Assignee

BRINKS HOFER GILSON & LIONE
CUSTOMER NO. 16378

Telephone: (312) 321-4200
Facsimile: (312) 321-4299

Electronic Acknowledgement Receipt	
EFS ID:	12329040
Application Number:	13184799
International Application Number:	
Confirmation Number:	1131
Title of Invention:	AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION
First Named Inventor/Applicant Name:	Jeyhan Karaoguz
Customer Number:	16378
Filer:	Lawrence Chen
Filer Authorized By:	
Attorney Docket Number:	14528.00134
Receipt Date:	16-MAR-2012
Filing Date:	18-JUL-2011
Time Stamp:	19:18:46
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	14528-134_Transmittal.pdf	204930 53f78a688a47268016cdbc98cc80fdc30437afe	no	1
Warnings:					
Information:					

2		14528-134_OA_Response.pdf	401792	yes	10
	<div>397e474c66dd33c9ee1c637dddb908c991c07edd</div>				
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	7	
	Applicant Arguments/Remarks Made in an Amendment		8	10	
Warnings:					
Information:					
Total Files Size (in bytes):			606722		
<p>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.</p> <p><u>New Applications Under 35 U.S.C. 111</u> 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.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> 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.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> 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.</p>					

<p align="center">CERTIFICATE OF EFS FILING UNDER 37 CFR §1.8</p> <p>I hereby certify that this correspondence is being electronically transmitted to the United States Patent and Trademark Office, Commissioner for Patents, via the EFS pursuant to 37 CFR §1.8 on the below date:</p> <p>Date: <u>March 16, 2012</u> Name: <u>Lawrence M. Chen</u> Signature: <u>/Lawrence M. Chen/</u></p>		
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GILSON
& LIONE**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Jeyhan Karaoguz, et al.

Appln. No.: 13/184,799

Filed: July 18, 2011

For: Automatic Quality of Service Based
Allocation

Attorney Docket No.: 14528.00134

Examiner: Dung L. Lam

Art Unit: 2617

Conf. No.: 1131

TRANSMITTAL

Mail Stop Amendment
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Attached is/are:

☒ Amendment and Response to Office Action.

Fee calculation:

☒ No additional fee is required.

☐ Small Entity.

☐ An extension fee in an amount of \$_____ for a _____-month extension of time under 37 CFR § 1.136(a).

☐ A petition or processing fee in an amount of \$_____ under 37 CFR § 1.17(_____).

☐ An additional filing fee has been calculated as shown below:

					Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee	OR	Rate	Add'l Fee
Total		Minus			x \$30=			x \$60=	
Indep.		Minus			x 125=			x \$250=	
First Presentation of Multiple Dep. Claim					+\$225=			+\$450=	
					Total	\$		Total	\$

Fee payment:

☐ Please charge Deposit Account No. 23-1925 in the amount of \$_____ for _____.

☐ Payment by credit card in the amount of \$_____ (Form PTO-2038 is attached).

☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,

March 16, 2012
Date

/Lawrence M. Chen/
Lawrence M. Chen (Reg. No. 67,768)

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& LIONE**

BRINKS HOFER GILSON & LIONE
NBC Tower – Suite 3600, 455 N. Cityfront Plaza Drive, Chicago, IL 60611-5599

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 13/184,799		Filing Date 07/18/2011		<input type="checkbox"/> To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)		SMALL ENTITY <input type="checkbox"/>		OR		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	RATE (\$)	FEE (\$)				
<input type="checkbox"/> BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A		N/A					
<input type="checkbox"/> SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A		N/A					
<input type="checkbox"/> EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A		N/A					
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$	=	X \$	=				
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$	=	X \$	=				
<input type="checkbox"/> APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 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).									
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
			TOTAL		TOTAL					
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT	03/16/2012	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)		
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X \$ =	OR	X \$60=	0	
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$ =	OR	X \$250=	0	
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))									
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE		TOTAL ADD'L FEE	0	
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =	OR	X \$ =		
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =	OR	X \$ =		
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))									
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE		TOTAL ADD'L FEE		
<p>* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.</p> <p>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".</p> <p>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".</p> <p>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.</p>										

Legal Instrument Examiner:
/DEBRA R. WYATT/

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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UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/184,799	07/18/2011	Jeyhan Karaoguz	14528.00134

16378
Broadcom/BHGL
P.O. Box 10395
Chicago, IL 60610

CONFIRMATION NO. 1131
POA ACCEPTANCE LETTER



Date Mailed: 01/17/2012

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/06/2012.

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.

/mnguyen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/184,799	07/18/2011	Jeyhan Karaoguz	15211US05

CONFIRMATION NO. 1131

POWER OF ATTORNEY NOTICE

23446
MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661



Date Mailed: 01/17/2012

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/06/2012.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/mnguyen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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 (b).

I hereby appoint:

☒ Practitioners associated with the Customer Number: 16378 - Broadcom/BHGL (Chicago)
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 assignment documents attached to this form in accordance with 37 CFR 3.73(b).

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

☒ The address associated with Customer Number: 16378 - Broadcom/BHGL (Chicago)

OR

<input type="checkbox"/> Firm or Individual Name			
Address			
City	State	Zip	
Country			
Telephone			Email

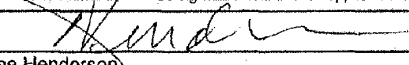
Assignee Name and Address:

Broadcom Corporation
5300 California Avenue
Irvine, CA 92617
United States

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, 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		Date	30-NOV-2011
Name	Dee Henderson		
Title	Title: Director, Intellectual Property Administration Broadcom Corporation	Telephone:	(949) 926-5958

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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& LIONE

BRINKS HOFER GILSON & LIONE
NBC Tower - Suite 3600, 455 N. Cityfront Plaza Drive, Chicago, IL 60611-5599

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Broadcom Corporation
 Application/Patent No.: 13/184,799 Filed/Issue Date: 7/18/2011
 Title: AUTOMATIC QUALITY OF SERVICE BASED RESOURCE
ALLOCATION

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

states that it is:

1. ☐ the assignee of the entire right, title, and interest; or
2. ☐ an assignee of less than the entire right, title and interest
 (The extent (by percentage) of its ownership interest is ___ %); or
3. ☒ the assignee of an undivided interest in the entirety of (a complete assignment from at least one of the joint inventors was made) in the patent application/patent identified above by virtue of either:
- A. ☒ An assignment from the inventor(s) of the patent application/patent identified above or a chain of title from the inventor(s) to Broadcom Corporation. The assignment was/were recorded in the U.S. Patent and Trademark Office as follows where x/y indicates Real/Frame Number.

1. 015076/0893

Assignors: James D. Bennett and Jeyhan Karaoguz

Assignee: Broadcom Corporation

- ☐ Additional documents in the chain of title are listed on a supplemental sheet(s)
- ☒ As required by 37 CFR 3.73(b)(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 documents(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.

/John F. Nethery/ 06-January-2012
 Signature Date

John F. Nethery, Reg. No. 42,928 312 321 4200
 Printed or Typed Name Telephone Number

Attorney for Assignee
 Title

Electronic Acknowledgement Receipt

EFS ID:	11781592
Application Number:	13184799
International Application Number:	
Confirmation Number:	1131
Title of Invention:	AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION
First Named Inventor/Applicant Name:	Jeyhan Karaoguz
Customer Number:	23446
Filer:	John F. Nethery/Joel Silva
Filer Authorized By:	John F. Nethery
Attorney Docket Number:	15211US05
Receipt Date:	06-JAN-2012
Filing Date:	18-JUL-2011
Time Stamp:	18:05:19
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		14528-00134_Power_Stmt.pdf	113560	yes	3
			1f17f9b81a8641d2328b5bb8f78e555d4b78d3c2		

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Miscellaneous Incoming Letter	1	1
	Power of Attorney	2	2
	Assignee showing of ownership per 37 CFR 3.73(b).	3	3
Warnings:			
Information:			
Total Files Size (in bytes):		113560	
<p>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.</p> <p><u>New Applications Under 35 U.S.C. 111</u> 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.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> 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.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> 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.</p>			

CERTIFICATE OF EFS FILING UNDER 37 CFR §1.8

This correspondence is being electronically transmitted to the United States Patent and Trademark Office, Commissioner for Patents, via the EFS pursuant to 37 CFR §1.8 on the below date:

Date: January 6, 2012 Name: John F. Nethery, Registration No. 42,928 Signature: /John F. Nethery/

BRINKS
HOFER
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& LIONE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: Karaoguz, Jeyhan; Bennett, James

Appln. No.: 13/184,799

Filed: 7/18/2011

For: AUTOMATIC QUALITY OF SERVICE
BASED RESOURCE ALLOCATION

Examiner: N/A

Art Unit: 2617

Conf. No.: 1131

Attorney Docket No.: 14528.00134

TRANSMITTAL

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Attached is/are:

☒ Transmittal Cover Letter (1p.); General Power of Attorney (1p.); Statement Under 37 CFR 3.73 (b) (1p.).

Fee calculation:

☒ No additional fee is required.

Fee payment:

☐ Please charge Deposit Account No. 23-1925 in the amount of \$___ for ___.

☐ Payment by credit card in the amount of \$___ (Form PTO-2038 is attached).

☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

January 6, 2012

Date

Respectfully submitted,

/John F. Nethery/

John F. Nethery (Reg. No. 42,928)

BRINKS
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/184,799	07/18/2011	Jeyhan Karaoguz	15211US05	1131
23446 7590 12/16/2011 MCANDREWS HELD & MALLOY, LTD 500 WEST MADISON STREET SUITE 3400 CHICAGO, IL 60661			EXAMINER LAM, DUNG LE	
			ART UNIT 2617	PAPER NUMBER
			NOTIFICATION DATE 12/16/2011	DELIVERY MODE 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):

mhmpto@mcandrews-ip.com

Office Action Summary	Application No.	Applicant(s)	
	13/184,799	KARAOGUZ ET AL.	
	Examiner	Art Unit	
	DUNG LAM	2617	

-- 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 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, 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 ____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ 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

4) ☒ Claim(s) 38-57 is/are pending in the application.

4a) Of the above claim(s) ____ is/are withdrawn from consideration.

5) ☐ Claim(s) ____ is/are allowed.

6) ☒ Claim(s) 38-57 is/are rejected.

7) ☐ Claim(s) ____ is/are objected to.

8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on ____ 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).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

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).
a) ☐ All b) ☐ Some c) ☐ None of:
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) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>7/18/11</u> .	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. 5) <input type="checkbox"/> Notice of Informal Patent Application 6) <input type="checkbox"/> Other: _____.
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DETAILED ACTION

Information Disclosure Statement

The Information Disclosure Statement submitted on 7/18/11 has been considered by the examiner (see attached PTO-1449 form).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 38-57 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jagadeesan** (US 2005/0059400) in view of **Kayama** (US Pub 20030017838).

Regarding **claim 38**, **Jagadeesan** teaches in a portable system, a method for providing a digital media service to a user, the method comprising:

providing a digital media service (video [0016]; “Data or information, as used herein in this document may refer to any type of numeric, voice, *video*”) to a user at a current quality level (quality of a first link at the beginning of the flow chart of Fig. 3, [0047]);

determining that a network connection is available and characterized by a communication parameter (quality of the link, [0048]) that is high enough to provide the digital media service to the user at a quality level higher than the current quality level (“At step 106, if the quality of the second link is greater than a minimum cellular link quality threshold then the method proceeds to step 108.”, [0048] Fig. 3); and

in response to at least said determining, utilizing the network connection to provide the digital media service to the user at a quality level higher than the current quality level (“At step 106, if the quality

of the second link is greater than a minimum cellular link quality threshold then the method proceeds to step 108. At step 108, the call is handed off from the WLAN to the cellular network” [0048], Fig. 3).

Jagadeesan teaches the communication parameter for selection of a second link is based on signal strength. However, he does not explicitly teach the communication parameter for selection of a second link is based on bandwidth. In an analogous art, Kayama teaches the determining parameter for selecting a link can be based on bandwidth (“At this time it is necessary to determine which of available capacity (bandwidth) or received level has higher priority... the available capacity may have priority over the received level”, [0044]). Thus it would have been obvious for one of ordinary skill in the art at the time of the invention to modify Jagadeesan’s teaching of selecting a new link based on bandwidth as taught by Kayama in order to satisfy the subscriber’s capacity requirement as well as improving radio transmission speed and frequency efficiency ([0011]).

Regarding **claim 43**, **Jagadeesan** teaches a portable system for providing a digital media service to a user, the portable system comprising:

at least one component (“Controller 42 may also perform such handoff at an appropriate time according to certain conditions, as further discussed below generally with respect to mobile station 12”, [0029]) operable to, at least:

providing a digital media service (video [0016]; “Data or information, as used herein in this document may refer to any type of numeric, voice, *video*”) to a user at a current quality level (quality of a first link at the beginning of the flow chart of Fig. 3, [0047]);

determining that a network connection is available and characterized by a communication parameter (quality of the link, [0048]) that is high enough to provide the digital media service to the user at a quality level higher than the current quality level (“At step 106, if the quality of the second link is greater than a minimum cellular link quality threshold then the method proceeds to step 108.”, [0048] Fig. 3); and

in response to at least said determining, utilizing the network connection to provide the digital media service to the user at a quality level higher than the current quality level (“At step 106, if the quality

of the second link is greater than a minimum cellular link quality threshold then the method proceeds to step 108. At step 108, the call is handed off from the WLAN to the cellular network” [0048], Fig. 3).

Jagadeesan teaches the communication parameter for selection of a second link is based on signal strength. However, he does not explicitly teach the communication parameter for selection of a second link is based on bandwidth. In an analogous art, Kayama teaches the determining parameter for selecting a link can be either (“In this embodiment, the received level has higher priority than the available capacity when selecting an adjacent radio base station to communicate with the mobile station. Of course, the available capacity may have priority over the received level”, [0044]). Thus it would have been obvious for one of ordinary skill in the art at the time of the invention to implement Jagadeesan of selecting a new link based on either signal strength or bandwidth as taught by Kayama as a matter of design choice and the modification would yield the same predictable result.

Regarding claim 48, **Jagadeesan** teaches in a portable system, a method for providing a digital media service to a user, the method comprising:

providing a digital media service (video [0016]; “Data or information, as used herein in this document may refer to any type of numeric, voice, *video*”) to a user at a current quality level (quality of a first link at the beginning of the flow chart of Fig. 3, [0047]);

providing a digital media service (video [0016]; “Data or information, as used herein in this document may refer to any type of numeric, voice, *video*”) to a user at a current quality level (quality of a first link at the beginning of the flow chart of Fig. 3, [0047]);

determining that a network connection is available and characterized by a communication parameter (quality of the link, [0048]) that is high enough to provide the digital media service to the user at a quality level higher than the current quality level (“At step 106, if the quality of the second link is greater than a minimum cellular link quality threshold then the method proceeds to step 108.”, [0048] Fig. 3); and

in response to at least said determining, utilizing the network connection to provide the digital media service to the user at a quality level higher than the current quality level (“At step 106, if the quality

of the second link is greater than a minimum cellular link quality threshold then the method proceeds to step 108. At step 108, the call is handed off from the WLAN to the cellular network” [0048], Fig. 3).

Jagadeesan teaches the communication parameter for selection of a second link is based on signal strength.

However, he does not explicitly teach the communication parameter for selection of a second link is based on bandwidth and communicating with a second system regarding communication bandwidth of a network connection provided by the second system; determining, based at least in part on said communicating,.

In an analogous art, Kayama teaches the determining parameter for selecting a link can be either (“In this embodiment, the received level has higher priority than the available capacity when selecting an adjacent radio base station to communicate with the mobile station. Of course, the available capacity may have priority over the received level”, [0044]). Thus it would have been obvious for one of ordinary skill in the art at the time of the invention to implement Jagadeesan of selecting a new link based on either signal strength or bandwidth as taught by Kayama as a matter of design choice and the modification would yield the same predictable result.

Kayama further teaches the step communicating with a second system regarding communication bandwidth of a network connection provided by the second system ([0043] “In FIG. 2, the radio base station 2-1 inquires (2-8, 2-9, 2-10) about radio channel availability of each of the three adjacent radio stations”); determining, based at least in part on said communicating ([0043] “Based on the reports from the mobile station 1-8 and the adjacent radio base stations 2-2 through 2-4, the radio base station 2-1 makes an administration table as shown in FIG. 3. The administration table includes received levels of the adjacent radio base stations measured by the mobile station, and available capacities of these bases stations.”), that the network connection is available and characterized by at least a minimum required communication bandwidth (“When the mobile station requires 32 kbps bandwidth, FIG. 3 shows that the adjacent radio base stations (renumbered from FIG. 2) 1-3 (64 kbps) and 1-4 (384 kbps) satisfy the bandwidth requirement”, [0043]). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to implement Jagadeesan of handover/selecting a new link to also include

Kayama's teaching of communicating with a second system regarding communication bandwidth of a network connection provided by the second system because Kayaman's teaching provides provide a radio base station selection method and system in which network cost is not increased, and searching time for available radio channels is shortened to assign radio channels with high speed ([0017]).

Regarding claim 53, **Jagadeesan** teaches a portable system for providing a digital media service to a user, the portable system comprising:

at least one component ("Controller 42 may also perform such handoff at an appropriate time according to certain conditions, as further discussed below generally with respect to mobile station 12", [0029]) operable to, at least:

providing a digital media service (video [0016]; "Data or information, as used herein in this document may refer to any type of numeric, voice, *video*") to a user at a current quality level (quality of a first link at the beginning of the flow chart of Fig. 3, [0047]);

providing a digital media service (video [0016]; "Data or information, as used herein in this document may refer to any type of numeric, voice, *video*") to a user at a current quality level (quality of a first link at the beginning of the flow chart of Fig. 3, [0047]);

determining that a network connection is available and characterized by a communication parameter (quality of the link, [0048]) that is high enough to provide the digital media service to the user at a quality level higher than the current quality level ("At step 106, if the quality of the second link is greater than a minimum cellular link quality threshold then the method proceeds to step 108.", [0048] Fig. 3); and

in response to at least said determining, utilizing the network connection to provide the digital media service to the user at a quality level higher than the current quality level ("At step 106, if the quality of the second link is greater than a minimum cellular link quality threshold then the method proceeds to step 108. At step 108, the call is handed off from the WLAN to the cellular network" [0048], Fig. 3).

Jagadeesan teaches the communication parameter for selection of a second link is based on signal strength.

However, he does not explicitly teach the communication parameter for selection of a second link is based on bandwidth and communicating with a second system regarding communication bandwidth of a network connection provided by the second system; determining, based at least in part on said communicating,.

In an analogous art, Kayama teaches the determining parameter for selecting a link can be either (“In this embodiment, the received level has higher priority than the available capacity when selecting an adjacent radio base station to communicate with the mobile station. Of course, the available capacity may have priority over the received level”, [0044]). Thus it would have been obvious for one of ordinary skill in the art at the time of the invention to implement Jagadeesan of selecting a new link based on either signal strength or bandwidth as taught by Kayama as a matter of design choice and the modification would yield the same predictable result.

Kayama further teaches the step communicating with a second system regarding communication bandwidth of a network connection provided by the second system ([0043] “In FIG. 2, the radio base station 2-1 inquires (2-8, 2-9, 2-10) about radio channel availability of each of the three adjacent radio stations”); determining, based at least in part on said communicating ([0043] “Based on the reports from the mobile station 1-8 and the adjacent radio base stations 2-2 through 2-4, the radio base station 2-1 makes an administration table as shown in FIG. 3. The administration table includes received levels of the adjacent radio base stations measured by the mobile station, and available capacities of these bases stations.”), that the network connection is available and characterized by at least a minimum required communication bandwidth (“When the mobile station requires 32 kbps bandwidth, FIG. 3 shows that the adjacent radio base stations (renumbered from FIG. 2) 1-3 (64 kbps) and 1-4 (384 kbps) satisfy the bandwidth requirement”, [0043]). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to implement Jagadeesan of handover/selecting a new link to also include Kayama’s teaching of communicating with a second system regarding communication bandwidth of a network connection provided by the second system because Kayaman’s teaching provides provide a radio base station selection method and system in which network cost is not increased, and searching time for available radio channels is shortened to assign radio channels with high speed ([0017]).

Regarding **claim 39, Jagadeesan and Kayaman teach** the method of claim 38, where the digital media service is a video media service (video [0016]; “Data or information, as used herein in this document may refer to any type of numeric, voice, *video*”).

Regarding **claim 40, Jagadeesan and Kayaman teach** the method of claim 38, where the digital media service is an audio media service (voice [0016]; “Data or information, as used herein in this document may refer to any type of numeric, voice, *video*”).

Regarding **claim 41, Jagadeesan and Kayaman teach** the method of claim 38, wherein said determining comprises communicating information of the communication bandwidth with a second system ([0043] “In FIG. 2, the radio base station 2-1 inquires (2-8, 2-9, 2-10) about radio channel availability of each of the three adjacent radio stations”).

Regarding **claim 42, Jagadeesan and Kayaman teach** the method of claim 38, where the portable system automatically performs, without user interaction, said providing, said determining, and said utilizing (**Jagadeesan**, automatically [0008]).

Regarding claim 44, **Jagadeesan and Kayaman teach** 44 the portable system of claim 43, where the digital media service is a video media service (**Jagadeesan** video [0016]; “Data or information, as used herein in this document may refer to any type of numeric, voice, *video*”).

Regarding **claim 45, Jagadeesan and Kayaman teach** the portable system of claim 43, where the digital media service is an audio media service (voice [0016]; “Data or information, as used herein in this document may refer to any type of numeric, voice, *video*”).

Regarding **claim 46, Jagadeesan and Kayaman teach** the portable system of claim 43, where said at least one component is operable to determine that a network connection is available and characterized by a communication bandwidth that is high enough to provide the digital media service to the user at a quality level higher than the current quality level by, at least in part, operating to communicate information of the communication bandwidth with a second system (**Jagadeesan** “At step 106, if the quality of the second link is greater than a minimum cellular link quality threshold then the method

proceeds to step 108. At step 108, the call is handed off from the WLAN to the cellular network” [0048], Fig. 3).

Regarding claim 47, **Jagadeesan and Kayaman teach** the portable system of claim 43, where the at least one component is operable to automatically perform, without user interaction, said providing, said determining, and said utilizing (**Jagadeesan**, automatically [0008]).

Regarding claim 49, **Jagadeesan and Kayaman teach** the method of claim 48, where the digital media service is a video media service (video [0016]; “Data or information, as used herein in this document may refer to any type of numeric, voice, *video*”).

Regarding claim 50, **Jagadeesan and Kayaman teach** the method of claim 48, where the digital media service is an audio media service (**Kayaman** voice [0016]; “Data or information, as used herein in this document may refer to any type of numeric, voice, *video*”).

Regarding claim 51, **Jagadeesan and Kayaman teach** the method of claim 48, where the portable system automatically performs, without user interaction, said communicating, said determining and said utilizing (**Jagadeesan**, automatically [0008]).

Regarding claim 52, **Jagadeesan and Kayaman teach** the method of claim 48, comprising communicating with the second system regarding sources of information to which the second system has access (**Kayaman** [0043] “In FIG. 2, the radio base station 2-1 inquires (2-8, 2-9, 2-10) about radio channel availability of each of the three adjacent radio stations”).

Regarding claim 54, **Jagadeesan and Kayaman teach** the portable system of claim 53, where the digital media service is a video media service (**Kayaman** video [0016]; “Data or information, as used herein in this document may refer to any type of numeric, voice, *video*”).

Regarding claim 55, **Jagadeesan and Kayaman teach** the portable system of claim 53, where the digital media service is an audio media service (**Kayaman** voice [0016]; “Data or information, as used herein in this document may refer to any type of numeric, voice, *video*”).

Regarding claim 56, **Jagadeesan and Kayaman teach** the portable system of claim 53, where the at least one component is operable to automatically perform, without user interaction, said communicating, said determining and said utilizing (**Jagadeesan**, automatically [0008])..

Regarding claim 57, **Jagadeesan and Kayaman teach** the portable system of claim 53, where the at least one component is operable to communicate with the second system regarding sources of information to which the second system has access (**Kayaman** [0043] “In FIG. 2, the radio base station 2-1 inquires (2-8, 2-9, 2-10) about radio channel availability of each of the three adjacent radio stations”)..

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUNG LAM whose telephone number is (571)272-6497. The examiner can normally be reached on M - F 9 - 5:30 pm, Every Other Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamran Afshar can be reached on (571) 272-7667. The fax phone number for the organization where this 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). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dung Lam/
Examiner, Art Unit 2617

/KAMRAN AFSHAR/
Supervisory Patent Examiner, Art Unit 2617

Notice of References Cited	Application/Control No. 13/184,799		Applicant(s)/Patent Under Reexamination KARAOGUZ ET AL.	
	Examiner DUNG LAM		Art Unit 2617	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2003/0017838 A1	01-2003	Kayama et al.	455/525
*	B	US-2004/0165557 A1	08-2004	Backes et al.	370/332
*	C	US-7,756,082 B1	07-2010	Dhamdhere, Deepak P.	370/331
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	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.

Receipt date: 07/18/2011

13184799 - GAIL:2617

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

Approved for use through 07/31/2012. OMB 0651-0031

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		2011-07-18
	First Named Inventor	Jeyhan Karaoguz	
	Art Unit	2617	
	Examiner Name	Lam, Dung Le	
	Attorney Docket Number	15211US05	

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5475677		1995-12-12	Arnold et al.	
	2	6445921		2002-09-03	Bell, John R.	
	3	6931249		2005-08-16	Fors et al.	
	4	7221946		2007-05-22	Karaoguz et al.	
	5	7532893		2009-05-12	Karaoguz et al.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13184799 - GAU: 2617	
	Filing Date		2011-07-18	
	First Named Inventor	Jeyhan Karaoguz		
	Art Unit	2617		
	Examiner Name	Lam, Dung Le		
	Attorney Docket Number	15211US05		

	1	20010036830		2001-11-01	Wu et al.	
	2	20040165563		2004-08-26	Hsu et al.	
	3	20050059400		2005-03-17	Jagadeesan et al.	
	4	20050064873		2005-03-24	Karaoguz et al.	
	5	20070202856		2007-08-30	Karaoguz et al.	
	6	20090219880		2009-09-03	Karaoguz et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13184799 - GAU: 2617	
	Filing Date		2011-07-18	
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	Art Unit	2617		
	Examiner Name	Lam, Dung Le		
	Attorney Docket Number	15211US05		

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Examiner Signature	/Dung Lam/		Date Considered 12/05/2011
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S248	0	((select\$3 connect\$3) near8 S246 with S247 with (better higher) near8 (video) same (establish\$3 or creat\$3 or initiat\$3 or originat\$5 or sets\$up or setup or connecting or linking or use or using))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/02/13 10:02
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S257	23	S256 and (umts wcdma 3g) and 2g and (((internet web) near4 (brows\$3)) webpage content))	US-PGPUB; USPAT	OR	OFF	2011/02/14 05:56
S268	9926	(broadcom).as.	US-PGPUB; USPAT	OR	OFF	2011/12/04 19:02
S269	814	(karaoguz and jeyhan).in.	US-PGPUB; USPAT	OR	OFF	2011/12/04 19:02
S270	3231	455/452.1,452.3,452.2.ccls.	US-PGPUB; USPAT	OR	OFF	2011/12/04 19:02
S271	1467	(james and bennett).in.	US-PGPUB; USPAT	OR	OFF	2011/12/04 19:02
S272	14540	S268 S269 S271 S270	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/04 19:02
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S274	538415	(faster higher better) near8 (quality bandwidth speed)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/04 19:36
S275	613945	(faster higher better) with (quality bandwidth speed)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/04 19:37
S276	28003	((faster higher better) with (quality	US-PGPUB;	OR	OFF	2011/12/04

		bandwidth speed)).clm.	USPAT; EPO; JPO; DERWENT; IBM_TDB			19:37
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S281	7	((utiliz\$3 select\$3) with (faster higher better) NEAR8 (bandwidth) same (video multi?media)).clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/04 19:44
S282	1	("20020152082").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2011/12/04 19:49
S283	222433	digital near2 (video media)	US-PGPUB; USPAT	OR	OFF	2011/12/04 20:03
S284	387	digital near2 (video media) near6 session	US-PGPUB; USPAT	OR	OFF	2011/12/04 20:03
S285	282716	digital near5 ((video media) session)	US-PGPUB; USPAT	OR	OFF	2011/12/04 20:04
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S288	1812	455/ 452.2.ccls.	US-PGPUB; USPAT	OR	OFF	2011/12/04 20:04
S289	2955	455/ 552.1.ccls.	US-PGPUB; USPAT	OR	OFF	2011/12/04 20:06
S290	1218	455/ 553.1.ccls.	US-PGPUB; USPAT	OR	OFF	2011/12/04 20:06
S291	6867	S286 S288 S289 S290	US-PGPUB; USPAT	OR	OFF	2011/12/04 20:07
S292	25	S288 and (S289 S290)	US-PGPUB; USPAT	OR	OFF	2011/12/04 20:07
S293	22	S292 and (video media digital)	US-PGPUB; USPAT	OR	OFF	2011/12/04 20:08
S294	1	12/619236	US-PGPUB; USPAT	OR	OFF	2011/12/04 20:10
S295	0	12/619391	US-PGPUB; USPAT	OR	OFF	2011/12/04 20:12
S296	1	12/620017	US-PGPUB;	OR	OFF	2011/12/04

			USPAT			20:16
S297	1	13/184799	US-PGPUB; USPAT	OR	OFF	2011/12/04 20:18
S298	1	13/053692	US-PGPUB; USPAT	OR	OFF	2011/12/04 20:21
S309	3	11/689995	US-PGPUB; USPAT	OR	OFF	2011/12/05 01:16
S310	0	S309 and digital near2 video	US-PGPUB; USPAT	OR	OFF	2011/12/05 01:16
S311	3	S309 and digital	US-PGPUB; USPAT	OR	OFF	2011/12/05 01:16
S312	3	S309 and video	US-PGPUB; USPAT	OR	OFF	2011/12/05 01:18
S313	62774	((faster higher better) near12 (bandwidth speed) and (video multi? media))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/05 01:25
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S315	1812	455/452.2.ccls.	US-PGPUB; USPAT	OR	OFF	2011/12/05 01:26
S316	2955	455/552.1.ccls.	US-PGPUB; USPAT	OR	OFF	2011/12/05 01:26
S317	1218	455/553.1.ccls.	US-PGPUB; USPAT	OR	OFF	2011/12/05 01:26
S318	6867	S314 S315 S316 S317	US-PGPUB; USPAT	OR	OFF	2011/12/05 01:26
S319	298	S313 and S318	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/05 01:26
S320	24	S313 and S318 and (hand?off hand? over (hand near4 (off over)))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/05 01:27
S321	1	("20050059400").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2011/12/05 01:53
S322	2	((("20050059400") or ("20040165563"))).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2011/12/05 02:17
S323	2	S322 and (data digital video multimedia)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/05 02:19
S324	3	((("20050059400") or ("20040165563") or ("20070202856"))).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2011/12/05 02:22
S325	55	"6535739" "6591116" "20040203732" "20040018853" "20050009524" "20090295905" "6772125" "20020152082" "20040203815"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/05 02:29

S326	9	((("6535739") or ("6591116") or ("20040203732") or ("20040018853") or ("20050009524") or ("20090295905") or ("6772125") or ("20020152082") or ("20040203815"))).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2011/12/05 02:29
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S328	11	S327 and (transparent\$2 (without near5 (manual input user) automatic\$5))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/05 02:31
S329	2	S328 and (bandwith (data near2 rate) speed) near12 (faster higher better)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/05 02:32
S330	1	S328 and (bandwith (data near2 rate) speed) near12 (faster higher better) and (video multi?media)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/05 02:33
S331	2	S328 and (bandwith (data near2 rate) speed) with (faster higher better)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/05 02:38
S332	6	S327 and (transparent\$2 (without near5 (manual input user) automatic\$5)) and (bandwith (data near2 rate) speed) and (video multi?media)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/05 02:46
S333	6	S327 and (transparent\$2 (without near5 (manual input user) automatic\$5)) and (bandwith ((access data) near2 rate) speed) and (video multi?media)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/05 02:56
S334	5323	370/331.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/05 07:14
S335	1902	370/332.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/05 07:14
S336	483	370/333.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/05 07:14
S337	6998	S334 S335 S336	US-PGPUB;	OR	OFF	2011/12/05

EAST Search History

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S338	502	S337 and (transparent\$2 (without near5 (manual input user) automatic\$5)) and (bandwith ((access data) near2 rate) speed) and (video multi?media)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/05 07:14
S339	12	S337 and (transparent\$2 (without near5 (manual input user) automatic\$5)) and (select\$3 hand? over hand?off (hand near6 (off over))) with (higher better faster) near6 (bandwith ((access data) near2 rate) speed) and (video multi?media)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/12/05 07:16

12/ 5/ 2011 7:30:23 AM

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BIB DATA SHEET

CONFIRMATION NO. 1131

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
13/184,799	07/18/2011	455	2617	15211US05		
RULE						
APPLICANTS Jeyhan Karaoguz, Irvine, CA; James D. Bennett, Hroznetin, CZECH REPUBLIC; ** CONTINUING DATA ***** This application is a CON of 12/464,255 05/12/2009 PAT 7,983,689 which is a CON of 11/689,995 03/22/2007 PAT 7,532,893 which is a CON of 10/875,891 06/24/2004 PAT 7,221,946 which claims benefit of 60/504,876 09/22/2003 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 07/29/2011						
Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Verified and /DUNG LE LAM/ Acknowledged Examiner's Signature		<input type="checkbox"/> Met after Allowance Initials	STATE OR COUNTRY CA	SHEETS DRAWINGS 5	TOTAL CLAIMS 1	INDEPENDENT CLAIMS 1
ADDRESS MCANDREWS HELD & MALLOY, LTD 500 WEST MADISON STREET SUITE 3400 CHICAGO, IL 60661						
TITLE AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION						
FILING FEE RECEIVED 1090	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit		


<i>Search Notes</i> 	Application/Control No. 13184799	Applicant(s)/Patent Under Reexamination KARAOGUZ ET AL.
	Examiner DUNG LAM	Art Unit 2617

SEARCHED			
Class	Subclass	Date	Examiner
455	452.1,452.2,552.1,553.1	12/4/11	dl
370	331, 332, 333	12/4/11	dl

SEARCH NOTES		
Search Notes	Date	Examiner
East Text Search with subclasses	12/4/11	DL
Assignee and Inventor search	12/4/11	DL


INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	Interference search see search history	12/4/11	dl

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<i>Index of Claims</i> 	Application/Control No. 13184799	Applicant(s)/Patent Under Reexamination KARAOGUZ ET AL.
	Examiner DUNG LAM	Art Unit 2617

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

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant										<input type="checkbox"/> CPA										<input type="checkbox"/> T.D.										<input type="checkbox"/> R.1.47									
CLAIM		DATE																																					
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<i>Index of Claims</i> 	Application/Control No. 13184799	Applicant(s)/Patent Under Reexamination KARAOGUZ ET AL.
	Examiner DUNG LAM	Art Unit 2617

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

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CLAIM		DATE								
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PLUS Search Results for S/N 13184799, Searched Fri Dec 02 11:07:46 EST 2011
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.

6947410 99	6542593 80
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/184,799	07/18/2011	Jeyhan Karaoguz	15211US05

CONFIRMATION NO. 1131

PUBLICATION NOTICE

23446
MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661



Title:AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION

Publication No.US-2011-0274078-A1

Publication Date:11/10/2011

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.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Attorney Docket No. 15211US05)

In the Application of:)
)
J. Karaoguz, et al.)
)
Serial No.: 13/184,799)
)
Filed: July 18, 2011)
)
For: AUTOMATIC QUALITY OF)
SERVICE BASED RESOURCE)
ALLOCATION)
)
Examiner: Unassigned)
)
Group Art Unit: 2472)
)
Conf. No.: 1131)
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Cust. No.: 23446)

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SUPPLEMENTAL PRELIMINARY AMENDMENT

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P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The Applicants submit this Supplemental Preliminary Amendment in connection with the above recently filed application, filed on July 18, 2011, which is a continuation of Serial No. 12/464,255, filed May 12, 2009. Please amend the application as provided below prior to any action on the merits. Note that the amendments below are described relative to the Preliminary Amendment filed on July 18, 2011.

Amendments to the Specification begin on page 2.

Amendments to the Claims begin on page 3.

Remarks begin on page 7.

Appln. No.: 13/184,799
Supplemental Prelim. Amdt. dated Aug. 11, 2011
Attorney Docket No. 15211US05

Amendments to the Specification

Please replace paragraph [01] with the following amended paragraph:

[01] This patent application is a CONTINUATION of ~~co-pending~~ U.S. Patent Application No. 12/464,255, filed May 12, 2009, now U.S. Patent No. 7,983,689, which is a CONTINUATION of U.S. Patent Application No. 11/689,995, filed March 22, 2007, now ~~issued~~ U.S. Patent No. 7,532,893, which is a CONTINUATION of U.S. Patent Application No. 10/875,891, filed June 24, 2004, now U.S. Patent No. 7,221,946, which is related to and claims priority from provisional patent application serial number 60/504,876, filed September 22, 2003. The above-identified applications are hereby incorporated herein by reference in their entirety.

Amendments to the Claims:

Please cancel claim 1 and add new claims 38-57, as follows. This listing of claims will replace all prior versions and listings of claims in the application:

1-37. (Canceled)

38. (New) In a portable system, a method for providing a digital media service to a user, the method comprising:

providing a digital media service to a user at a current quality level;

determining that a network connection is available and characterized by a communication bandwidth that is high enough to provide the digital media service to the user at a quality level higher than the current quality level; and

in response to at least said determining, utilizing the network connection to provide the digital media service to the user at a quality level higher than the current quality level.

39. (New) The method of claim 38, where the digital media service is a video media service.

40. (New) The method of claim 38, where the digital media service is an audio media service.

41. (New) The method of claim 38, wherein said determining comprises communicating information of the communication bandwidth with a second system.

42. (New) The method of claim 38, where the portable system automatically performs, without user interaction, said providing, said determining, and said utilizing.

43. (New) A portable system for providing a digital media service to a user, the portable system comprising:

at least one component operable to, at least:

provide a digital media service to a user at a current quality level;

determine that a network connection is available and characterized by a communication bandwidth that is high enough to provide the digital media service to the user at a quality level higher than the current quality level; and;

in response to at least said determining, utilize the network connection to provide the digital media service to the user at a quality level higher than the current quality level.

44. (New) The portable system of claim 43, where the digital media service is a video media service.

45. (New) The portable system of claim 43, where the digital media service is an audio media service.

46. (New) The portable system of claim 43, where said at least one component is operable to determine that a network connection is available and characterized by a communication bandwidth that is high enough to provide the digital media service to the user at a quality level higher than the current quality level by, at least in part, operating to communicate information of the communication bandwidth with a second system.

47. (New) The portable system of claim 43, where the at least one component is operable to automatically perform, without user interaction, said providing, said determining, and said utilizing.

48. (New) In a portable system, a method for providing a digital media service to a user, the method comprising:

providing a digital media service to a user at a current quality level;

communicating with a second system regarding communication bandwidth of a network connection provided by the second system;

determining, based at least in part on said communicating, that the network connection is available and characterized by at least a minimum required communication bandwidth ; and

in response to at least said determining, utilizing the network connection to provide the digital media service to the user at a quality level higher than the current quality level.

49. (New) The method of claim 48, where the digital media service is a video media service.

50. (New) The method of claim 48, where the digital media service is an audio media service.

51. (New) The method of claim 48, where the portable system automatically performs, without user interaction, said communicating, said determining and said utilizing.

52. (New) The method of claim 48, comprising communicating with the second system regarding sources of information to which the second system has access.

53. (New) A portable system for providing a digital media service to a user, the portable system comprising:

at least one component operable to, at least:

provide a digital media service to a user at a current quality level;

communicate with a second system regarding communication bandwidth of a network connection provided by the second system;

determine, based at least in part on said communicating, that the network connection is available and characterized by at least a minimum required communication bandwidth; and

in response to said determining, utilize the network connection to provide the digital media service to the user at a quality level higher than the current quality level.

54. (New) The portable system of claim 53, where the digital media service is a video media service.

55. (New) The portable system of claim 53, where the digital media service is an audio media service.

56. (New) The portable system of claim 53, where the at least one component is operable to automatically perform, without user interaction, said communicating, said determining and said utilizing.

57. (New) The portable system of claim 53, where the at least one component is operable to communicate with the second system regarding sources of information to which the second system has access.

Appln. No.: 13/184,799
Supplemental Prelim. Amdt. dated Aug. 11, 2011
Attorney Docket No. 15211US05

REMARKS

This Supplemental Preliminary Amendment cancels claim 1 and adds new claims 38-57. Please amend the application as provided below prior to any action on the merits.

The Commissioner is hereby authorized to charge any additional fees, to charge any fee deficiencies or to credit any overpayments to the deposit account of McAndrews, Held & Malloy, Account No. 13-0017.

Dated: Aug. 11, 2011

Respectfully submitted,

/Shawn L. Peterson/
Shawn L. Peterson
Attorney for applicants
Reg. No. 44,286

McAndrews, Held & Malloy, Ltd.
500 West Madison Street, 34th Floor
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Telephone: (312) 775-8000
Facsimile: (312) 775-8100

Electronic Acknowledgement Receipt

EFS ID:	10714416
Application Number:	13184799
International Application Number:	
Confirmation Number:	1131
Title of Invention:	AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION
First Named Inventor/Applicant Name:	Jeyhan Karaoguz
Customer Number:	23446
Filer:	Shawn Leonard Peterson/Darlene Long
Filer Authorized By:	Shawn Leonard Peterson
Attorney Docket Number:	15211US05
Receipt Date:	11-AUG-2011
Filing Date:	18-JUL-2011
Time Stamp:	13:13:35
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		15211US05_BU3297C3_-_Supplemental_Preliminary_Amendment.pdf	94802	yes	7
			b6941f47a80bc633033c0880cad257638eb19bf3		

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Preliminary Amendment	1	1
	Specification	2	2
	Claims	3	6
	Applicant Arguments/Remarks Made in an Amendment	7	7
Warnings:			
Information:			
Total Files Size (in bytes):		94802	
<p>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.</p> <p><u>New Applications Under 35 U.S.C. 111</u> 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.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> 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.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> 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.</p>			

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 13/184,799			
APPLICATION AS FILED - PART I									
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY			
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)		
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	330		
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	540		
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	220		
TOTAL CLAIMS (37 CFR 1.16(i))	1	minus 20 = *				x 52 =	0.00		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1	minus 3 = *				x 220 =	0.00		
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$270 (\$135 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		
			TOTAL			TOTAL	1090		
* If the difference in column 1 is less than zero, enter "0" in column 2.									
APPLICATION AS AMENDED - PART II									
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		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			TOTAL ADD'L FEE		
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		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			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.									



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/184,799	07/18/2011	2472	1090	15211US05	1	1

CONFIRMATION NO. 1131

FILING RECEIPT

23446
MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661



0000000049042835

Date Mailed: 08/05/2011

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**

Applicant(s)

Jeyhan Karaoguz, Irvine, CA;
James D. Bennett, Hroznetin, CZECH REPUBLIC;

Assignment For Published Patent Application

BROADCOM CORPORATION, Irvine, CA

Power of Attorney: The patent practitioners associated with Customer Number 23446

Domestic Priority data as claimed by applicant

This application is a CON of 12/464,255 05/12/2009 PAT 7,983,689
which is a CON of 11/689,995 03/22/2007 PAT 7,532,893
which is a CON of 10/875,891 06/24/2004 PAT 7,221,946
which claims benefit of 60/504,876 09/22/2003

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)

If Required, Foreign Filing License Granted: 07/29/2011

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/184,799**

Projected Publication Date: 11/10/2011

Non-Publication Request: No

Early Publication Request: No

Title

AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION

Preliminary Class

370

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 (1-866-999-4158).

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NOT GRANTED

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/184,799	07/18/2011	Jeyhan Karaoguz	15211US05

CONFIRMATION NO. 1131
POA ACCEPTANCE LETTER

23446
MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661



Date Mailed: 08/05/2011

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/18/2011.

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.

/ebekele/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Attorney Docket No. 15211US05)**

In the Application of:)
)
J. Karaoguz, et al.)
)
Serial No.: CON of 12/464,255)
)
Filed: Herewith)
)
For: AUTOMATIC QUALITY OF)
SERVICE BASED RESOURCE)
ALLOCATION)
)
Examiner: Lam, Dung Le)
)
Group Art Unit: 2617)
)
Conf. No.: unassigned)
)
Cust. No.: 23446)

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence
is being transmitted via EFS-Web to the
United States Patent and Trademark
Office on July 18, 2011.

/Shawn L. Peterson/

Shawn L. Peterson

Reg. No. 44,286

PRELIMINARY AMENDMENT

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

Sir:

Applicants respectfully submit this Preliminary Amendment in connection with the above-identified, newly filed continuation application. Kindly amend the application as set forth below.

The present application is at least a CONTINUATION of co-pending U.S. Patent Application No. 12/464,255, filed May 12, 2009, expected to issue as U.S. Patent No. 7,983,689 on July 19, 2011, which was prosecuted under **Examiner Dung Le Lam of Group Art Unit 2617**.

Amendments to the Specification begin on page 2.

Amendments to the Claims begin on page 3.

Remarks begin on page 4.

U.S. Application No. Unassigned, filed July 18, 2011
Attorney Docket No. 15211US05
Preliminary Amendment dated July 18, 2011

Amendments to the Specification

Please replace paragraph [01] with the following amended paragraph:

[01] This patent application is a CONTINUATION of co-pending U.S. Patent Application No. 12,464,255, which is a CONTINUATION of U.S. Application No. 11,689,995, filed March 22, 2007, now issued U.S. Patent No. 7,532,893, which is a CONTINUATION of U.S. Patent Application No. 10/875,891, filed June 24, 2004, now U.S. Patent No. 7,221,946, which is related to and claims priority from provisional patent application serial number 60/504,876, filed September 22, 2003, ~~and titled "AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION," the contents of which~~ The above-identified applications are hereby incorporated herein by reference in their entirety.

Amendments to the Claims

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

1. (Original) In a wireless communication network that comprises a first system providing a current service at a current quality level to a user, a method for allocating a resource of a second system to provide improved quality of service to the user, the method comprising:

establishing a wireless communication link between the first system and the second system;

determining whether utilizing a resource of the second system will provide the current service to the user at a higher quality level than the current quality level; and

if it is determined that utilizing the resource of the second system will provide the current service to the user at a higher quality level, then allocating the resource of the second system for such utilization.

Claims 2-37. (Cancelled)

U.S. Application No. Unassigned, filed July 18, 2011
Attorney Docket No. 15211US05
Preliminary Amendment dated July 18, 2011

REMARKS

Applicants respectfully request entry of this preliminary amendment.

In the claims, claims 2-37 have been cancelled without prejudice. At present, only claim 1 is pending.

However, Applicants respectfully reserve the right and intend to further amend the claims in a supplemental preliminary amendment before the commencement of an official examination on the merits.

The Examiner is respectfully requested to call Applicants' representative at the below-listed telephone number before commencing an official examination on the merits without first receiving a supplemental preliminary amendment.

With respect to the present application, Applicants hereby rescind any disclaimer of claim scope made in the parent application or any predecessor or related application. The Examiner is advised that any previous disclaimer of claim scope, if any, and the alleged prior art that it was made to allegedly avoid, may need to be revisited. Nor should a disclaimer of claim scope, if any, in the present application be read back into any predecessor or related application.

The Commissioner is hereby authorized to charge any additional fees, to charge any fee deficiencies or to credit any overpayments to the deposit account of McAndrews, Held & Malloy, Account No. 13-0017.

Dated: July 18, 2011

Respectfully submitted,

/Shawn L. Peterson/

Shawn L. Peterson

Reg. No. 44,286

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**AUTOMATIC QUALITY OF
SERVICE BASED RESOURCE ALLOCATION**

**CROSS-REFERENCE TO RELATED APPLICATIONS/INCORPORATION BY
REFERENCE**

[01] This patent application is related to and claims priority from provisional patent application serial number 60/504,876 filed September 22, 2003, and titled "AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION," the contents of which are hereby incorporated herein by reference in their entirety.

[FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT]

[02] [Not Applicable]

[SEQUENCE LISTING]

[03] [Not Applicable]

[MICROFICHE/COPYRIGHT REFERENCE]

[04] [Not Applicable]

BACKGROUND OF THE INVENTION

[05] In a dynamic network environment, various processing resources may freely enter and leave a network. Such resources may have superior or inferior service providing capabilities to other resources already present in the dynamic network. For example, a system providing relatively low quality audio service may enter a dynamic wireless network that includes one or more systems capable of providing a relatively high quality audio service. Also, for example, a system entering a dynamic wireless network may have the capability to deliver relatively high quality video, email, or numerical processing capability to a user. Additionally, for example, a system with access to relatively low quality information may enter a dynamic wireless network having a system resource with access to relatively high quality information.

[06] Further limitations and disadvantages of conventional and traditional approaches will become apparent to one of skill in the art, through comparison of such systems with the present invention as set forth in the remainder of the present application with reference to the drawings.

BRIEF SUMMARY OF THE INVENTION

[07] Various aspects of the present invention provide a system and method for allocating and utilizing resources in a dynamic communication network. For example, a wireless communication network may comprise a first system and a second system. The first and second systems may, for example, be portable or stationary systems. The first system may provide a current service to a user at a current quality level. Such a current service may, for example, include any of a variety of audio, video, textual, graphical or communication services.

[08] A wireless communication link may be established between the first and second systems. For example, the first and second systems may comprise respective communication modules to establish such a wireless communication link. The wireless communication link may be based on any of a number of standard and proprietary wireless communication protocols.

[09] The first and second systems may, for example, communicate capability information, and at least one of the first and second systems may determine whether utilizing one or more resources of the second system will provide the current service to the user at a higher level of quality than the current quality level. For example, the first and second systems may comprise respective quality control modules that utilize respective communication modules to communicate capability information. Such capability information may comprise, for example and without limitation, processing capability, communication capability, and information access capability information. One or both of the quality control modules may, for example, determine whether utilizing one or more resources of the second system will provide the current service to the user at a higher quality level.

[10] One or more resources of the second system may be allocated for providing the current service to a user at a higher quality level. Such an allocation may, for example, be in response to a determination (*e.g.*, made by a quality control module) that utilization of the allocated resource(s) will provide the current service to the user at a higher quality level. For

example, at least one of the first and second systems may comprise a resource allocation module to perform such a resource allocation.

[11] The allocated resource(s) may be utilized to provide the current service to the user at a higher quality level than the current quality level. For example, the first and second systems may comprise respective distributed processing modules that manage such resource utilization. For example, the respective distributed processing modules may communicate information of pre-processed and post-processed information between the first and second systems.

[12] These and other advantages, aspects and novel features of the present invention, as well as details of illustrative aspects thereof, will be more fully understood from the following description and drawings.

BRIEF DESCRIPTION OF SEVERAL VIEWS OF THE DRAWINGS

[13] Figure 1 is a flow diagram illustrating a method for quality of service based resource allocation and utilization in a dynamic wireless network environment, in accordance with various aspects of the present invention.

[14] Figure 2 is a flow diagram illustrating a method in a first system for quality of service based resource allocation and utilization in a dynamic wireless network environment, in accordance with various aspects of the present invention.

[15] Figure 3 is a flow diagram illustrating a method in a second system for quality of service based resource allocation and utilization in a dynamic wireless network environment, in accordance with various aspects of the present invention.

[16] Figure 4 is a diagram showing a system that implements quality of service based resource allocation and utilization in a dynamic wireless network environment, in accordance with various aspects of the present invention.

[17] Figure 5 is a diagram showing an exemplary audio resource allocation scenario, in accordance with various aspects of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[18] Figure 1 is a flow diagram illustrating a method 100 for quality of service based resource allocation and utilization in a dynamic wireless network environment, in accordance with various aspects of the present invention. The method 100 begins at step 110. Various events and conditions may cause the method 100 to begin. For example, a user may request that a first system provide a service to the user, or the first system may automatically decide to provide a service to a user. Generally, the method 100 may be initiated for a variety of reasons. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular initiating events or conditions.

[19] The method, at step 120, may comprise the first system providing a service to the user. A “service” is generally a function performed by the first system for the ultimate benefit of the user. For example and without limitation, a service may comprise an audio output service, a video output service, a textual interface service, an audio interface service, a video interface service, a data processing service, an email service, etc. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of a particular provided service.

[20] Figure 5 illustrates an exemplary network scenario 500 where the first system 510 comprises a personal digital assistant (“PDA”) 515 initially providing music to a user through a headset 520 communicatively coupled to the PDA 515 through a communication link 525, which may be a tethered or non-tethered link. The user may, for example, have requested at step 110 that the first system 510 provide music to the user from a song play list, which represents a portion of a store of music information local to the PDA 515. It is to be stressed at this point that the following discussion will often refer to the exemplary scenario 500 shown in Figure 5 as an exemplary illustration of various aspects of the present invention that are in fact of much broader scope than aspects of the exemplary scenario 500 may demonstrate. Accordingly, by no means is the scope of various aspects of the present invention to be limited by characteristics of the exemplary scenario 500 shown in Figure 5.

[21] Referring back to Figure 1, the method 100, at step 130, comprises determining whether a second system is accessible to the first system in the dynamic wireless communication network. Such a determination may be made, for example, utilizing various “hello,” “advertising” and “beacon” protocols that wireless systems may utilize to maintain their networks. Systems of a dynamic network may utilize a variety of methods to detect the presence and availability of other systems. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of a particular method, standard or protocol for detecting the presence or availability of a system in a wireless communication network.

[22] If step 130 determines that there is not a second system accessible to the first system, then the flow of the method 100 may return to step 120, where the first system may continue to deliver the current service to the user. Alternatively, if step 130 determines that there is a second system accessible to the first system, then the flow of the method 100 may proceed to step 140. Note that step 130 may, for example, be initiated automatically (*e.g.*, without real-time user interaction) or may be initiated by request (*e.g.*, by a user requesting a higher quality service).

[23] For example and without limitation, refer to the exemplary scenario 500 of Figure 5. The user and the first system 510 may, for example, be mobile and may move within the boundaries of a wireless communication network of which the second system 550 is a member. The first 510 and/or second 550 systems may, for example, periodically transmit an advertising message. For example, in an exemplary scenario, the second system 550 may transmit a periodic advertising message. The first system 510 may move within range to hear the advertising message and respond to the second system 550.

[24] Referring back to Figure 1, the method 100, at step 140, may comprise establishing a wireless communication link between the first system and the second system. Such a communication link may be based on any of a variety of wireless communication protocols and standards. For example, the first system and second system may establish a communication link based on standards, such as IEEE 802.11, 802.15, UWB, Bluetooth, or

other standard or proprietary protocols. Such a communication link may also, for example, include aspects of USB and Ethernet communication links. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of a particular communication protocol, standard or method.

[25] Referring to the exemplary scenario 500 of Figure 5, the first system 510 and second system 550 may, for example, establish a wireless communication link 551 between the first system 510 and the second system 550 based on IEEE 802.11.

[26] Referring back to Figure 1, the method 100, at step 150, may determine whether utilizing the second system (or various resources thereof) will increase the quality at which the current service is being provided to the user. The first system and second system may, for example, communicate a variety of information over the communication link established at step 140 to make such a determination. Generally, the quality determination may involve any of a large variety of quality metrics (*e.g.*, audio/video output quality, rate of response to user input, duration over which the service may be provided, number of information consumption options available to a user, variety of information that may be accessed, quality of information that may be accessed, rate at which such information may be accessed, etc.). Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of one or more particular service quality metrics.

[27] The determination at step 150 may, for example, include determining an indication of the current quality level at which the first system is currently providing the current service to the user. Such a current quality level may, for example, be compared to the expected quality at which the current service may be provided to the user by utilizing various resources of the second system.

[28] In the exemplary scenario 500 illustrated in Figure 5, the PDA 515 may be communicating audio information to the headset 520 over the communication link 525. The current service (*e.g.*, the communication of audio information to the user) may, for example, utilize audio information obtained from 64Kbps MP3 encoded information residing on the PDA 515. For example, the user of the PDA 515 may have decided to store MP3

information in the PDA 515 memory in a highly compressed state, thereby trading audio quality for the ability to store more music. The first system 510 or the second system 550 may determine the current quality of the audio information being provided to the user.

[29] Referring back to Figure 1, step 150 may comprise communicating quality of service information between the first system and the second system. Such quality of service information may take any of a variety of forms. For example and without limitation, the quality of service information may include information of the quality of the current service being provided to the user by the first system or the potential quality at which the current service may be provided to the user by utilizing various resources of the second system.

[30] Step 150 may comprise communicating information between the first and second systems of whether the first or second system has processing capability, which if utilized, would result in the current service being provided to the user at a higher level of quality than the current quality level. For example and without limitation, the first and second systems may communicate information of data decoding and processing capability. Such processing capability may be, for example, related to available hardware or software resources. The first and second systems may, for example, communicate information of various computer applications that the first and second systems may execute. Such computer applications may, for example, comprise audio processing applications, video processing applications, text processing applications, numerical processing applications, etc.

[31] Referring to Figure 5, as an example, the PDA 515 and the desktop computing station 555 may communicate information of audio decoding capability. For example, the desktop computing system 555 may communicate information to the PDA 515 indicating that the desktop computing system 555 has the processing capability to decode and provide audio information to the PDA 515.

[32] Referring back to Figure 1, step 150 may, for example, comprise the first and second systems communicating information of communication capability. The first and/or second system may utilize such information to determine whether utilizing various resources of the second system will result in the current service being provided to the user at a higher quality

level than the current quality level. For example, providing the current service to the user at a higher quality level than the current quality level may require a communication channel between the first and second system to have a minimum communication bandwidth. Also, for example, providing the current service to the user at a higher quality level than the current quality level may require a communication channel to have a particular level of reliability. Further, for example, providing the current service to the user at a higher quality level than the current quality level may require communication utilizing a particular set of communication protocols.

[33] Referring to the exemplary scenario 500 illustrated in Figure 5, the PDA 515 and desktop computing system 555 may communicate information of communication capability. For example, the desktop computing system 555 and the PDA 515 may communicate information of the type of communication links that may be established between the desktop computing system 555 of the second system 550 and the PDA 515 of the first system 510. Such communication capability information may, for example, comprise information of audio information streaming capability.

[34] Referring back to Figure 1, the communication capability information may also, for example, comprise information of secure communication capability. For example, in an exemplary scenario, the user or one of the first and second systems may require that communication between the systems, or from one of the systems to a user interface device, be conducted securely (*e.g.*, utilizing at least a certain level of encryption). Such secure communication capability may then be considered when determining whether various resources of the second system may be utilized to provide the current service to the user at a higher quality level than the current quality level.

[35] In general, step 150 may comprise communicating information of communication capability and utilizing such information to determine whether utilizing various resources of the second system will provide the current service to the user at a higher level of quality than the current level of quality. Such information of communication capability may include any of a large number of communication characteristics. Accordingly, the scope of various

aspects of the present invention should not be limited by particular communication or communication link characteristics.

[36] Step 150 may comprise communicating information between the first and second systems regarding information sources to which at least one of the first and second systems has access. For example, the second system may have access to higher quality information than the first system. As an example, such higher quality information may include information encoded utilizing a lower loss encoding technique than used to encode the information to which the first system has access. As another example, such higher quality information may include information to which the second system has access and to which the first system has no access.

[37] The information regarding access to various information sources may also include information of the media over which such access exists. For example, access to various information sources may comprise local access or networked access. The type of access to various information sources, as well as the quality of the information, may be considered in determining whether utilizing various resources of the second system will provide the current service to the user at a higher quality level. For example, access to high quality information over a communication network may be of little value in certain scenarios if the communication network is slow or unreliable.

[38] In general, step 150 may comprise the first and/or second system determining, based at least in part on the source information, whether utilizing various resources of the second system will result in the current service being provided to the user at a higher quality level than the current quality level. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular information, information sources, or particular links to such information sources.

[39] Referring to the exemplary scenario 500 illustrated in Figure 5, the PDA 515 may have access to a local memory device having MP3 audio information encoded at 64Kbps encoding, while the desktop computing system 555 may have access to CD-quality music information stored in a local memory device 560 or through a network 565. The first 510 or

second 550 systems may consider such information access when determining whether utilizing resources of the second system 550 will provide the current service to the user at a higher level of quality.

[40] Referring back to Figure 1, step 150 may comprise communicating access control information between the first and second systems. Such access control information may, for example, comprise digital certificate, certificate authority (CA) key, management/access control, CA verification information, and a variety of user or system identification information.

[41] The first and/or second system may utilize such information to determine whether various resources of the second system may be utilized to provide the current service to the user at a higher quality level. For example, the second system may require the first system (or a user thereof) to be authorized and/or authenticated to utilize various resources of the second system. Also, for example, the user or the first system may require that the second system be authorized to provide access to various resources for use in providing the current service to the user. Such authorization may, for example, be system, service or user dependent.

[42] In general, step 150 may comprise the first and second systems communicating access control information and utilizing such information to determine whether various resources of the second system may be utilized to provide the current service to the user. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular access control requirements, strategies or implementations.

[43] Referring to the exemplary scenario 500 illustrated in Figure 5, the second system 550 may, for example, have a list of users or systems to which the second system 550 may allocate resources. If the user of the first system 510 is not an authorized user, the second 550 or first 510 system may determine that various resources of the second system 550 are not available for providing the current service to the user.

[44] In general, step 150 determines whether utilizing various resources of the second system will increase the quality at which the current service is being provided to the user. As mentioned previously, such a determination may, for example, include analyzing information related to processing capability, communication capability (including secure communication capability), information access, and access control. The information that step 150 may analyze to determine whether utilizing various resources of the second system will provide the current service to the user at a higher quality level is by no means limited to the previous examples. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular information that may be considered in making such a determination.

[45] The method 100, at step 160, may comprise determining whether to allocate or utilize various resources of the second system to provide the current service to the user, based at least in part on the determination made at step 150. For example, if step 150 determined that utilizing various resources of the second system is not allowed or not possible, step 160 may direct the flow of the method 100 to step 170, which may provide for the first system to continue providing the current service to the user at the current quality level. Also for example, if step 150 determined that utilizing various resources of the second system would not result in the current service being provided to the user at a higher quality level, then step 160 may direct the flow of the method 100 to step 180.

[46] Referring to Figure 5, in the exemplary scenario 500, the first 510 or second 550 system may determine that utilizing an information resource (*e.g.*, the local storage device 560 or network access 565) and desktop computer 555 audio decoding capability will provide the current service (*e.g.*, music) to the user at a higher level of quality than is currently being provided to the user.

[47] Referring back to Figure 1, the method 100, at step 180, may comprise allocating various resources of the second system for providing the current service to the user at a higher level of quality than the current level of quality. Note that such allocation may or may not, depending on the nature of the allocated resource, impact the availability of the allocated

resource for utilization with other systems. The first and second systems may, for example, communicate resource allocation information in preparation for utilizing the allocated resources to provide the current service to the user at a higher quality level.

[48] Referring to the exemplary scenario 500 of Figure 5, the desktop computing system 555 of the second system 550 may allocate a portion of information access resources, audio information processing resources, and audio information communication resources for use in providing the current service to the user at a higher quality level. The desktop computing system 555 may communicate information of such allocation to the PDA 515, along with information related to the effective utilization of such allocated resources to provide the current service to the user.

[49] Referring back to Figure 1, the method 100, at step 190, generally follows the resource allocation of step 180 with utilization of such resources of the second system to provide the current service to the user at a higher quality level. Such utilization may be accomplished in a variety of manners depending on the particular system configuration and allocated resources.

[50] For example, various communication links may be established between the first and second systems. The first and second systems may, for example, utilize such communication links to communicate a variety of information depending on the service being provided and the system configuration. For example, the second system may provide raw data to the first system for further processing, or the second system may provide processed data to the first system for immediate presentation to the user. Alternatively, for example, the second system may provide processed information directly to the user through a user interface device.

[51] Such resource utilization may comprise a variety of processing activities on the part of the first and/or second systems. For example and without limitation, the allocated resources of the second system may process information provided by the first system. For example, the allocated resources of the second system may acquire information from a source other than the first system and process such information. Also for example, the allocated

resources of the second system may acquire information from a source other than the first system and pass such information to the first system for further processing.

[52] Referring to the exemplary scenario 500 shown in Figure 5, the desktop computing system 555 may, for example, retrieve raw audio information from local storage 560 or the network 565 and process such information for delivery to the PDA 515 over the communication link 551. Alternatively, for example, the desktop computing system 555 may establish a direct communication link 552 to the headset 520 to provide music information directly to the headset 520 of the user. The desktop computing system 555 may, for example, provide audio output through an audio output device 570 coupled to the second system 555, if the first 510 and/or second 555 system determines that such action would increase the level of quality at which the current service is being provided to the user.

[53] Referring back to Figure 1, step 190 may, for example, comprise communicating control information between the first and second systems. For example, the user may utilize the first system to control the utilization of resources of the second system. Alternatively, for example, the user may utilize resources of the second system (*e.g.*, keyboard, mouse and display resources) to control the utilization of the allocated resources of the second system.

[54] Referring to the exemplary scenario 500 shown in Figure 5, a user may, for example, use various U/I devices to control the manner in which the current service is being provided to the user. For example, the user may utilize the display 516 and input 517 of the PDA 515 to control the manner in which the current service is being delivered to the user. Alternatively, for example, the user may utilize the display 580, keyboard 581 or mouse 582 resources of the second system 550 to control the manner in which the current service is being delivered to the user.

[55] In general, step 190 comprises utilizing the allocated resources of the second system to provide the current service to the user at a higher level of quality than the current quality level. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular information obtaining, processing or communication scenarios.

[56] Various aspects of the method 100 illustrated in Figure 1 may be performed by either of the first and second systems. Accordingly, the scope of various aspects of the present invention should not be limited to which particular system may be performing the various aspects of the method 100. Refer to Figure 2 for an exemplary method 200 that may, for example, be performed in a first system of a dynamic wireless communication network. The fact that the first system may perform the various aspects of the method 200 illustrated in Figure 2 and discussed below is not to be taken as an indication that the first system is required to perform any or all of such various aspects.

[57] Figure 2 is a flow diagram illustrating a method 200, which may, for example, be performed by a first system for quality of service based resource allocation and utilization in a dynamic wireless network environment, in accordance with various aspects of the present invention. The method 200 shares various aspects with the method 100 illustrated in Figure 1 and discussed previously. The method 200 is presented herein to provide an exemplary perspective and to demonstrate one of the many options for how various aspects of the present invention may be allocated between the first and second systems. Accordingly, the scope of various aspects of the present invention should not be limited by the following example performing various aspects of the present invention in either of the first or second systems, or in a third system.

[58] The method 200 begins at step 210. Various events and conditions may cause the method 200 to begin. For example, a user may request that a first system provide a service to the user, or the first system may automatically decide to provide a service to a user. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular initiating causes or conditions.

[59] The method, at step 220, may comprise the first system providing a service to the user. As mentioned previously, a “service” is generally a function performed by the first system for the ultimate benefit of the user. For example and without limitation, a service may comprise an audio output service, a video output service, a textual interface service, an audio interface service, a video interface service, a data processing service, an email service,

etc. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of a particular service provided.

[60] Referring to the exemplary scenario 500 illustrated in Figure 5, the first system 510 may comprise a personal digital assistant (“PDA”) 515 initially providing music to a user through a headset 520 communicatively coupled to the PDA 515 through a communication link 525, which may be a tethered or non-tethered link. The user may, for example, have requested at step 210 that the first system 510 provide music to the user from a song play list, which represents a portion of a store of music information local to the PDA 515. It is to be stressed at this time that the following discussion will often refer to the exemplary first system 510 shown in Figure 5 as an exemplary illustration of various aspects of the present invention that are in fact of much broader scope than aspects of the exemplary first system 510. Accordingly, by no means is the scope of various aspects of the present invention to be limited by characteristics of the exemplary first system 510 shown in Figure 5.

[61] Referring back to Figure 2, the method 200, at step 230, comprises determining whether a second system is accessible in the dynamic wireless communication network. Such a determination may be made, for example, utilizing various “hello,” “advertising” or “beacon” protocols that wireless systems may utilize to maintain their networks. Systems of a dynamic network may utilize a variety of methods to detect the presence and availability of other systems. For example, the first system may, at step 230, periodically transmit a “hello” message or listen for “hello” messages from other systems to determine the presence or availability of a second system. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of a particular method, standard or protocol for detecting the presence or availability of a system.

[62] If step 230 determines that there is not a second system accessible to the first system, then the flow of the method 200 may return to step 220, where the first system may continue to deliver the current service to the user. Alternatively, if step 230 determines that there is a second system accessible to the first system, then the flow of the method 200 may proceed to step 240. Note that step 230 may, for example, be initiated automatically (*e.g.*, without real-

time user interaction) or may be initiated by request (*e.g.*, by a user requesting a higher quality service).

[63] For example and without limitation, refer to the exemplary first system 510 shown in Figure 5. The user and the first system 510 may be mobile and may move within the boundaries of a wireless communication network of which the second system 550 is a member. The first 510 and/or second 550 systems may, for example, periodically transmit an “advertisement” message. For example, in an exemplary scenario, the second system 550 may transmit a periodic “advertisement” message, for which the first system 510 automatically listens. The first system 510 may move within range to hear the “advertisement” message and respond to the second system 550. Alternatively, for example, the user may interact with the PDA 515 to request that the PDA 515 of the first system 510 attempt to improve the quality of service currently being provided to the user.

[64] Referring back to Figure 2, the method 200, at step 240, may comprise the first system establishing a wireless communication link with the second system. Such a communication link may be based on any of a variety of wireless communication protocols and standards. For example, the first system may establish a communication link with the second system based on standards, such as IEEE 802.11, 802.15, UWB, Bluetooth, or other standard or proprietary protocols. Such a communication link may also, for example, include aspects of USB and Ethernet communication links. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of a particular communication protocol or method.

[65] Referring to the exemplary first system 510 of Figure 5, the PDA 515 of the first system 510 may, for example, establish a communication link 551 with the second system 550 based on IEEE 802.11.

[66] Referring back to Figure 2, the method 200, at step 250, may comprise the first system determining (*e.g.*, determining directly through its own computations, or by receiving an indication from another system) whether utilizing the second system (or various resources thereof) will increase the quality at which the current service is being provided to the user.

The first system may, for example, communicate a variety of information with the second system over the communication link established at step 240 to make such a determination. Generally, the quality determination may involve any of a large variety of quality metrics (*e.g.*, audio/video output quality, rate of response to user input, duration over which the service may be provided, number of information consumption options available to a user, variety of information that may be accessed, quality of information that may be accessed, rate at which such information may be accessed, etc.). Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of one or more particular service quality metrics.

[67] The determination at step 250 may, for example, include determining an indication of the current quality level at which the first system is currently providing the current service to the user. Such current quality level may, for example, be compared to the expected quality level at which the current service may be provided to the user by utilizing various resources of the second system.

[68] In the exemplary scenario 500 illustrated in Figure 5, the PDA 515 may, for example, be communicating audio information to the headset 520 over the communication link 525. The current service (*e.g.*, the communication of audio information to the user) may, for example, occur utilizing audio information obtained from 64Kbps MP3 encoded information residing on the PDA 515. The first system 510 (directly or indirectly) may determine the current quality level of the audio information being provided to the user.

[69] Referring back to Figure 2, step 250 may comprise the first system communicating quality of service information with the second system. Such quality of service information may take any of a variety of forms. For example and without limitation, the quality of service information may include information of the quality of the current service being provided to the user by the first system or the potential quality at which the current service may be provided to the user by utilizing various resources of the second system.

[70] Step 250 may comprise communicating information with the second system of whether the first or second system has processing capability, which if utilized, would result

in the current service being provided to the user at a higher level of quality than the current quality level. For example and without limitation, the first system may communicate information of data decoding and processing capability with the second system. Such processing capability may be, for example, related to available hardware or software resources. The first system may, for example, communicate with the second system information of various computer applications that the first and second systems may execute. Such computer applications may, for example, comprise audio processing applications, video processing applications, text processing applications, numerical processing applications, email processing applications, etc.

[71] Referring to Figure 5, as an example, the PDA 515 may communicate with the desktop computing station 555 information of audio decoding capability. For example, the PDA 515 may communicate with the desktop computing system 555 information indicating that the desktop computing system 555 has the processing capability to decode and provide audio information to the PDA 515.

[72] Referring back to Figure 2, step 250 may, for example, comprise the first system communicating information of communication capability with the second system. The first system may, for example, utilize such information to determine whether utilizing various resources of the second system will result in the current service being provided to the user at a higher quality level than the current quality level. For example, providing the current service to the user at a higher quality level than the current quality level may require a communication channel between the first and second system to have a minimum communication bandwidth. Also, for example, providing the current service to the user at a higher quality level than the current quality level may require a communication channel to have a particular level of reliability. Further, for example, providing the current service to the user at a higher quality level than the current quality level may require communication utilizing a particular set of communication protocols.

[73] Referring to the exemplary scenario 500 illustrated in Figure 5, the PDA 515 may communicate information of communication capability with the desktop computing system

555. For example, the PDA 515 may communicate with the desktop computing system 555 information of the type of communication links that may be established between the first system 510 and the second system 550. Such communication capability information may, for example, comprise information of audio information streaming capability.

[74] Referring back to Figure 2, the communication capability information may also, for example, comprise information of secure communication capability. For example, in a particular scenario, the user, or one of the first and second systems, may require that communication with and between the systems be conducted securely (*e.g.*, utilizing at least a certain level of encryption). Such secure communication capability may then be considered when determining whether various resources of the second system may be utilized to provide the current service to the user at a higher quality level than the current quality level.

[75] In general, step 250 may comprise the first system communicating information of communication capability with the second system and utilizing such information to determine (directly or indirectly) whether utilizing various resources of the second system will provide the current service to the user at a higher level of quality than the current level of quality. Such information of communication capability may include any of a large variety of communication characteristics. Accordingly, the scope of various aspects of the present invention should not be limited by particular communication or communication link characteristics.

[76] Step 250 may, for example, comprise the first system communicating information with the second system regarding information sources to which at least one of the first and second systems has access. For example, the second system may have access to higher quality information than the first system. As an example, such higher quality information may include information encoded utilizing a lower loss or lossless encoding technique than used to encode the information to which the first system has access. As another example, such higher quality information may include information to which the second system has access and to which the first system has no access.

[77] The information regarding access to various information sources may also include information of the media over which such access exists. For example, access to various information sources may comprise local access or networked access. The type of access to various information sources, as well as the quality of the information, may be considered in determining whether utilizing various resources of the second system will provide the current service to the user at a higher quality level. For example and without limitation, access to high quality information over a communication network may be of little value if the network is slow or unreliable.

[78] In general, step 250 may comprise the first system determining (directly or indirectly), based at least in part on the source information, whether utilizing various resources of the second system will result in the current service being provided to the user at a higher quality level than the current quality level. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular information, information sources, or particular links to such information sources.

[79] Referring to the exemplary scenario 500 illustrated in Figure 5, the PDA 515 may have access to a local memory device having MP3 audio information encoded at 64Kbps encoding, while the desktop computing system 555 may have access to CD-quality music information stored in a local memory device 560 or through a network 565. The first 510 or second 550 systems may consider such information access when determining whether utilizing resources of the second system 550 will provide the current service to the user at a higher level of quality.

[80] Referring back to Figure 2, step 250 may comprise the first system communicating access control information with the second system. Such access control information may, for example, comprise digital certificate, certificate authority (CA) key, management/access control, CA verification, and various user/system identification information.

[81] The first system may, for example, utilize such information to determine whether various resources of the second system may be utilized to provide the current service to the user at a higher quality level. For example, the user or the first system may require that the

second system be authorized to provide access to various resources for use in providing the current service to the user. Such authorization may, for example, be system, service or user dependent.

[82] In general, step 250 may comprise the first system communicating access control information with the second system and utilizing such information to determine whether various resources of the second system may be utilized to provide the current service to the user. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular access control requirements, strategies or implementations.

[83] Referring to the exemplary scenario 500 illustrated in Figure 5, the first system 510 may, for example, have a list of systems and/or resources of other systems that the first system 510 will allow to be utilized to provide the current service to the user. If the second system 550 is not an authorized system, then the first system 510 may determine that various resources of the second system 550 are not available for providing the current service to the user.

[84] In general, step 250 comprises the first system determining whether utilizing various resources of the second system will increase the quality at which the current service is being provided to the user. As mentioned previously, such a determination may, for example, include analyzing information related to processing capability, communication capability (including secure communication capability), information access, and access control. The information that step 250 may analyze to determine whether utilizing various resources of the second system will provide the current service to the user at a higher quality level is by no means limited to the previous example. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular information that may be considered in making such a determination.

[85] The method 200, at step 260, may comprise the first system determining whether to utilize various resources of the second system to provide the current service to the user, based at least in part on the determination made at step 250. For example, if the first system, in

step 250, determined that utilizing various resources of the second system is not allowed or not possible, then step 260 may direct the flow of the method 200 to step 270, in which the first system may, for example, continue providing the current service to the user at the current quality level. Also for example, if the first system, at step 250, determined that utilizing various resources of the second system would not result in the current service being provided to the user at a higher quality level, then step 260 may direct the flow of the method 200 to step 280.

[86] Referring to Figure 5, in the exemplary scenario 500, the first system 510 (directly or indirectly) may determine that utilizing an information resource of the second system 550 (*e.g.*, the local storage device 560 or network access 565) and desktop computer 555 audio decoding capability will provide the current service (*e.g.*, music) to the user at a higher level of quality than is currently being provided to the user.

[87] Referring back to Figure 2, the method 200, at step 280, may comprise the first system requesting and/or receiving an allocation of various resources of the second system for providing the current service to the user at a higher level of quality than the current level of quality. Alternatively, the first system may control the allocation of the resources of the second system. However, for this example, the first system is receiving the allocation of resources from another system (*e.g.*, from the second system). Note that such allocation may or may not, depending on the nature of the allocated resource, impact the availability of the allocated resource for utilization with other systems.

[88] Referring to the exemplary scenario 500 of Figure 5, the PDA 515 of the first system 510 may receive an allocation of resources from the desktop computing system 555. Such allocated resources may comprise, for example, audio data storage resources, audio information processing resources and audio information communication resources for use in providing the current service to the user at a higher quality level. In addition to resource allocation information, the PDA 515 may receive from the desktop computing system 555 information related to the effective utilization of such allocated resources to provide the current service to the user.

[89] Referring back to Figure 2, the method 200, at step 290, generally follows the resource allocation of step 280 with utilization of such resources of the second system to provide the current service to the user at a higher quality level. Such utilization may be accomplished in a variety of manners depending on the particular system configuration and allocated resources.

[90] For example, various communication links may be established between the first and second systems. The first and second systems may, for example, utilize such communication links to communicate a variety of information depending on the service being provided and the system configuration. For example, the first system may receive raw data from the second system for further processing, or the first system may receive processed data from the second system for immediate presentation to the user. Alternatively, for example, the first system may direct the second system to provide processed information directly to the user through a user interface device.

[91] Such resource utilization may comprise a variety of processing activities on the part of the first system. For example and without limitation, the first system may provide information to the allocated resources of the second system for processing. For example, the first system may direct the allocated resources of the second system to acquire information from a source other than the first system and process such information. Also for example, the first system may receive information from the allocated resources of the second system on which the first system is to perform further processing.

[92] Referring to the exemplary scenario 500 shown in Figure 5, the PDA 515 may receive raw or processed audio information over the communication link 551 from the desktop computing system 555. The desktop computing system 555 may have obtained such audio information from local storage 560 or the network 565. Alternatively, for example, the first system 510 may establish a direct communication link 552 between the headset 520 and the desktop computing system 555. The PDA 515 may alternatively, for example, direct the desktop computing system 555 to provide audio output through an audio output device 570

coupled to the desktop computing system 555, if the PDA 515 determines that such action would increase the level of quality at which the current service is being provided to the user.

[93] Referring back to Figure 2, step 290 may, for example, comprise the first system communicating control information with the second system. For example, the user may utilize the first system to control the utilization of resources of the second system. Alternatively, for example, the user may utilize resources of the second system (*e.g.*, keyboard, mouse and display resources) to control the utilization of the allocated resources of the second system. In such a scenario, the first system may receive control information from the second system that the first system may utilize to control its own behavior.

[94] Referring to the exemplary scenario 500 shown in Figure 5, a user may, for example, use various U/I devices to control the manner in which the current service is being provided to the user. For example, the user may utilize the display 516 and input 517 of the PDA 515 to control the manner in which the current service is being delivered to the user. Alternatively, for example, the user may utilize the display 580, keyboard 581 and mouse 582 resources of the second system 550 to control the manner in which the current service is being delivered to the user. In such a scenario, PDA 515 may, for example, receive control information from the desktop computing system 555 over the wireless communication link 551.

[95] In general, step 290 comprises utilizing the allocated resources of the second system to provide the current service to the user at a higher level of quality than the current quality level. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular information obtaining, distributed processing or communication scenarios.

[96] Various aspects of the methods 100, 200 illustrated in Figures 1-2 may be performed by either of the first and second systems, and alternatively a third system. Accordingly, the scope of various aspects of the present invention should not be limited to which particular system may be performing the various aspects of the methods 100, 200. As an example, refer to Figure 3 for an exemplary method 300 that may be performed in a second system of a

dynamic communication network. The fact that the second system may perform the various aspects of the method 300 illustrated in Figure 3 and discussed below is not to be taken as an indication that the second system is required to perform any or all of such various aspects.

[97] Figure 3 is a flow diagram illustrating a method 300 in a second system for quality of service based resource allocation and utilization in a dynamic wireless network environment, in accordance with various aspects of the present invention. The method 300 begins at step 310. Various events and conditions may cause the method 300 to begin. For example, a user may request that a first system in a wireless communication network of the second system provide a current service to the user. Alternatively, for example, a user may be utilizing a first system to provide a current service to the user when the first system moves within range of a wireless communication network of the second system.

[98] The second system may, for example, detect the first system being within the boundaries of the wireless communication network (*e.g.*, by receiving a beacon signal from the first system). Alternatively, for example the first system may send a signal to the second system in response to the first system receiving a beacon signal from the second system. In general, a variety of conditions may trigger the beginning of the method 300, and accordingly, the scope of various aspects of the present invention should not be limited by characteristics of a particular triggering event for the method 300.

[99] The method 300, at step 320, may comprise the second system establishing a wireless communication link with the first system. Such a communication link may be based on any of a variety of wireless communication protocols and standards. For example, the first system and second system may establish a communication link based on standards, such as IEEE 802.11, 802.15, UWB, Bluetooth, or other standard or proprietary protocols. Such a communication link may also, for example, include aspects of USB and Ethernet communication links. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of a particular communication protocol or method.

[100] Referring to the exemplary scenario 500 of Figure 5, the exemplary second system 550 may, for example, establish a wireless communication link 551 with the first system 510 based on IEEE 802.11.

[101] Referring back to Figure 3, the method 300, at step 330, may comprise the second system communicating with the first system to determine whether utilizing resources of the second system will increase the quality at which the current service is being provided to the user. The second system may, for example, communicate a variety of information with the first system over the communication link established at step 320 to make such a determination. In various aspects of the present invention, the first system or second system may make the ultimate determination as to whether utilizing resources of the second system will increase the level of quality at which the current service is being provided to the user. The following discussion will focus generally on the first system making such ultimate determination. However, by no means is the scope of various aspects of the present invention to be limited to characteristics of the second system making the ultimate determination.

[102] Generally, quality determination may involve any of a large variety of quality metrics (*e.g.*, audio/video output quality, rate of response to user input, duration over which the service may be provided, number of information consumption options available to a user, variety of information that may be accessed, quality of information that may be accessed, rate at which such information may be accessed, etc.). Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of one or more particular service quality metrics.

[103] Step 330 may, for example, comprise the second system communicating quality of service information with the first system. Such quality of service information may take any of a variety of forms. For example and without limitation, the quality of service information may include information of the potential quality at which the current service may be provided to the user by utilizing various resources of the second system.

[104] Step 330 may, for example, comprise the second system communicating information with the first system of whether the first or second system has processing capability, which if utilized, would result in the current service being provided to the user at a higher level of quality than the current quality level. For example and without limitation, the second system may communicate with the first system information of data decoding and processing capability of the second system. Such processing capability may be, for example, related to available hardware or software resources. The second system may, for example, communicate with the first system information of various computer applications that the first and second systems may execute. Such computer applications may, for example, comprise audio processing applications, video processing applications, text processing applications, numerical processing applications, etc.

[105] Referring to Figure 5, as an example, the desktop computing station 555 may communicate with the PDA 515 information of audio decoding capability. For example, the desktop computing system 555 may communicate information with the PDA 515 indicating that the desktop computing system 555 has the processing capability to decode and provide audio information to the PDA 515.

[106] Referring back to Figure 3, step 330 may, for example, comprise the second system communicating with the first system information of communication capability. The first system may, for example, utilize such information to determine whether utilizing various resources of the second system will result in the current service being provided to the user at a higher quality level than the current quality level. For example, providing the current service to the user at a higher quality level than the current quality level may require a communication channel between the second and first systems to have a minimum communication bandwidth. Also, for example, providing the current service to the user at a higher quality level than the current quality level may require a communication channel to have a particular level of reliability. Further, for example, providing the current service to the user at a higher quality level than the current quality level may require communication utilizing a particular set of communication protocols.

[107] Referring to the exemplary scenario 500 illustrated in Figure 5, the desktop computing system 555 may communicate with the PDA 515 information of communication capability. For example, the desktop computing system 555 and the PDA 515 may communicate information of the type of communication links that may be established between the first system 510 and the second system 550. Such communication capability information may, in the exemplary scenario 500, comprise information of audio information streaming capability.

[108] Referring back to Figure 3, the communication capability information may also, for example, comprise information of secure communication capability. For example, in a particular scenario, the user or one of the first and second systems may require that communication between the systems, or from one of the systems to a user interface device, be conducted securely (*e.g.*, utilizing at least a certain level of encryption). Such secure communication capability may then be considered when determining whether various resources of the second system may be utilized to provide the current service to the user at a higher quality level than the current quality level.

[109] In general, various aspects of step 330 may comprise communicating information of communication capability, where such information may be utilized to determine whether utilizing various resources of the second system will provide the current service to the user at a higher level of quality than the current level of quality. Such information of communication capability may include any of a large variety of communication characteristics. Accordingly, the scope of various aspects of the present invention should not be limited by particular communication or communication link characteristics.

[110] Step 330 may, for example, comprise the second system communicating information with the first system regarding information sources to which at least one of the first and second systems have access. For example, the second system may have access to higher quality information than the first system. As an example, such higher quality information may include information encoded utilizing a lower loss encoding technique than used to encode the information to which the first system has access. As another example, such

higher quality information may include information to which the second system has access and to which the first system has no access.

[111] The information regarding access to various information sources may also include information of the media over which such access exists. For example, access to various information sources may comprise local access or networked access. The type of access to various information sources, as well as the quality of the information, may be considered in determining whether utilizing various resources of the second system will provide the current service to the user at a higher quality level. For example and without limitation, access to high quality information over a communication network may be of little value if the network is slow or unreliable.

[112] In general, various aspects of step 330 may comprise the second system and first system communicating information related to access to sources of information, where such information may be analyzed to determine whether utilizing various resources of the second system will result in the current service being provided to the user at a higher quality level than the current quality level. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular information, information sources, or particular links to such information sources.

[113] Referring to the exemplary scenario 500 illustrated in Figure 5, the PDA 515 may have access to a local memory device having MP3 audio information encoded at 64Kbps encoding, while the desktop computing system 555 may have access to CD-quality music information stored in a local memory device 560 or through a network 565. The second system 550 may, for example, communicate to the first system 510 information related to the second system 550 having access to CD-quality music, which the first system 510 may consider when determining whether utilizing resources of the second system 550 will provide the current service to the user at a higher level of quality.

[114] Referring back to Figure 3, step 330 may, for example, comprise the second system communicating access control information with the first system. Such access control information may, for example, comprise digital certificate, certificate authority (CA) key,

management/access control, CA verification information, and a variety of user/system identification information.

[115] The first and/or second system may utilize such information to determine whether various resources of the second system may be utilized to provide the current service to the user at a higher quality level. For example, the second system may require the first system (or a user thereof) to be authorized to utilize various resources of the second system. Also, for example, the user or the first system may require that the second system be authorized to provide access to various resources for use in providing the current service to the user. Such authorization may, for example, be system, service or user dependent.

[116] In general, step 330 may, for example, comprise the second system communicating access control information with the first system, where such information may be analyzed to determine whether various resources of the second system may be utilized to provide the current service to the user. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular authorization requirements, strategies or implementations.

[117] Referring to the exemplary scenario 500 illustrated in Figure 5, the second system 550 may, for example, have a list of users or systems to which the second system 550 may allocate resources. If the user of the first system 510 is not an authorized user, the second system (or alternatively, the first 510 system) may determine that various resources of the second system 550 are not available for providing the current service to the user.

[118] In general, step 330 comprises the second system communicating information with the first system to determine whether utilizing various resources of the second system will increase the quality at which the current service is being provided to the user. As mentioned previously, such a determination may, for example, include communicating and analyzing information related to processing capability, communication capability (including secure communication capability), information access, and access control. The information that may be communicated and analyzed in step 330 to determine whether utilizing various resources of the second system will provide the current service to the user at a higher quality

level is by no means limited to the previous examples. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular information that may be considered in making such a determination.

[119] The method 300, at step 340, may comprise the second system receiving a request (*e.g.*, from the first system) for allocation of one or more resources of the second system for providing the current service to the user. In an alternative example, step 340 may comprise the second system communicating a message to the first system offering an allocation of one or more resources of the second system for providing the current service to the user.

[120] Referring to Figure 5, in the exemplary scenario 500, the first system 510 may, for example, determine that utilizing an information resource (*e.g.*, the local storage device 560 or network access 565) and desktop computer 555 audio decoding capability of the second system 550 will provide the current service (*e.g.*, music) to the user at a higher level of quality than is currently being provided to the user. The first system 510 may then, for example, communicate a request to the second system 550 for allocation of the resources for providing the current service to the user.

[121] Referring back to Figure 3, the method 300, at step 350, may comprise the second system allocating various resources of the second system for providing the current service to the user at a higher level of quality than the current level of quality. Note that such allocation may or may not, depending on the nature of the allocated resource, impact the availability of the allocated resource for utilization with other systems. The first and second systems may, for example, communicate resource allocation information in preparation for utilizing the allocated resources to provide the current service to the user at a higher quality level.

[122] Referring to the exemplary scenario 500 and scenario of Figure 5, the desktop computing system 555 of the second system 550 may, for example, allocate a portion of information access resources, audio information processing resources, and audio information communication resources for use in providing the current service to the user at a higher quality level. The desktop computing system 555 may communicate information of such

allocation to the PDA 515, along with information related to the effective utilization of such allocated resources to provide the current service to the user.

[123] Referring back to Figure 3, the method 300, at step 360, generally follows the resource allocation of step 350 with utilizing the allocated resources of the second system to provide the current service to the user at a higher quality level. Such utilization may be accomplished in a variety of manners depending on the particular system configuration and allocated resources.

[124] For example, the second system may establish various communication links with the first system. The second system may, for example, utilize such communication links to communicate a variety of information with the first system depending on the service being provided and the system configuration. For example, the second system may provide raw data to the first system for further processing, or the second system may provide processed data to the first system for immediate presentation to the user. Alternatively, for example, the second system may provide processed information directly to the user through a user interface device.

[125] Such resource utilization may comprise a variety of processing activities on the part of the second system and/or first system. For example and without limitation, the allocated resources of the second system may process information provided by the first system. For example, the allocated resources of the second system may acquire information from a source other than the first system and process such acquired information. Also for example, the allocated resources of the second system may acquire information from a source other than the first system and pass such information to the first system for processing.

[126] Referring to the exemplary scenario 500 shown in Figure 5, the desktop computing system 555 may, for example, retrieve raw audio information from local storage 560 or the network 565 and process such information for delivery to the PDA 515 over the communication link 551. Alternatively, for example, the desktop computing system 555 may establish a direct communication link 552 to the headset 520 to provide music information directly to the headset 520 of the user. The desktop computing system 555 may, for

example, provide audio output through an audio output device 570 coupled to the second system 555, if the first 510 and/or second 555 system determines that such action would increase the level of quality at which the current service is being provided to the user.

[127] Referring back to Figure 3, step 360 may, for example, comprise the second system communicating control information with the first system. For example, the user may utilize the first system to control the utilization of resources of the second system. In such a scenario, the second system may receive control information from the first system. Alternatively, for example, the user may utilize resources of the second system (*e.g.*, keyboard, mouse and display resources) to control the utilization of the allocated resources of the second system. In such a scenario, the second system may transmit control information to the first system for the first system to utilize.

[128] Referring to the exemplary scenario 500 shown in Figure 5, a user may, for example, use various U/I devices to control the manner in which the current service is being provided to the user. For example, the user may utilize the display 516 and input 517 of the PDA 515 to control the manner in which the current service is being delivered to the user. Alternatively, for example, the user may utilize the display 580, keyboard 581 and mouse 582 resources of the second system 550 to control the manner in which the current service is being delivered to the user.

[129] Referring back to Figure 3, in general, step 360 comprises utilizing the allocated resources of the second system to provide the current service to the user at a higher level of quality than the current quality level. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular information obtaining, processing or communication scenarios.

[130] Figure 4 is a diagram showing a system 400 that implements quality of service based resource allocation and utilization in a dynamic wireless network environment, in accordance with various aspects of the present invention. The system 400 includes a first system 410 and a second system 450. The first system 400 may comprise a local processing module 415, user interface module 420 coupled to a user interface device 425, data storage module 430,

communication module 435, quality control module 440, access control module 442 and a distributed processing module 445. The second system 450 may comprise a communication module 455, quality control module 460, access control module 462, resource allocation module 465, distributed processing module 470, data storage module 475, and user interface module 485 coupled to a user interface device 490.

[131] The first system 410 may, for example, utilize the local processing module 415 to provide a current service to a user. The local processing module 415 may, for example, utilize the user interface module 420 to provide service information to a user through the user interface device 425. As mentioned previously, a “service” is generally a function performed by the first system for the ultimate benefit of the user. For example and without limitation, a service may comprise an audio output service, a video output service, a textual interface service, an audio interface service, a video interface service, a data processing service, an email service, etc. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of a particular provided service.

[132] The first system 410 may comprise a communication module 435 that establishes a wireless communication link with a corresponding communication module 455 of the second system 450. The communication module 435 may, for example, determine whether a second system is accessible in a dynamic wireless communication network. The communication module 435 may, for example, utilize various “hello,” “advertising” and “beacon” protocols that dynamic wireless systems may utilize to maintain their networks. The communication module 435 may, for example, utilize a variety of methods to detect the presence and availability of other systems. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of a particular method, standard or protocol for detecting the presence or availability of a system.

[133] The communication module 435 may establish a wireless communication link based on any of a variety of wireless communication protocols and standards. For example, the communication module 435 of the first system 410 and the communication module 455 of the second system may establish a communication link based on standards, such as IEEE

802.11, 802.15, UWB, Bluetooth, or other standard or proprietary protocols. Such a communication link may also, for example, include aspects of USB and Ethernet communication links. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of a particular communication protocol or method.

[134] The first system 410 may comprise a quality control module 440, and the second system 450 may comprise a quality control module 460. It should be noted that though the following discussion may at times refer to one or both of the particular quality control modules 440, 460 performing particular processing, such processing may readily be shared and distributed between the quality control modules 440, 460.

[135] The quality control modules 440, 460 may, for example, be communicatively coupled to respective communication modules 435, 455, which the quality control modules 440, 460 may utilize to communicate with each other over a wireless communication link. One or both of the quality control modules 440, 460 may determine whether utilizing the second system 450 (or various resources thereof) will increase the quality at which the current service is being provided to the user.

[136] The quality control modules 440, 460 may, for example, communicate a variety of information over the communication link established between the communication modules 435, 455 make such a determination. Generally, the quality determination may involve any of a large variety of quality metrics (*e.g.*, audio/video output quality, rate of response to user input, duration over which the service may be provided, number of information consumption options available to a user, variety of information that may be accessed, quality of information that may be accessed, rate at which such information may be accessed, etc.). Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of one or more particular service quality metrics.

[137] The quality control modules 440, 460 may, for example, determine the current quality level at which the first system 410 is providing the current service to the user. One or both of the quality control modules 440, 460 may, for example, utilize such current quality level to

compare with the expected quality at which the current service may be provided to the user by utilizing various resources of the second system 450.

[138] For example, the quality control modules 440, 460 may communicate quality of service information with each other. Such quality of service information may take any of a variety of forms. For example and without limitation, the quality of service information may include information of the quality of the current service being provided to the user by the first system 410 or the potential quality at which the current service may be provided to the user by utilizing various resources of the second system 450.

[139] The quality control modules 440, 460 may, for example, communicate information of whether the first 410 or second 450 system has processing capability, which if utilized, would result in the current service being provided to the user at a higher level of quality than the current quality level. For example and without limitation, the quality control modules 440, 460 may communicate information of data decoding and processing capability. Such processing capability may, for example, be related to available hardware or software processing resources. The quality control modules 440, 460 may, for example, communicate information of various computer applications that the first 410 and second 450 systems may execute. Such computer applications may, for example, comprise audio processing applications, video processing applications, text processing applications, numerical processing applications, email processing applications, etc.

[140] The quality control modules 440, 460 may, for example, communicate information of communication capability. The quality control modules 440, 460 may, for example, utilize such information to determine whether utilizing various resources of the second system will result in the current service being provided to the user at a higher quality level than the current quality level. For example, providing the current service to the user at a higher quality level than the current quality level may require a communication channel between the communication modules 435, 455 to have a minimum communication bandwidth. Also, for example, providing the current service to the user at a higher quality level than the current quality level may require a communication channel between the communication modules

435, 455 to have a particular level of reliability. Further, for example, providing the current service to the user at a higher quality level than the current quality level may require that the communication modules 435, 455 (or processing modules utilizing such communication modules) communicate utilizing a particular set of communication protocols.

[141] The quality control modules 440, 460 may, for example, communicate information of secure communication capability. For example, in a particular scenario, the user or one of the first 410 and second 450 systems may require that communication between the systems, or between one of the systems and a user interface device, be conducted securely (*e.g.*, utilizing at least a certain level of encryption). Such secure communication capability may then be considered when determining whether various resources of the second system 450 may be utilized to provide the current service to the user at a higher quality level than the current quality level.

[142] In general, the quality control modules 440, 460 may communicate information of communication capability and utilize such information to determine whether utilizing various resources of the second system 450 will provide the current service to the user at a higher level of quality than the current level of quality. Such information of communication capability may include any of a large variety of communication characteristics. Accordingly, the scope of various aspects of the present invention should not be limited by particular communication or communication link characteristics.

[143] The quality control modules 440, 460 may, for example, communicate information regarding information sources to which at least one of the first 410 and second 450 systems have access. For example, the second system 450 may have access to higher quality information than the first system 410. As an example, such higher quality information may include information encoded utilizing a lower loss encoding technique than used to encode the information to which the first system 410 has access. As another example, such higher quality information may include information to which the second system 450 has access and to which the first system has no access 410.

[144] The information regarding access to various information sources may also include information of the media over which such access exists. For example, access to various information sources may comprise local access or networked access. The second system 450, for example, may comprise a data storage module 475 for local storage of information, and may comprise a network interface module 480 through which the second system 450 may access information over a network.

[145] The quality control modules 440, 460 may, for example, communicate and consider the type of access to various information sources, as well as the quality of the information, in determining whether utilizing various resources of the second system will provide the current service to the user at a higher quality level. For example and without limitation, access to high quality information over a network may, in a particular scenario, be of little value if the network is slow or unreliable.

[146] In general, one or both of the quality control modules 440, 460 may determine, based at least in part on access to various information sources, whether utilizing various resources of the second system 450 will result in the current service being provided to the user at a higher quality level than the current quality level. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular information, information sources, or particular links to such information sources.

[147] In general, the quality control modules 440, 460 may determine whether utilizing various resources of the second system 450 will increase the quality at which the current service is being provided to the user. As mentioned previously, such a determination may, for example, comprise communicating and/or analyzing information related to processing capability, communication capability (including secure communication capability), and information access. The information that the quality control modules 440, 460 may analyze to determine whether utilizing various resources of the second system 450 will provide the current service to the user at a higher quality level is by no means limited to the previous examples. Accordingly, the scope of various aspects of the present invention should not be

limited by characteristics of particular information that may be considered in making such a determination.

[148] The first system 410 may comprise an access control module 442, and the second system 450 may comprise an access control module 462. The access control modules 442, 462 may be communicatively coupled to respective communication modules 435, 455 of the first 410 and second 450 systems. The access control modules 442, 462 may, for example, communicate access control (*e.g.*, authorization or authentication information). Such access control information may, for example, comprise digital certificate, certificate authority (CA) key, management/access control, CA verification, and various user or system identification or authorization information.

[149] The access control modules 442, 462 may utilize such information to determine whether various resources of the second system 450 may be utilized to provide the current service to the user at a higher quality level. For example, the second system 450 may require the first system 410 (or a user thereof) to be authorized and/or authenticated to utilize various resources of the second system 450. Also, for example, the user or the first system 410 may require that the second system 450 be authorized and/or authenticated to provide access to various resources for use in providing the current service to the user. Such access control may, for example, be system, service or user dependent.

[150] In general, the access control modules 442, 462 may communicate access control information and utilize such information to determine whether various resources of the second system 450 may be utilized to provide the current service to the user. Accordingly, the scope of various aspects of the present invention should not be limited by characteristics of particular access control requirements, strategies or implementations.

[151] The second system 450 may comprise a resource allocation module 465. Alternatively, the first system 410 may also comprise a resource allocation module. Though the following discussion will focus on the second system 450 resource allocation module 465, this exemplary configuration should by no means limit the scope of various aspects of

the present invention to a particular logical or physical location of a resource allocation module.

[152] The resource allocation module 450 may, for example, allocate various resources of the second system 450 for providing the current service to the user at a higher level of quality than the current level of quality. Note that such allocation may or may not, depending on the nature of the allocated resource, impact the availability of the allocated resource for utilization with other systems. The resource allocation module 450 may, for example, communicate resource allocation information to respective distributed processing 445, 470 of the first 410 and second 450 systems.

[153] The resource allocation module 465 may, for example, allocate various resources of the second system 450 based on information obtained from the quality control modules 440, 460 and/or the access control modules 442, 462. For example, if one or both of the quality control modules 440, 460 indicate that utilization of a resource of the second system 450 will provide the current service to the user at a higher level of quality; one or both of the access control modules 442, 462 indicate that such resource use is authorized; and the desired resource of the second system 450 is available for use, then the resource allocation module 465 may, for example, allocate the resource for use in providing the current service to the user.

[154] The first 410 and second 450 systems may comprise respective distributed processing modules 445, 470. The distributed processing modules 445, 470 may generally manage the utilization of allocated resources of the second system 450 to provide the current service to the user. The distributed processing modules 445, 470 may provide for such resource utilization in a variety of manners depending on the particular system configuration and the specific allocated resources.

[155] For example, distributed processing modules 445, 470 may, for example, utilize respective communication modules 435, 455 to establish various communication links between the first 410 and second 450 systems. The distributed processing modules 445, 470 may, for example, utilize such communication links to communicate a variety of information

depending on the service being provided and the system configuration. For example, the distributed processing module 470 of the second system 450 may provide raw data to the first system 410 (e.g., to the distributed processing module 445 of the first system 410) for further processing, or the distributed processing module 470 of the second system 450 may provide processed data to the distributed processing module 445 of the first system 410 for immediate presentation to the user. Alternatively, for example, the distributed processing module 470 of the second system 450 may provide processed information directly to the user by utilizing the user interface module 485 of the second system 450.

[156] Such resource utilization may comprise a variety of processing activities on the part of the first 410 and/or second 450 systems. For example and without limitation, the allocated resources of the second system 450 may process information provided by the first system 410. For example, the allocated resources of the second system 450 may acquire information from a source other than the first system 410 and process such information. Also for example, the allocated resources of the second system 450 may acquire information from a source other than the first system 410 and pass such information to the first system 410 for further processing.

[157] The distributed processing modules 445, 470 may, for example, communicate service control information. For example, the user may utilize the user interface device 425 and user interface module 420 of the first system 410 to control how the current service is provided to the user. Alternatively, for example, the user may utilize the user interface device 490 and user interface module 485 of the second system 450 to control how the current service is provided to the user. The distributed processing modules 445, 470 may receive such control information from the user and modify the utilization of the allocated resources of the second system 450 accordingly.

[158] In general, one or both of the distributed processing modules 445, 470 manage utilization of the allocated resources of the second system 450 to provide the current service to the user. Accordingly, the scope of various aspects of the present invention should not be

limited by characteristics of particular information obtaining, distributed processing or communication scenarios.

[159] The various systems and modules illustrated in Figure 4 may, for example, be implemented in hardware or software. For example, various modules may be integrated into a single integrated circuit. Also, for example, various modules may be implemented in software applications or operating system functionality. Accordingly, the scope of various aspects of the present invention should by no means be limited to particular hardware or software implementations of the various modules and components discussed previously.

[160] In summary, aspects of the present invention provide a system and method for quality-of-service based network resource allocation and utilization in a dynamic wireless network environment. While the invention has been described with reference to certain aspects and embodiments, it will be understood by those skilled in the art that various changes may be made and equivalents may be substituted without departing from the scope of the invention. In addition, many modifications may be made to adapt a particular situation or material to the teachings of the invention without departing from its scope. Therefore, it is intended that the invention not be limited to the particular embodiment disclosed, but that the invention will include all embodiments falling within the scope of the appended claims.

CLAIMS

What is claimed is:

1. In a wireless communication network that comprises a first system providing a current service at a current quality level to a user, a method for allocating a resource of a second system to provide improved quality of service to the user, the method comprising:
 - establishing a wireless communication link between the first system and the second system;
 - determining whether utilizing a resource of the second system will provide the current service to the user at a higher quality level than the current quality level; and
 - if it is determined that utilizing the resource of the second system will provide the current service to the user at a higher quality level, then allocating the resource of the second system for such utilization.
2. The method of claim 1, further comprising utilizing the allocated resource of the second system to provide the current service to the user at a higher quality level.
3. The method of claim 1, wherein determining whether utilizing a resource of the second system will provide the current service to the user at a higher quality level comprises determining whether the second system has processing capability to provide the current service to the user at a higher quality level.
4. The method of claim 1, wherein determining whether utilizing a resource of the second system will provide the current service to the user at a higher quality level comprises determining whether at least one of the first and second systems has communication capability necessary for utilizing resources of the second system to provide the current service to the user at a higher quality level.

5. The method of claim 1, wherein determining whether utilizing a resource of the second system will provide the current service to the user at a higher quality level comprises determining whether the second system has access to higher quality information than information to which the first system has access.

6. The method of claim 2, wherein utilizing the allocated resource of the second system to provide the current service to the user comprises utilizing the allocated resource to communicate information to the first system for presentation to the user, the information being based on data obtained from a storage device communicatively coupled to the second system.

7. The method of claim 2, wherein the first and second systems perform the establishing, determining, allocating and utilizing automatically.

8. The method of claim 1, wherein utilizing the allocated resource of the second system comprises utilizing the allocated resource of the second system to communicate audio information to the first system.

9. In a first system in a wireless communication network, a method for obtaining allocation of a resource of a second system to provide improved quality of service to a user, the method comprising:

- providing a current service at a current quality level to a user;
- establishing a wireless communication link with a second system in the wireless communication network;
- determining whether utilizing a resource of the second system will provide the current service to the user at a higher quality level than the current quality level; and
- if it is determined that utilizing the resource of the second system will provide the current service to the user at a higher quality level than the current quality level, then requesting allocation of the resource of the second system for such utilization.

10. The method of claim 9, further comprising utilizing the resource of the second system to provide the current service to the user at a higher quality level than the current quality level.

11. The method of claim 9, wherein determining whether utilizing a resource of the second system will provide the current service to the user at a higher quality level comprises:

communicating information of processing capability with the second system;

and

determining, based at least in part on the information of processing capability, whether the second system has processing capability that will result in the current service being provided to the user at a higher quality level than the current quality level.

12. The method of claim 9, wherein determining whether utilizing a resource of the second system will provide the current service to the user at a higher quality level comprises determining whether at least one of the first and second systems has communication capability necessary for utilizing the resource of the second system to provide the current service to the user at a higher quality level.

13. The method of claim 9, wherein determining whether utilizing the resource of the second system to provide the current service to the user at a higher quality level comprises determining whether the resource of the second system has access to higher quality information than information to which the first system has access.

14. The method of claim 10, wherein utilizing the resource of the second system to provide the current service to the user comprises receiving information from the resource of the second system that is based on data that the resource of the second system obtained from a storage device communicatively coupled to the resource of the second system.

15. The method of claim 10, wherein the first system performs the establishing, determining, requesting and utilizing automatically.

16. The method of claim 10, wherein utilizing the resource of the second system to provide the current service to the user comprises receiving audio information from the resource of the second system.

17. In a second system in a wireless communication network, a method for allocating a resource of the second system to provide improved quality of service to a user, the method comprising:

establishing a wireless communication link with a first system, the first system currently providing a current service at a current quality level to a user;

communicating with the first system to determine whether utilizing a resource of the second system will provide the current service to the user at a higher quality level than the current quality level; and

if it is determined that utilizing a resource of the second system will provide the current service to the user at a higher quality level, then allocating the resource of the second system for such use.

18. The method of claim 17, further comprising utilizing the allocated resource of the second system to provide the current service to the user at a higher quality level than the current quality level.

19. The method of claim 17, wherein communicating with the first system to determine whether utilizing a resource of the second system will provide the current service to the user at a higher quality level comprises communicating process capability information with the first system, wherein the process capability information is analyzed to determine whether

utilizing a resource of the second system will provide the current service to the user at a higher quality level.

20. The method of claim 17, wherein communicating with the first system to determine whether utilizing a resource of the second system will provide the current service to the user at a higher quality level comprises communicating communication capability information with the first system, wherein the communication capability information is analyzed to determine whether utilizing a resource of the second system will provide the current service to the user at a higher quality level.

21. The method of claim 17, wherein communicating with the first system to determine whether utilizing a resource of the second system will provide the current service to the user at a higher quality level comprises communicating with the first system an indication of the quality of information to which at least one of the first and second systems has access, wherein the indication of the quality of information is analyzed to determine whether utilizing a resource of the second system will provide the current service to the user at a higher quality level.

22. The method of claim 18, wherein utilizing resources of the second system to provide the current service to the user comprises:

- obtaining data corresponding to the current service from a storage device communicatively coupled to the second system; and
- communicating information based on the obtained data to the first system.

23. The method of claim 18, wherein utilizing resources of the second system to provide the current service to the user comprises automatically utilizing resources of the second system to provide the current service to the user at a higher quality level.

24. A first system for providing a service to a user in a wireless communication network, the first system comprising:

- a communication module that establishes a communication link with a second system in the wireless communication network;

- a user interface module;

- a local processing module, communicatively coupled to the user interface module, that utilizes the user interface module to provide a current service to a user at a current quality level;

- a quality control module, communicatively coupled to the communication module, that communicates capability information with the second system to determine whether utilizing a resource of the second system will provide the current service to the user at a higher quality level than the current quality level; and

- a distributed processing module, communicatively coupled to the communication module, that requests allocation of the resource of the second system for providing the current service to the user at a higher quality level than the current quality level.

25. The first system of claim 24, wherein the distributed processing module utilizes the allocated resource of the second system to provide the current service to the user at a higher quality level than the current quality level.

26. The first system of claim 24, wherein the quality control module communicates processing capability information with the second system, the processing capability information being analyzed to determine whether utilizing a resource of the second system will provide the current service to the user at a higher quality level than the current quality level.

27. The first system of claim 24, wherein the quality control module communicates communication capability information with the second system, the communication capability

information being analyzed to determine whether utilizing a resource of the second system will provide the current service to the user at a higher quality level than the current quality level.

28. The first system of claim 24, wherein the quality control module communicates with the second system an indication of the quality of information to which at least one of the first and second systems has access, the indication of the quality of information being analyzed to determine whether utilizing a resource of the second system will provide the current service to the user at a higher quality level than the current quality level.

29. The first system of claim 25, wherein the distributed processing module receives information from the second system, the information being based on data that the second system obtained from a data storage device communicatively coupled to the second system.

30. The first system of claim 25, wherein the distributed processing module utilizes the allocated resource of the second system automatically.

31. A second system for providing a service to a user in a wireless communication network, the wireless communication network comprising a first system providing a current service to the user at a current quality level, the second system comprising:

- a communication module that establishes a communication link with the first system in the wireless communication network;

- a quality control module, communicatively coupled to the communication module, that communicates capability information with the first system to determine whether utilizing a resource of the second system will provide the current service to the user at a higher quality level than the current quality level; and

- a resource allocation module that allocates the resource of the second system for providing the current service to the user at a higher quality level than the current quality level.

32. The second system of claim 31, further comprising a distributed processing module that utilizes the allocated resource of the second system to provide the current service to the user at a higher quality level than the current quality level.

33. The second system of claim 31, wherein the quality control module communicates processing capability information with the first system to determine whether utilizing a resource of the second system will provide the current service to the user at a higher quality level than the current quality level.

34. The second system of claim 31, wherein the quality control module communicates communication capability information with the first system to determine whether utilizing a resource of the second system will provide the current service to the user at a higher quality level than the current quality level.

35. The second system of claim 31, wherein the quality control module communicates with the first system an indication of the quality of information to which at least one of the first and second systems has access to determine whether utilizing a resource of the second system will provide the current service to the user at a higher quality level than the current quality level.

36. The second system of claim 32, further comprising a storage device communicatively coupled to the distributed processing module, and wherein the distributed processing module obtains data corresponding to the current service from the storage device and communicates information based on the obtained data to the first system.

37. The second system of claim 32, wherein the distributed processing module automatically utilizes the allocated resource of the second system to provide the current service to the user at a higher quality level than the current quality level.

AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION

ABSTRACT OF THE DISCLOSURE

A system and method for providing quality-of-service based network resource allocation and utilization in a dynamic network environment. For example, a wireless communication network may comprise a first system and a second system. The first system may provide a current service to a user at a current quality level. The first system and second system may establish a wireless communication link. At least one of the first and second systems may determine whether utilizing one or more resources of the second system will provide the current service to the user at a higher level of quality than the current quality level. One or more resources of the second system may be allocated for providing the current service to a user at a higher quality level. The allocated resources may be utilized to provide the current service to the user at a higher quality level than the current quality level.

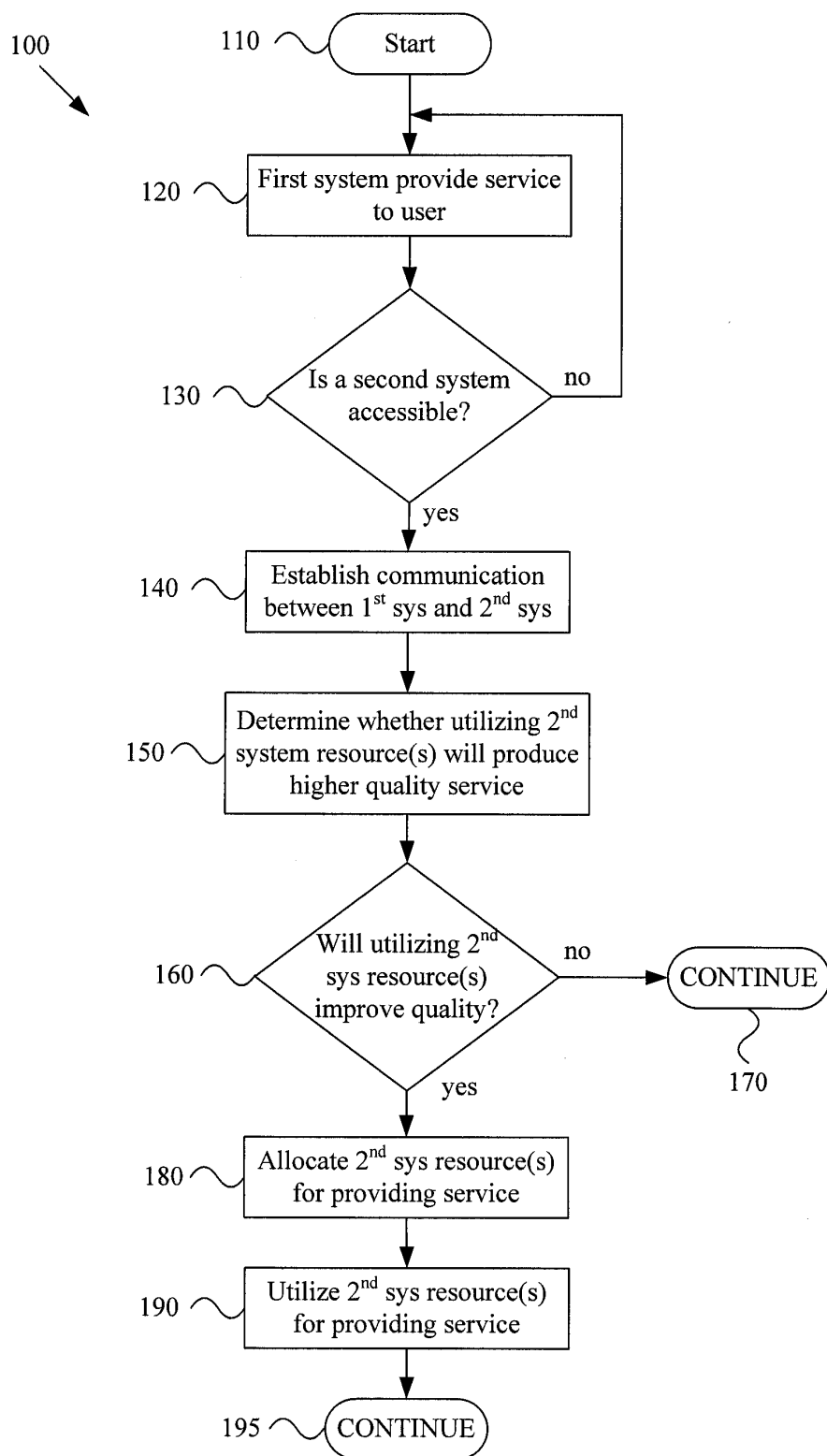


Figure 1

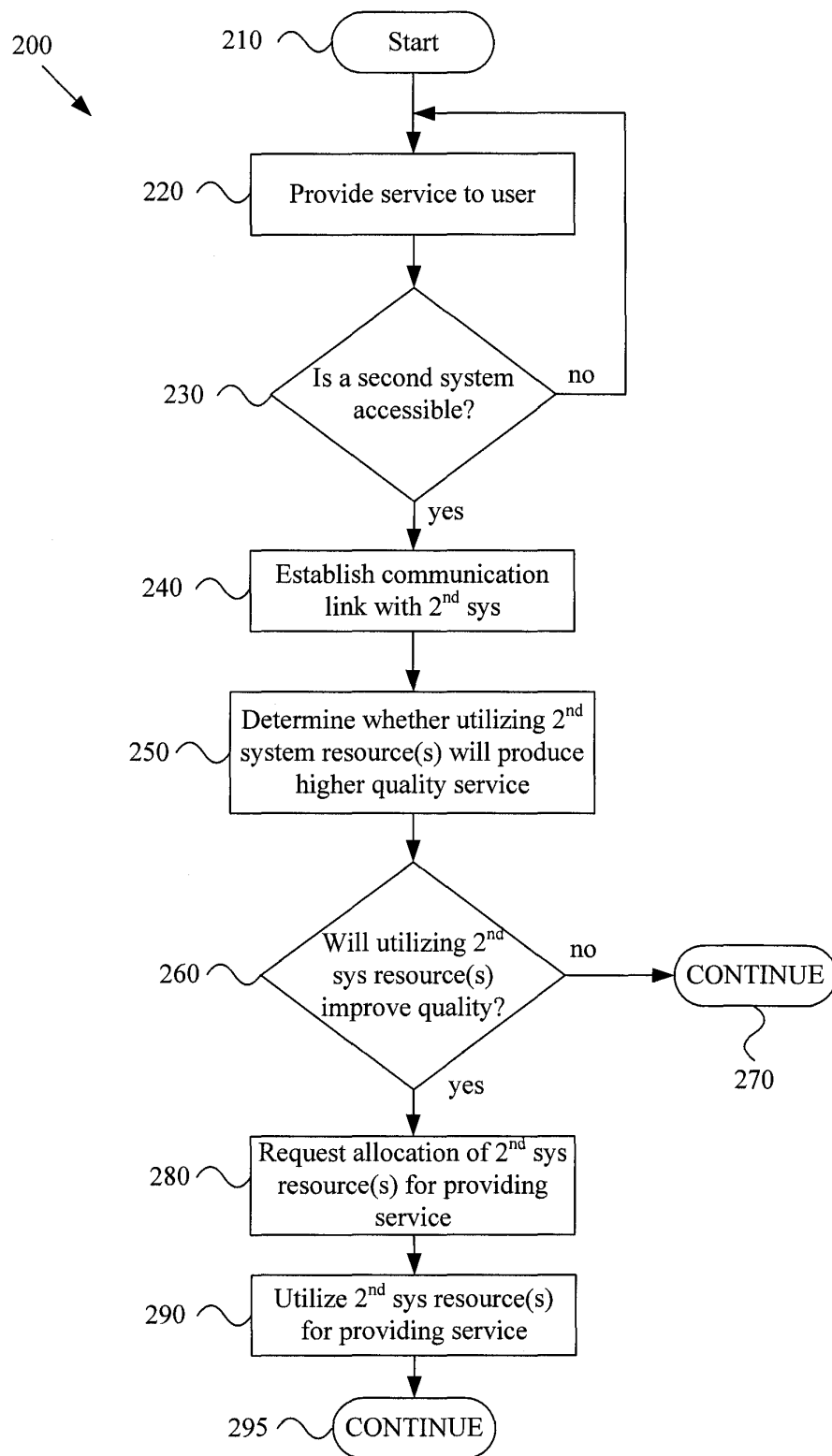


Figure 2

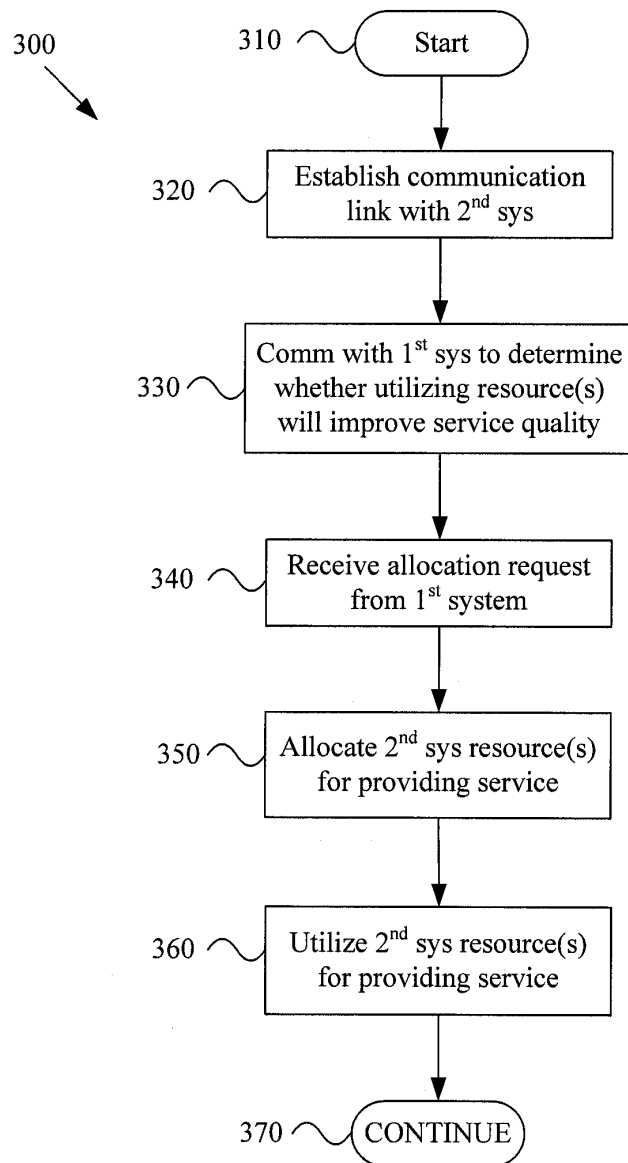


Figure 3

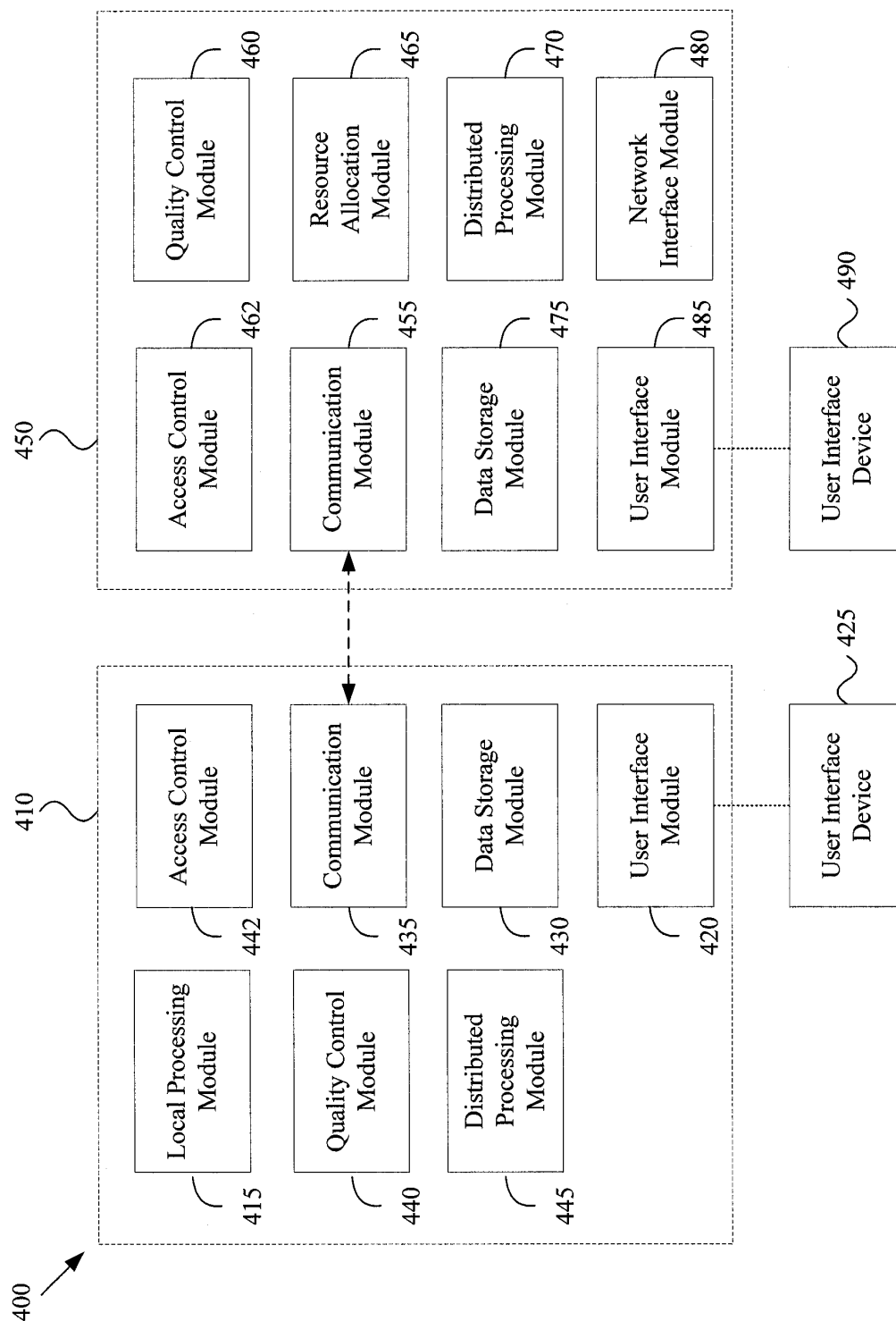


Figure 4

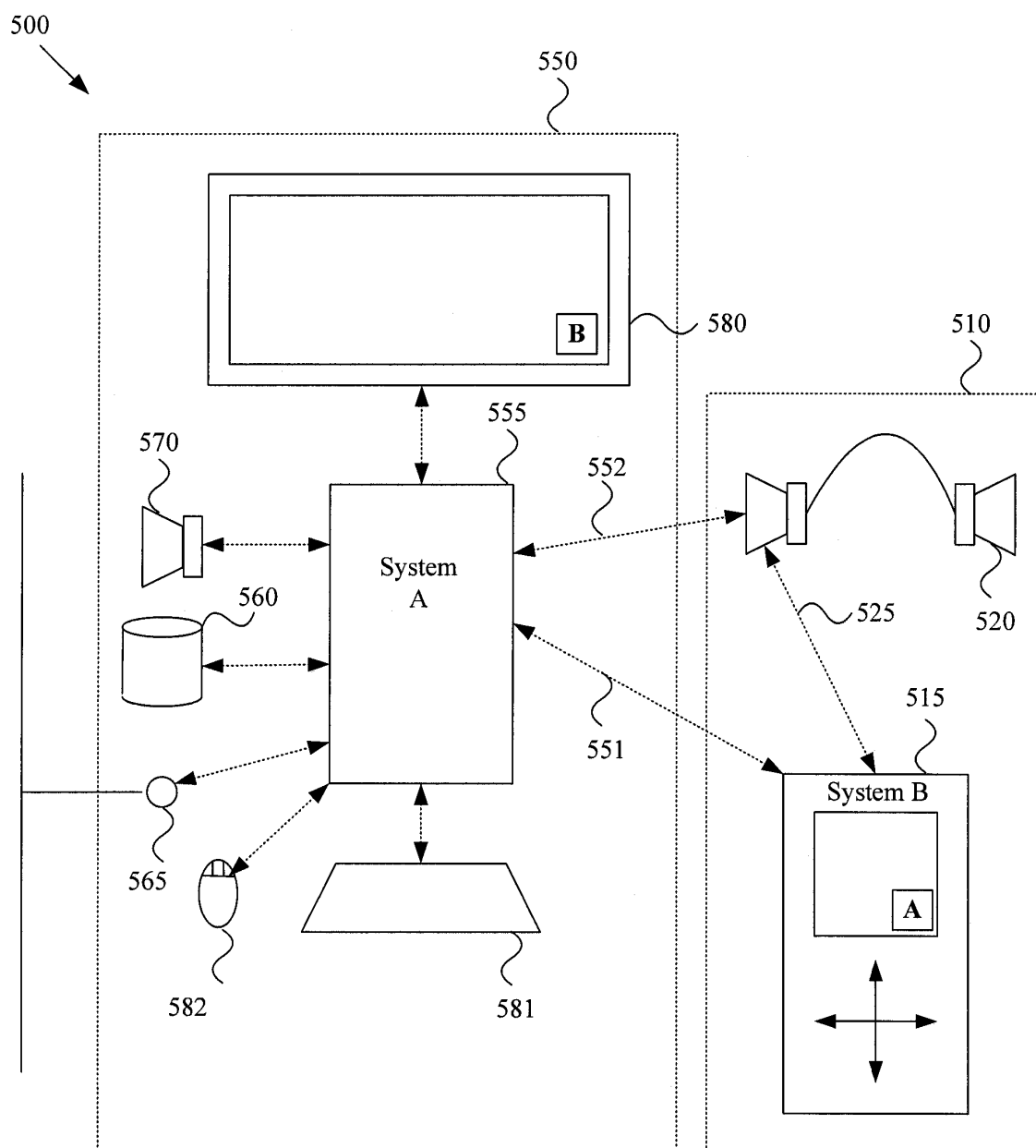


Figure 5

DECLARATION FOR PATENT APPLICATION

As the below-named inventors, we hereby declare that:

Our residences, post office addresses and citizenships are as stated below next to our names.

We believe we are the original joint inventors of the subject matter which is claimed and for which a patent is sought on the invention entitled **AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION**, the specification of which

(check one) ☐ is attached hereto.

☐ was filed on _____, 200X as Application Serial No. _____, was amended on _____, and issued on _____ as U.S. Patent No. _____.

We hereby state that we have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

We acknowledge the duty to disclose information that is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

We hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

PRIOR FOREIGN APPLICATION(S)			<u>Priority Claimed</u>
			Yes/No
(Number)	(Country)	(Date Filed)	

We hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below:

<u>Application Serial No.</u>	<u>Filing Date</u>
60/504,876	September 22, 2003

We hereby claim the benefit under Title 35, United States Code, §120 of any United States application or any international application designating the United States under Title 35, United States Code, §365 listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, we acknowledge the duty to disclose

material information as defined in Title 37, Code of Federal Regulations, § 1.56, regarding events which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Number)	(Country)	(Date Filed)
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(Number)	(Country)	(Date Filed)
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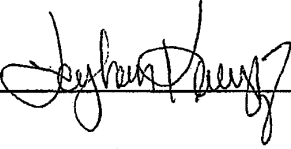
We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

This declaration names two inventors below.

First inventor:

Full name Jeyhan Karaoguz

Inventor's Signature



Date

6/17

, 2004

Residence 15 Petria, Irvine, CA 92606

Citizenship USA

Post Office Address

Same

Second inventor:

Full name James D. Bennett

Inventor's Signature  Date June 16, 2004

Residence 918 Avenida Presidio, San Clemente, CA 92672

Citizenship USA

Post Office Address Same

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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(b).

I hereby appoint:

☒ Practitioners associated with Customer Number:

23,446

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 assignment documents attached to this form in accordance with 37 CFR 3.73(b).

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

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23,446

OR

<input type="checkbox"/> Firm or Individual Name			
Address			
City	State	Zip	
Country			
Telephone			Email

Assignee Name and Address:

Broadcom Corporation
5300 California Avenue
Irvine, CA 92617

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, 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	Date
Name	Telephone
Title	

This collection of information is required by 37 CFR 1.31 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(b)

Applicant/Patent Owner: Jeyhan Karaoguz and James D. Bennett

Application No./Patent No./Control No.: CON of 12/464,255 Filed/Issue Date: Herewith

Entitled: AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION

Broadcom Corporation,

a corporation

(Name of Assignee)

(Type of Assignee: corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest; or
2. ☐ an assignee of less than the entire right, title, and interest
(The extent (by percentage) of its ownership interest is _____ %)

in the patent application/patent identified above by virtue of either:

- 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 015076, Frame 0893, or a true copy of the original assignment is attached.

OR

- 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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3. From: _____ To: _____
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Reel _____, Frame _____, or for which a copy thereof is attached.

- ☐ Additional documents in the chain of title are listed on a supplemental sheet.

As required by 37 CFR 3.73(b)(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.

/Shawn L. Peterson/
Signature
Shawn L. Peterson
Reg. No. 44,286

Printed or Typed Name

Attorney/Agent of Record

Title

July 18, 2011
Date

312-775-8000

Telephone Number

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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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Case No. 15211US05)**

In the Application of:)
)
J. Karaoguz, et al.)
)
Serial No.: CON of 12/464,255)
)
Filed: July 18, 2011)
)
For: AUTOMATIC QUALITY OF)
SERVICE BASED RESOURCE)
ALLOCATION)
)
Examiner: Lam, Dung Le)
)
Group Art Unit: 2617)
)
Conf. No.: Unassigned)
)
Cust. No.: 23446)

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on July 18, 2011.

/Shawn L. Peterson/

Shawn L. Peterson

Reg. No. 44,286

**TRANSMITTAL OF
INFORMATION DISCLOSURE STATEMENT**

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

Dear Sir:

Enclosed are the following:

- * A completed PTO form PTO/SB/08 which has five (5) pages.

FEE DETERMINATION

- * No fee is believed to be due because:
The information disclosure statement is being filed with the above-identified application.

Appln. No. CON of 12/464,255
Information Disclosure Statement dated July 18, 2011
Attorney Docket No. 15211US05

FEE PAYMENT

The following arrangements have been made to pay the fees calculated above:

* No fee is believed to be due.

The Commissioner is hereby authorized to charge any additional fees which are presently required, or credit any overpayment, to Deposit Account No. 13-0017.

REQUEST FOR CONSIDERATION

This paper and enclosures are believed to be entitled to consideration under 37 C.F.R. § 1.97, based on the facts stated above.

This submission is in no way intended as an admission that the cited references constitute prior art under any subsection of 35 U.S.C. § 102 or §103. Applicant expressly retains the right to argue that any of the cited references are not indeed prior art or to take any actions necessary to remove any of the cited references from the available prior art.

The Examiner is requested to initial a copy of the enclosed PTO form PTO/SB/08A and return the initialed copy to the Applicant to indicate consideration of the cited references.

Respectfully submitted,

Date: July 18, 2011

/Shawn L. Peterson/
Shawn L. Peterson
Reg. No. 44,286

McAndrews, Held & Malloy
500 West Madison Street, Suite 3400
Chicago, Illinois 60661
(312) 775-8000

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)

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	Filing Date		2011-07-18
	First Named Inventor	Jeyhan Karaoguz	
	Art Unit	2617	
	Examiner Name	Lam, Dung Le	
	Attorney Docket Number	15211US05	

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	2	6445921		2002-09-03	Bell, John R.	
	3	6931249		2005-08-16	Fors et al.	
	4	7221946		2007-05-22	Karaoguz et al.	
	5	7532893		2009-05-12	Karaoguz et al.	
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	Filing Date		2011-07-18
	First Named Inventor	Jeyhan Karaoguz	
	Art Unit	2617	
	Examiner Name	Lam, Dung Le	
	Attorney Docket Number	15211US05	

	1	20010036830		2001-11-01	Wu et al.	
	2	20040165563		2004-08-26	Hsu et al.	
	3	20050059400		2005-03-17	Jagadeesan et al.	
	4	20050064873		2005-03-24	Karaoguz et al.	
	5	20070202856		2007-08-30	Karaoguz et al.	
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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.						T ⁵

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		2011-07-18
	First Named Inventor	Jeyhan Karaoguz	
	Art Unit	2617	
	Examiner Name	Lam, Dung Le	
	Attorney Docket Number	15211US05	

	1		<input type="checkbox"/>
If you wish to add additional non-patent literature document citation information please click the Add button Add			
EXAMINER SIGNATURE			
Examiner Signature		Date Considered	
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			
<small> ¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached. </small>			

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2011-07-18
First Named Inventor	Jeyhan Karaoguz
Art Unit	2617
Examiner Name	Lam, Dung Le
Attorney Docket Number	15211US05

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ 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).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Shawn L. Peterson/	Date (YYYY-MM-DD)	2011-07-18
Name/Print	Shawn L. Peterson	Registration Number	44636

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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 Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION		
First Named Inventor/Applicant Name:		Jeyhan Karaoguz		
Filer:		Shawn Leonard Peterson/Darlene Long		
Attorney Docket Number:		15211US05		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility application filing	1011	1	330	330
Utility Search Fee	1111	1	540	540
Utility Examination Fee	1311	1	220	220
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1090

Electronic Acknowledgement Receipt	
EFS ID:	10539555
Application Number:	13184799
International Application Number:	
Confirmation Number:	1131
Title of Invention:	AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION
First Named Inventor/Applicant Name:	Jeyhan Karaoguz
Customer Number:	23446
Filer:	Shawn Leonard Peterson/Darlene Long
Filer Authorized By:	Shawn Leonard Peterson
Attorney Docket Number:	15211US05
Receipt Date:	18-JUL-2011
Filing Date:	
Time Stamp:	14:15:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$1090
RAM confirmation Number	452
Deposit Account	130017
Authorized User	
<p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)</p>	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 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	Application Data Sheet	15211US05_BU3297C3_-_Application_Data_Sheet.pdf	966149 21739f2663b3be1dc666d55f5cabe6d6aa33cb1a3	no	5

Warnings:

Information:

2		15211US05_BU3297C3_-_Preliminary_Amendment.pdf	107308 7638f6d5267c03e107af119d63e9200bcc99563c	yes	4
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Multipart Description/PDF files in .zip description

Document Description	Start	End
Preliminary Amendment	1	1
Specification	2	2
Claims	3	3
Applicant Arguments/Remarks Made in an Amendment	4	4

Warnings:

Information:

3		15211US05_BU3297C3_-_Application.pdf	5220336 a4a156f844690c1bbb5830aa337d84c7ae34657d	yes	53
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Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	44
Claims	45	52
Abstract	53	53

Warnings:

Information:

4	Drawings-only black and white line drawings	15211US05_BU3297C3_-_Figures.pdf	171493 049053c9cabd1652793d95efb5f3ee1570752147	no	5
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Warnings:

Information:					
5	Oath or Declaration filed	15211US05_BU3297C3_-_Declaration.pdf	166986 e604b6c524ecb06a09282ea02d9bf20a08c cf92	no	4
Warnings:					
Information:					
6	Power of Attorney	15211US05_BU3297C3_-_BRCM_POA_General.pdf	55828 67558dd53f85a15c65bd7f06bcbdfc1265 b4559	no	1
Warnings:					
Information:					
7	Assignee showing of ownership per 37 CFR 3.73(b).	15211US05_BU3297C3_-_BRCM_Cert_373b.pdf	91271 153de22074b16a6293c57c99a80f51e00b7 54f05	no	1
Warnings:					
Information:					
8	Transmittal Letter	15211US05_BU3297C3_-_IDS_Transmittal.pdf	67581 e7ad2ac3dddb5a526f048a923863ba22d9e 878fe	no	2
Warnings:					
Information:					
9	Information Disclosure Statement (IDS) Form (SB08)	15211US05_BU3297C3_-_IDS_SB08a.pdf	612928 9a737643e53402c43ba8c223e0bce3527da 6f8be	no	5
Warnings:					
Information:					
10	Fee Worksheet (SB06)	fee-info.pdf	33036 80450f206dd1bfcdac7b63287394e618c93 4b66	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			7492916		

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.

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	15211US05
		Application Number	
Title of Invention	AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION		
<p>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.</p> <p>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.</p>			

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					Remove
Applicant Authority		<input checked="" type="radio"/> Inventor		<input type="radio"/> Legal Representative under 35 U.S.C. 117	<input type="radio"/> Party of Interest under 35 U.S.C. 118
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Jeyhan		Karaoguz		
Residence Information (Select One)		<input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service			
City	Irvine	State/Province	CA	Country of Residenceⁱ	US
Citizenship under 37 CFR 1.41(b)ⁱ		US			
Mailing Address of Applicant:					
Address 1					
Address 2		15 Petria			
City	Irvine	State/Province	CA		
Postal Code	92606	Countryⁱ	US		
Applicant 2					Remove
Applicant Authority		<input checked="" type="radio"/> Inventor		<input type="radio"/> Legal Representative under 35 U.S.C. 117	<input type="radio"/> Party of Interest under 35 U.S.C. 118
Prefix	Given Name	Middle Name	Family Name	Suffix	
	James	D.	Bennett		
Residence Information (Select One)		<input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service			
City	Hroznetin	Country Of Residenceⁱ	CZ		
Citizenship under 37 CFR 1.41(b)ⁱ		US			
Mailing Address of Applicant:					
Address 1		Velky Rybnik 21			
Address 2					
City	Hroznetin	State/Province			
Postal Code	36301	Countryⁱ	CZ		
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).

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	15211US05
		Application Number	
Title of Invention	AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION		

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

Customer Number	23446		
Email Address	mhmpo@mcandrews-ip.com	<input type="button" value="Add Email"/>	<input type="button" value="Remove Email"/>

Application Information:

Title of the Invention	AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION		
Attorney Docket Number	15211US05	Small Entity Status Claimed	<input type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)	2617		
Total Number of Drawing Sheets (if any)	5	Suggested Figure for Publication (if any)	

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:	<input checked="" type="radio"/> Customer Number	<input type="radio"/> US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)
Customer Number	23446		

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	<input type="button" value="Remove"/>	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	12/464255	2009-05-12
Prior Application Status	Patented	<input type="button" value="Remove"/>	

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		15211US05	
		Application Number			
Title of Invention	AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION				

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12/464255	Continuation of	11/689995	2007-03-22	7532893	2009-05-12
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
11/689995	Continuation of	10/875891	2004-06-24	7221946	2007-05-22
Prior Application Status		Expired		Remove	
Application Number		Continuity Type		Prior Application Number	Filing Date (YYYY-MM-DD)
10/875891		non provisional of		60/504876	2003-09-22
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button. Add					

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).			
Remove			
Application Number	Country ⁱ	Parent Filing Date (YYYY-MM-DD)	Priority Claimed
			<input type="radio"/> Yes <input checked="" type="radio"/> No
Additional Foreign Priority Data may be generated within this form by selecting the Add button. Add			

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			Remove
If the Assignee is an Organization check here. <input checked="" type="checkbox"/>			
Organization Name	Broadcom Corporation		
Mailing Address Information:			
Address 1	5300 California Avenue		
Address 2			
City	Irvine	State/Province	CA
Country ⁱ	US	Postal Code	92617
Phone Number		Fax Number	
Email Address			
Additional Assignee Data may be generated within this form by selecting the Add button. Add			

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.
--

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		15211US05	
		Application Number			
Title of Invention		AUTOMATIC QUALITY OF SERVICE BASED RESOURCE ALLOCATION			
Signature		/Shawn L. Peterson/		Date (YYYY-MM-DD) 2011-07-18	
First Name	Shawn L.	Last Name	Peterson	Registration Number	44286

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.**

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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 inspections 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.

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 13/184,799		Filing Date 07/18/2011		<input type="checkbox"/> To be Mailed	
---	--	--	--	--	---	--	----------------------------------	--	---------------------------------------	--

APPLICATION AS FILED – PART I					OTHER THAN SMALL ENTITY				
(Column 1)		(Column 2)		SMALL ENTITY <input type="checkbox"/>		OR		SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR		RATE (\$)	FEE (\$)	
<input type="checkbox"/> BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A		OR		N/A		
<input type="checkbox"/> SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A				N/A		
<input type="checkbox"/> EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A				N/A		
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =				X \$ =		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =				X \$ =		
<input type="checkbox"/> APPLICATION SIZE FEE (37 CFR 1.16(s)) If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 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).									
<input type="checkbox"/> 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		TOTAL		

APPLICATION AS AMENDED – PART II					OTHER THAN SMALL ENTITY						
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR		SMALL ENTITY	
AMENDMENT	07/18/2011	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 1	Minus	** 20	= 0	X \$ =				X \$52=	0
	Independent (37 CFR 1.16(h))	* 1	Minus	***3	= 0	X \$ =				X \$220=	0
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))										
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
					TOTAL ADD'L FEE		OR		TOTAL ADD'L FEE	0	

(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR		SMALL ENTITY	
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =				X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =				X \$ =	
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))										
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
					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 number found in the appropriate box in column 1.

Legal Instrument Examiner:
/ADRIENE SELLMAN/

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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