U.S. PTO
13/134028
05/25/2011

PTO/SB/05 (08-08)
Approved for use through 09/30/2010. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

17439 U.S. PTO 052511

Attorney Docket No.	26WV-160509 [RALEP032]
First Inventor	Gregory G. Raleigh, et al.
Title	Device-Assisted Services for Protecting Network Capacity
Express Mail Label No.	EM 551710665 US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☒ **Fee Transmittal Form** (e.g., PTO/SB/17)
2. ☒ **Applicant claims small entity status.** See 37 CFR 1.27.
3. ☒ **Specification** [*Total Pages* 210] Both the claims and abstract must start on a new page *(For information on the preferred arrangement, see MPEP 608.01(a))*
4. ☒ **Drawing(s)** (35 U.S. C. *113*) [*Total Sheets* 28]
5. **Oath or Declaration** [*Total Sheets* _____]
   a. ☐ Newly executed (original or copy)
   b. ☐ A copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional with Box 18 completed)*
      i. ☐ DELETION OF INVENTOR(s) Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☐ **Application Data Sheet.** See 37 CFR 1.76
7. ☐ **CD-ROM or CD-R** in duplicate, large table or Computer Program *(Appendix)*
   ☐ Landscape Table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission** *(if applicable, items a. - c. are required)*
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ Paper
   c. ☐ Statements verifying identity of above copies

ADDRESS TO: **Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450**

ACCOMPANYING APPLICATION PARTS

9. ☐ **Assignment Papers** (cover sheet & document(s))
   Name of Assignee _____
10. ☐ **37 CFR 3.73(b) Statement** *(when there is an assignee)* ☐ **Power of Attorney**
11. ☐ **English Translation Document** *(if applicable)*
12. ☐ **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
    ☐ Copies of citations attached
13. ☐ **Preliminary Amendment**
14. ☒ **Return Receipt Postcard** (MPEP 503) *(Should be specifically itemized)*
15. ☐ **Certified Copy of Priority Document(s)** *(if foreign priority is claimed)*
16. ☐ **Nonpublication Request** under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
17. ☒ Other: General Authorization to Petition for Extensions of Time (1 pg.)

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:*

☐ Continuation ☐ Divisional ☒ Continuation-in-part (CIP) of prior application No.: See application

Prior application information: Examiner _____ *Art Unit:* _____

19. CORRESPONDENCE ADDRESS

☒ The address associated with Customer Number 69849 *OR* ☐ Correspondence address below

Name					
Address					
City		State		Zip Code	
Country		Telephone		Email	

Signature		Date	May 25, 2011
Name (Print/Type)	Marc A. Sockol	Registration No. (Attorney/Agent)	40,823

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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

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

PTO/SB/17 (10-08)
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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.

Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2009

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($)4,578.00

Complete If Known	
Application Number	Not Yet Assigned
Filing Date	Herewith
First Named Inventor	Gregory G. Raleigh, et al.
Examiner Name	Not Yet Assigned
Art Unit	Not Yet Assigned
Attorney Docket No.	26WV-160509 [RALEP032]

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: 50-4561 Deposit Account Name: Sheppard, Mullin, Richter & Hampton LLP

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☒ Charge fee(s) indicated below
☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17
☐ Charge fee(s) indicated below, **except for the filing fee**
☒ Credit any overpayments

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
		Small Entity		Small Entity		Small Entity	
Application Type	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fees Paid ($)
Utility	330	165	540	270	220	110	545.00
Design	220	110	100	50	140	70	
Plant	220	110	330	165	170	85	
Reissue	330	165	540	270	650	325	
Provisional	220	110	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	52	26
Each independent claim over 3 (including Reissues)	220	110
Multiple dependent claims	390	195

Total Claims		Extra Claims	Fee ($)	Fees Paid ($)
113	- 20 or HP =	93	x 26	= 2,418

HP = highest number of total claims paid for, if greater than 20

Indep. Claims		Extra Claims	Fee ($)	Fees Paid ($)
14	- 3 or HP =	11	x 110	= 1,210

HP = highest number of independent claims paid for, if greater than 3

Multiple Dependent Claims	
Fee ($)	Fee Paid ($)

3. APPLICATION SIZE FEE

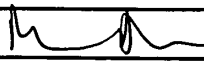
If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $270 ($135 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets		Extra Sheets		Number of each additional 50 or fraction thereof		Fee ($)		Fee Paid ($)
239	- 100 =	139	/50=	3	(round up to a whole number) x	135	=	405

4. OTHER FEE(S)

	Fee Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
Other (e.g., late filing surcharge): _____	

SUBMITTED BY

Signature		Registration No.: 40,823 (Attorney/Agent)	Telephone: (650) 815-2600
Name (Print/Type)	Marc A. Sockol		Date: May 25, 2011

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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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.

Attorney Docket No.: 26WV-160509 [RALEP032]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of: Examiner: Not Yet Assigned

Gregory G. Raleigh, et al. Art Unit: Not Yet Assigned

Serial No: Not Yet Assigned

Filed: Herewith

For: Device-Assisted Services for Protecting Network Capacity

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

GENERAL AUTHORIZATION TO PETITION FOR EXTENSIONS OF TIME

Dear Sir:

With reference to the subject application, and pursuant to 37 C.F.R. § 1.136, Applicants hereby authorize and request the Commissioner to treat any correspondence requiring a petition for extension of time as containing such a request therefor for the appropriate length of time. This general authorization is effective during the pendency of this application, including any divisional or continuing application therefrom.

Where no check is received by the Commissioner, you are hereby authorized to charge payment of the requisite petition fees, or charge any additional fee required under 37 C.F.R. § 1.17, or credit any overpayment of same, to Deposit Account No. **50-4561**.

Respectfully submitted,

Date: May 25, 2011 By: _____

Marc A. Sockol
Reg. No. 40,823
Customer Number 69849
Sheppard Mullin Richter & Hampton LLP
390 Lytton Avenue
Palo Alto, CA 94301-1432

W02-WEST:1LKB1\403587315.1

UNITED STATES PATENT APPLICATION

FOR

DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY

INVENTORS:

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ALI RAISSINIA

JAMES LAVINE

PREPARED BY:

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CUSTOMER NUMBER: 69849

ATTORNEY DOCKET NO.: 26WV-160509

EXPRESS MAIL LABEL NO.: EM 551710665 US

DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation-in-part of and incorporates by reference the following published U.S. pending nonprovisional patent applications: U.S. publication No. 2010/0188975, filed March 2, 2009, entitled "Verifiable Device Assisted Service Policy Implementation," U.S. publication No. 2010/0192170, filed March 2, 2009, entitled "Device Assisted Service Profile Management with User Preference, Adaptive Policy, Network Neutrality, and User Privacy," U.S. publication No. 2010/0191612, filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Monitoring with Reporting, Synchronization, and Notification," U.S. publication No. 2010/0191576, filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Billing with Integrated Accounting, Mediation Accounting, and Multi-Account," U.S. publication No. 2010/0188991, filed March 2, 2009, entitled "Network Based Service Policy Implementation with Network Neutrality and User Privacy," U.S. publication No. 2010/0188990, filed March 2, 2009, entitled "Network Based Service Profile Management with User Preference, Adaptive Policy, Network Neutrality and User Privacy," U.S. publication No. 2010/0192212, filed March 2, 2009, entitled "Automated Device Provisioning and Activation," U.S. publication No. 2010/0191604, filed March 2, 2009, entitled "Device Assisted Ambient Services," U.S. publication No. 2010/0191575, filed March 2, 2009, entitled "Network Based Ambient Services," U.S. publication No. 2010/0188993, filed March 2, 2009, entitled "Network Tools for Analysis, Design, Testing, and Production of Services," U.S. publication No. 2010/0190470, filed March 2, 2009, entitled "Roaming Services Network and Overlay Networks," U.S. publication No. 2010/0192120, filed March 2, 2009, entitled "Open Development System for Access Service Providers," U.S. publication No. 2010/0192207, filed March 2, 2009, entitled "Virtual Service Provider Systems," U.S. application serial No. 12/380,757, filed March 2, 2009, and entitled

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"Service Activation Tracking System," U.S. publication No. 2010/0191613, filed March 2, 2009, entitled "Open Transaction Central Billing System," U.S. publication No. 2010/0188995, filed March 2, 2009, entitled "Verifiable and Accurate Service Usage Monitoring for Intermediate Networking Devices," U.S. publication No. 2010/0188994, filed March 2, 2009, entitled "Verifiable Service Billing for Intermediate Networking Devices," U.S. publication No. 2010/0191846, filed March 2, 2009, entitled "Verifiable Service Policy Implementation for Intermediate Networking Devices," U.S. publication No. 2010/0188992, filed March 2, 2009, entitled "Service Profile Management with User Preference, Adaptive Policy, Network Neutrality and User Privacy for Intermediate Networking Devices," U.S. publication No. 2010/0191847, filed March 2, 2009, entitled "Simplified Service Network Architecture," U.S. publication No. 2010/0197266, filed January 27, 2010, entitled "Device Assisted CDR Creation, Aggregation, Mediation, and Billing," U.S. publication No. 2010/0198698, filed January 27, 2010, entitled "Adaptive Ambient Services," U.S. publication No. 2010/0199325, filed January 27, 2010, entitled "Security Techniques for Device Assisted Services," U.S. publication No. 2010/0197267, filed January 27, 2010, entitled "Device Group Partitions and Settlement Platform," U.S. publication No. 2010/0198939, filed January 27, 2010, entitled "Device Assisted Services Install," U.S. publication No. 2010/0195503, filed January 27, 2010, entitled "Quality of Service for Device Assisted Services," U.S. publication No. 2010/0197268, filed January 28, 2010, entitled "Enhanced Roaming Services and Converged Carrier Networks with Device Assisted Services and a Proxy," and U.S. application serial No. 13/_____, filed May 25, 2011, and entitled "System and Method for Wireless Network Offloading."

[0002] This application seeks priority to and incorporates by reference the following U.S. pending provisional patent applications: U.S. provisional application serial No. 61/348,022, filed May 25, 2010, entitled "Device Assisted Services for Protecting Network Capacity," U.S. provisional application serial No. 61/381,159, filed September 9, 2010, entitled "Device Assisted

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Services for Protecting Network Capacity," U.S. provisional application serial No. 61/381,162, filed September 9, 2010, entitled "Service Controller Interfaces and Workflows," U.S. provisional application serial No. 61/384,456, filed September 20, 2010, entitled "Securing Service Processor with Sponsored SIMs," U.S. provisional application serial No. 61/389,547, filed October 4, 2010, entitled "User Notifications for Device Assisted Services," U.S. provisional application serial No. 61/385,020, filed September 21, 2010, entitled "Service Usage Reconciliation System Overview," U.S. provisional application serial No. 61/387,243, filed September 28, 2010, entitled "Enterprise and Consumer Billing Allocation for Wireless Communication Device Service Usage Activities," U.S. provisional application serial No. 61/387,247, filed September 28, 2010, entitled "Secured Device Data Records," U.S. provisional application serial No. 61/407,358, filed October 27, 2010, entitled "Service Controller and Service Processor Architecture," U.S. provisional application serial No. 61/418,507, filed December 1, 2010, entitled "Application Service Provider Interface System," U.S. provisional application serial No. 61/418,509, filed December 1, 2010, entitled "Service Usage Reporting Reconciliation and Fraud Detection for Device Assisted Services," U.S. provisional application serial No. 61/420,727, filed December 7, 2010, entitled "Secure Device Data Records," U.S. provisional application serial No. 61/422,565, filed December 13, 2010, entitled "Service Design Center for Device Assisted Services," U.S. provisional application serial No. 61/422,572, filed December 13, 2010, entitled "System Interfaces and Workflows for Device Assisted Services," U.S. provisional application serial No. 61/422,574, filed December 13, 2010, entitled "Security and Fraud Detection for Device Assisted Services," U.S. provisional application serial No. 61/435,564, filed January 24, 2011, entitled "Framework for Device Assisted Services," and U.S. provisional application serial No. 61/472,606, filed April 6, 2011, entitled "Managing Service User Discovery and Service Launch Object Placement on a Device."

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[0003] Further, this application incorporates by reference the following U.S. provisional patent applications: U.S. provisional application serial No. 61/206,354, filed January 28, 2009, entitled "Services Policy Communication System and Method," U.S. provisional application serial No. 61/206,944, filed February 4, 2009, entitled "Services Policy Communication System and Method," U.S. provisional application serial No. 61/207,393, filed February 10, 2009, entitled "Services Policy Communication System and Method," U.S. provisional application serial No. 61/207,739, filed February 13, 2009, entitled "Services Policy Communication System and Method," U.S. provisional application serial No. 61/270,353, filed July 6, 2009, entitled "Device Assisted CDR Creation, Aggregation, Mediation and Billing," U.S. provisional application serial No. 61/275,208, filed August 25, 2009, entitled "Adaptive Ambient Services," U.S. provisional application serial No. 61/237,753, filed August 28, 2009, entitled "Adaptive Ambient Services," U.S. provisional application serial No. 61/252,151, filed October 15, 2009, entitled "Security Techniques for Device Assisted Services," U.S. provisional application serial No. 61/252,153, filed October 15, 2009, entitled "Device Group Partitions and Settlement Platform," U.S. provisional application serial No. 61/264,120, filed November 24, 2009, entitled "Device Assisted Services Install," and U.S. provisional application serial No. 61/264,126, filed November 24, 2009, entitled "Device Assisted Services Activity Map."

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BACKGROUND

[0004] With the advent of mass market digital communications, applications and content distribution, many access networks such as wireless networks, cable networks and Digital Subscriber Line (DSL) networks are pressed for user capacity, with, for example Evolution-Data Optimized (EVDO), High Speed Packet Access (HSPA), Long Term Evolution (LTE), Worldwide Interoperability for Microwave Access (WiMax), DOCSIS, DSL, and Wireless Fidelity (Wi-Fi) becoming user capacity constrained. In the wireless case, although network capacity will increase with new higher capacity wireless radio access technologies, such as Multiple-Input Multiple-Output (MIMO), and with more frequency spectrum and cell splitting being deployed in the future, these capacity gains are likely to be less than what is required to meet growing digital networking demand.

[0005] Similarly, although wire line access networks, such as cable and DSL, can have higher average capacity per user compared to wireless, wire line user service consumption habits are trending toward very high bandwidth applications and content that can quickly consume the available capacity and degrade overall network service experience. Because some components of service provider costs go up with increasing bandwidth, this trend will also negatively impact service provider profits.

[0006] The foregoing example of trends and issues is intended to be illustrative and not exclusive. Other limitations of the art will become apparent to those of skill in the relevant art upon a reading of the specification and a study of the drawings.

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BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 illustrates a functional diagram of a network architecture for providing quality of service (QoS) for device assisted services (DAS) and/or for providing DAS for protecting network capacity in accordance with some embodiments.

[0008] FIG. 2 illustrates another functional diagram of another network architecture for providing quality of service (QoS) for device assisted services (DAS) and/or for providing DAS for protecting network capacity in accordance with some embodiments.

[0009] FIG. 3 illustrates a functional diagram of an architecture including a device based service processor and a service controller for providing quality of service (QoS) for device assisted services (DAS) and/or for providing DAS for protecting network capacity in accordance with some embodiments.

[0010] FIG.s 4A through 4C illustrates a functional diagram for providing quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments.

[0011] FIG. 5 illustrates a functional diagram for generating a QoS activity map for quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments.

[0012] FIG. 6 illustrates a functional diagram for quality of service (QoS) for device assisted services (DAS) for an end to end coordinated QoS service channel control in accordance with some embodiments.

[0013] FIG. 7 illustrates a flow diagram for quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments.

[0014] FIGS. 8A through 8C each illustrate another flow diagram for quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments.

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[0015] FIG. 9 illustrates another flow diagram for quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments.

[0016] FIG. 10 illustrates another flow diagram for quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments.

[0017] FIG. 11 illustrates another flow diagram for quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments.

[0018] FIG. 12 illustrates a device stack for providing various service usage measurement techniques in accordance with some embodiments.

[0019] FIG. 13 illustrates another device stack for providing various service usage measurement techniques in accordance with some embodiments.

[0020] FIG. 14 illustrates a flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments.

[0021] FIG. 15 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments.

[0022] FIG. 16 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments.

[0023] FIG. 17 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments.

[0024] FIG. 18 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments.

[0025] FIG. 19 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments.

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[0026] FIG. 20 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments.

[0027] FIG. 21 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments.

[0028] FIG. 22 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments.

[0029] FIG. 23 illustrates a network capacity controlled services priority level chart for device assisted services (DAS) for protecting network capacity in accordance with some embodiments.

[0030] FIG. 24 depicts a diagram of a network capacity protection system utilizing device-assisted services (DAS).

[0031] FIG. 25 depicts a diagram an example of a differential access control notification system.

[0032] FIG. 26 depicts an example of a computer system on which techniques described in this paper can be implemented.

[0033] FIG. 27 depicts a diagram of an example of a system for application-specific differential network access control.

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DETAILED DESCRIPTION

[0034] The invention can be implemented in numerous ways, including as a process; an apparatus; a system; a composition of matter; a computer program product embodied on a computer readable storage medium; and/or a processor, such as a processor configured to execute instructions stored on and/or provided by a memory coupled to the processor. In this specification, these implementations, or any other form that the invention may take, may be referred to as techniques. In general, the order of the steps of disclosed processes may be altered within the scope of the invention. Unless stated otherwise, a component such as a processor or a memory described as being configured to perform a task may be implemented as a general component that is temporarily configured to perform the task at a given time or a specific component that is manufactured to perform the task. As used herein, the term 'processor' refers to one or more devices, circuits, and/or processing cores configured to process data, such as computer program instructions.

[0035] A detailed description of one or more embodiments of the invention is provided below along with accompanying figures that illustrate the principles of the invention. The invention is described in connection with such embodiments, but the invention is not limited to any embodiment. The scope of the invention is limited only by the claims and the invention encompasses numerous alternatives, modifications and equivalents. Numerous specific details are set forth in the following description in order to provide a thorough understanding of the invention. These details are provided for the purpose of example and the invention may be practiced according to the claims without some or all of these specific details. For the purpose of clarity, technical material that is known in the technical fields related to the invention has not been described in detail so that the invention is not unnecessarily obscured.

[0036] As the network capacity gains are less than what is required to meet growing digital networking demand, a network capacity crunch is developing due to increasing network

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congestion on various wireless networks, such as mobile networks. The increasing popularity of various smart phone devices, net book devices, tablet computing devices, and various other wireless mobile computing devices, which are becoming increasingly popular on 3G, 4G, and other advanced wireless networks, is contributing to the network capacity crunch. Some network carriers have indicated that a relatively small number of users on such devices demand a disproportionately significant amount of their network capacity. For example, AT&T has recently indicated that about 3 percent of its smart phone device users (e.g., Apple iPhone® users) are generating approximately 40 percent of the operator's data traffic.

[0037] For example, in wireless networks, managing the wireless access connection capacity and network access connection resources is important to maintain network performance as network resources/capacity demand increases. Many network performance measures can be advantageously maintained or improved as network loading increases if capacity management and/or network resource management is employed. For example, these performance measures include network availability; the ability to deliver connections to all devices, users and/or applications seeking connections and enabled for service on the network; network access attempt success rate; the transmission speed experienced by one or more devices, users or applications; the average transmission speed experienced by all devices, users and/or applications; network bit error rate or packet error rate; the time delay from network access request to delivered access connection; the one-way delay or round-trip delay for a transmission; the delay timing jitter for a transmission; the time variation in transmission speed for one or more connections; the ability of the network to deliver various requested/needed levels of Quality of Service (QoS) to devices, users or applications that require differentiated connection QoS classes; the ability of the network to maintain efficiency (e.g., aggregated service throughput measured across all devices, users, and/or applications); the ability of the network to share or distribute a performance measure (e.g., the performance measures listed

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above) uniformly or fairly across multiple devices, users, and/or applications that all have the same service quality class or the same service plan performance parameters.

[0038] For example, if there is a limited amount of shared bandwidth for a set of user devices (e.g., a set of devices on a wireless network, such as a given base station or base station controller or femto cell or pico cell; or a set of devices on a cable modem networks, etc.), and if multiple and/or all devices allow all applications to indiscriminately access or attempt to access network resources or transmit/receive traffic, then the network can generally become overloaded. As a result, a subset of users/devices or in some cases most or all users/devices obtain poor network performance. As another example, if one or more devices forming a subset of devices on the network allow multiple and/or all applications to indiscriminately access or attempt to access network resources or transmit/receive traffic, then the network can become overloaded. As a result, a subset of users/devices or in some cases most or all users/devices obtain poor network performance.

[0039] Traditionally, mobile devices typically have specialized designs that are optimized to preserve network capacity and protect network resources from being over taxed. For example, wireless devices that browse the Internet often use specialized protocols such as WAP and data traffic compression or low resolution techniques rather than standard HTTP protocols and traffic used in wired Internet devices.

[0040] However, the wireless devices that implement specialized methods for accessing the Internet and/or other networks often implement complex specifications provided by one or more wireless carriers that own the networks that the device is designed to connect to. Such complex specifications often require time consuming design, testing, and certification processes. These processes in part have the effect of narrowing the base of device suppliers to those qualified and willing to perform the specialized design work required, slowing time to market for new

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devices, increasing the expense to develop new devices and reducing the types of applications that are supported.

[0041] Device OEMs have recently created wireless devices that are designed more like standard Internet devices and not fully optimized to preserve network capacity and resources. Many wireless service customers desire this type of device, and the OEMs generally want to reduce the complexity and time to market to deliver such devices. In addition, new market needs and new government requirements sometimes require that carriers offer a more open process for bringing new devices onto their network, in which the process does not require all of the specialized design and certification described above. These and various other factors are driving a growing need and trend for less complex and time consuming wireless device design and certification processes.

[0042] This trend has led many carriers to begin selling devices that are designed more as standard Internet service devices that connect to the Internet and other data networks through carrier wireless networks. As the cellular network is opened up to more and more new devices, applications and markets, there is a growing demand to allow general purpose Internet devices and applications to gain access to wireless networks without necessarily going through specialized design and certification process requirements to make the devices and applications efficient and authorized for access to such wireless networks.

[0043] However, general purpose Internet devices are not as frugal or sparing with wireless network access bandwidth. Moreover, with the advent of always on wide area network connections to the Internet has led to popular Internet services and applications that typically assume very inexpensive access and generally heed no attention to, for example, network busy state. As more general purpose Internet devices are provided for us on various wireless networks (e.g., mobile wireless networks), a high frequency of inefficient wireless network accesses continue to rise, which can reduce network capacity sometimes to levels that hinder

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access to service for that device (e.g., user, device, software demand) and/or other devices on that wireless network and/or that wireless network segment. As discussed above, judicious use of wireless network bandwidth, capacity, and resources generally results in better service for all users, but at present, device manufacturers and wireless network providers (e.g., wireless network carriers or carriers) have not provided or implemented more intelligent bandwidth usage techniques. These factors generally result in less carrier control of device design, which poses a threat to longer term network capacity and performance preservation as the volume of devices with less optimized wireless designs continues to grow.

[0044] There are many network performance and user performance factors that are impacted by the efficiency of the network, including, for example, overall network congestion; the access network performance experienced by one or more groups of users, devices, applications, network service sources, communication protocols, and/or operating system functions; and/or the performance experienced by a given user, device, application, network service source, communication protocol, and/or operating system function. Under a relatively low capacity demand of a wireless network, network performance as experienced by a group of devices, applications, network service sources, communication protocols, operating system functions, and/or users or by a single device, application, network service source, communication protocol, operating system function, and/or user can degrade somewhat proportionally (e.g., aggregate traffic delivered by the network may be roughly proportional to the peak available network traffic) with incremental increases in network access and/or traffic demand from one or more groups of users, devices, applications, network service sources, communication protocols and/or operating system functions. However, as network resources/network capacity demand increases (e.g., more wireless network data traffic is demanded in aggregate; more devices are serviced by the network; more users are serviced by the network; more applications are serviced by the network; more network service sources are serviced by the network; more

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operating system functions are serviced by the network; and/or more differentiated QoS sessions are serviced by the network), network availability/performance can decrease and/or the network may not adequately service one or more users, devices, applications, network service sources, communication protocols, and/or operating system functions, or may not service one or more groups of users, devices, applications, network service sources, communication protocols, and/or operating system functions.

[0045] There are many examples of how increasing network capacity demand can decrease network performance, including for example, to a decrease in average bandwidth offered per device (e.g., one or more users on a device, application, network service source, communication protocol, and/or operating system function executed/implemented on the device); an increase in traffic delivery latency; an increase in traffic delivery latency jitter; insufficient guaranteed or differentiated bandwidth for one or more differentiated QoS and/or dynamic QoS services (e.g., as described herein) to one or more devices, users, applications, network service sources, communication protocols, and/or operating system functions; increased latency for bandwidth reservation services; increased latency for QoS reservation services; performance problems with one or more communication protocols; unacceptable delays in user experience, and/or various other or similar consequences and device or user impacts resulting from reduced network availability and/or reduced network capacity. Examples of network communication protocols that can have degraded performance with excessive network loading or degraded network performance include, for example, Internet protocol (IP), HTML protocols, voice communication protocols including VOIP protocols, real-time video communication protocols, streaming media protocols (e.g., audio, video, etc), gaming protocols, VPN protocols, file download protocols, background service protocols, software update protocols, and/or various other network communication protocols. Thus, is it important to preserve/protect network capacity.

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[0046] It is also important to control the number of transactions demanded from a given network resource (e.g., edge network segment, base station, base station controller, MAC resources, pico cell, femto cell, etc.) in a given period of time so that demand does not overcome the transaction servicing ability of that network resource. For example, network resources that should not be subjected to excess transaction demand can include base station or base station controller resources, media access control (MAC) resources, traffic transport resources, AAA resources, security or authentication resources, home agent (HA) resources, DNS resources, resources that play a part in network discovery, gateway or router resources, data session reservation or establishment resources (e.g., network resources required to manage, set up, conduct, and/or close service sessions, PPP sessions, communication flows, communication streams, QoS flows, radio access bearer reservation resources , tunnels, VPNs, APNs, special service routing, etc.), bandwidth reservation resources, QoS reservation or coordination resources, QoS transport resources, service charging resources, traffic analysis resources, network security resources, and/or various other or similar network resources. In some networks, the network performance degradation due to a given measure of incremental increase in network resource/capacity demand can become relatively large as various network resources become increasingly taxed due to either limited transaction processing capability or limited traffic bandwidth for one or more of the network resources that participate in establishing, servicing, conducting, maintaining, and/or closing the necessary network service connections and/or information exchanges required to conduct a service activity. For example, if the equipment required to establish a PPP session can only handle a certain number of new PPP session openings and/or closings per given period of time, and if device behavior is such that PPP sessions are often opened and/or closed, then the rate of PPP session transactions (e.g., openings and/or closings) can exceed the transaction capacity of the PPP session management resources. This is sometimes referred to as "flooding" or "overloading" a network resource with excess demand or excess connections, and, in such cases, the network resource may begin

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falling behind in servicing transaction demand in a well controlled manner (e.g., the network resource may continue processing transactions at or near a maximum rate for that network resource), or in some cases, the resource may fall behind transaction demand in a less well controlled manner (e.g., the network resource may become overwhelmed such that its processing rate not only falls below aggregate transaction demand, but the transaction rate processing capability decreases under overload as well). In the PPP session establishment resource example, once the rate of requested transactions exceeds the resource maximum transaction rate, then unmet device demand can grow to a point where one or more devices experiences delays in connecting to and/or communicating (e.g., sending/receiving data) with the network.

[0047] As another example, in any type of random access bandwidth reservation protocol, MAC protocol, or bandwidth delivery protocol, in a network without proper management and/or control of traffic access reservations and/or transmissions, as the network demand increases there may be more collisions between reservation requests, traffic transmissions, application demands, network service source demands, communication protocol demands, and/or operating system function demands causing a decreasing network efficiency that can degrade user, device, application and/or network service performance so that performance falls below acceptable levels. As another example, in systems in which there is a QoS service session reservation system, uncontrolled and/or unmanaged QoS reservation requests and/or reservation grants can lead to a situation where the QoS reservation resources and/or QoS service delivery resources are over taxed to the point where QoS service performance falls below desired levels. As another example, in networks that require some form of minimum resource allocation for transmissions, reservations, or network resource transactions, the network can become inefficient if one or more devices, applications, network service sources, operating system functions, and/or communication protocols have a relatively high rate of

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network resource access attempts, network accesses or data transmissions for small transmission payloads (e.g., minimum MAC reservation factors, minimum security overhead factors, minimum QoS reservation factors, minimum time responses for establishing a base station connection, minimum time responses for establishing or closing/being released from a session, etc). Even if the data packet comprising the access event is small, the network resources required to complete the access event are often busy servicing the access event for much longer periods of time than are required for the actual data transmission.

[0048] Another example of device service activity behavior that can have an impact on network performance is the way the device, device subsystem, and/or modem subsystem power cycling or transitions from one power save state to another. For example, establishing a basic connection from a device to a wireless base station consumes base station resources for a period of time and in some cases can also consume other network resources such as AAA, HLR, HA, gateway, billing, and/or charging gateway resources. If a device terminates the connection to the base station when the modem subsystem (e.g., or some other portion of the device) goes from active connection state to a power save state, then each time the device enters power save state and then exits power save state network resources are consumed, sometimes for time periods measured on the order of seconds or in extreme cases even minutes. If such a device has an aggressive power save algorithm that enters power save state after a short idle period, then the device behavior can consume a proportionally large amount of resources such that the network ability to support multiple devices is diminished, or such that the network cannot support very many similar devices on the network. Another similar example is the establishment of network sessions once the base station connection is established (e.g., establishing a PPP session between the device and a home agent (HA) or other gateway), in which network resources required to open and/or close the network session are ignorantly

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consumed if a device exhibits aggressive power save state cycling or frequently terminates the data session for other reasons.

[0049] Another example of device service activity behavior that can impact network performance is applications that maintain persistent network communication that generates a relatively high frequency of network data packets. Some applications have persistent signaling that falls into this category. Specific examples include frequent device signaling sequences to update widgets on a desktop; synchronize user data such as calendars, contacts, email, and/or other information/content; check or update email or RSS feeds; access social networking websites or tools; online text, voice or video chat tools; update real-time information; and conduct other repetitive actions. Additional application behavior that can significantly tie up network resources and capacity include, for example, conference meeting services, video streaming, content update, software update, and/or other or similar application behavior. For example, even when the user is not directly interacting with or benefiting from this type of application, the application can be running in the background and continuing to consume potentially significant network resources.

[0050] For example, the types of service activities and/or device behavior that can reduce network capacity and/or network resource availability include software updates for OS and applications, frequent OS and application background network accesses and signaling, frequent network discovery and/or signaling (e.g., EtherType messages, ARP messages, and/or other messaging related to network access), cloud synchronization services, RSS feeds and/or other background information feeds, application (e.g., web browser) or device behavior reporting, background email downloads, content subscription service updates and downloads (e.g., music/video downloads, news feeds, etc.), text/voice/video chat clients, virus updates, peer to peer networking applications, inefficient network access sequences during frequent power cycling or power save state cycling, large downloads or other high bandwidth accesses, and/or

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greedy application programs that continually and/or frequently access the network with small transmissions or requests for information. Various other examples will now be apparent to one of ordinary skill in the art.

[0051] Thus, not only can network capacity, network performance, and/or network resource availability be degraded by high device transmission bandwidth demand, but other types of persistent or frequent traffic resulting from network resource requests, network data accesses or other network interaction can also degrade network capacity, network performance, and/or network resource whether or not the aggregate bandwidth demand as measured by the total data throughput is high or not. Thus, techniques are needed to preserve network capacity by, for example, differentially controlling these types of network service usage activities in various ways depending on the type of service activity requesting network access and/or requesting transactions with network resources.

[0052] Smart phone and similar devices are exacerbating the problem by making frequent queries of the wireless network as such devices move among cell sites to while in transit, for example, push email, access social networking tools, and/or conduct other repetitive actions. While data traffic is also growing, signaling traffic is outpacing actual mobile data traffic by 30 percent to 50 percent by some estimates. For example, a Yahoo IM user may send a message but then wait a couple of seconds between messages. To preserve battery life, the smart phone typically moves into an idle mode. When the user pushes another message seconds later, the device has to set up a signaling path again, and even when the signaling resource is released by the smart phone, the network typically does not react fast enough to allow for the next station to use resources until several seconds and sometimes minutes. As a result, the base station controller in this example is spending a lot of its resources trying to process the signaling so it cannot perform other tasks, such as allocate additional resources for data

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network usage, and such inefficiencies exacerbates the data network capacity crunch and dropped calls on such wireless networks.

[0053] One approach used by smart phone vendors to address this problem and save battery life on their devices is to implement a fast dormancy feature, which allows the mobile device to quickly make a query to the radio network controller to release the connection so that it can return to the idle state faster. In other words, the device is relaying the fact that the phone is going dormant saving device resources (e.g., signaling channel) rather than network resources. However, the fast dormancy feature can exacerbate this problem by prematurely requesting a network release only to follow on with a request to connect back to the network or by a request to re-establish a connection with the network.

[0054] Network carriers have typically attempted to manage network capacity using various purely central/core network based approaches. For example, some carriers have indicated a robust capacity planning process and sufficient investment is needed to alleviate this growing capacity crunch. Purely centralized network solutions with no assistance from a device based software agent (or service processor) can have several limitations. For example, for some device applications, OS functions or other service usage activities, if the activity is blocked somewhere in the network behind the base station after over the air (OTA) spectrum bandwidth is consumed to open or begin to open a communication socket, then there can still be an appreciable amount of network capacity or resources consumed even though the data transfer is not allowed to complete. In addition, if the service usage activity is aggressive in re-attempting to establish the network connection to transfer the data, and the network continues to allow the OTA portion of the connection establishment but blocks the connection somewhere in the network, then a large amount of capacity can be consumed by many devices exhibiting such behavior even though no useful service is being allowed. Accordingly, some embodiments for protecting network capacity include controlling network service usage activities at the source

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of the demand – the device. Furthermore, in some embodiments, service usage is controlled in a manner that delays, prevents, or reduces the frequency of service usage activity re-try attempts to connect to the network.

[0055] In some cases, an additional drawback of purely centralized network solutions to protect network capacity arises when service usage activities are controlled, blocked, throttled, and/or delayed by central network equipment with no mechanisms or support to link to a device user interface (UI) to inform the user what is happening and why it is happening. This can lead to a frustrating user experience and reduced carrier customer satisfaction. Accordingly, in some embodiments, a device based UI is provided to provide the user with real time or near real time information regarding why a service usage activity is being controlled, blocked, throttled, and/or otherwise controlled in order to protect network capacity. In some embodiments, a UI is provided that also informs the user when there are options to set, control, override, or modify service usage controls for the purpose of protecting network capacity. In some embodiments, such user preference inputs also correspond to a change in service usage billing. In some embodiments, such changes in service usage billing due to capacity sparing service control changes by the user are communicated to the user via a UI notification sequence. In some embodiments, techniques for protecting network capacity employ user warnings when a service usage activity classified for differential user notification policies is likely to cause the user to go over service plan caps (e.g., total data byte count usage caps).

[0056] What is needed is intelligent network monitoring to provide real-time traffic monitoring network service usage (e.g., at the packet level/layer, network stack application interface level/layer, and/or application level/layer) of the wireless network (e.g., radio access networks and/or core networks) and to effectively manage the network service usage for protecting network capacity (e.g., while still maintaining an acceptable user experience). Using Device Assisted Services (DAS) techniques, and in some cases, network assisted/based techniques, to

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provide for network service usage monitoring of devices, network carriers/operators would be provided greater insight into what devices, which users and what applications, and when and where network congestion problems occur, enabling operators to intelligently add additional resources to certain areas when necessary (e.g., offloading data traffic onto femto cells or WiFi hotspots and adding more network resources), to differentially control network service usage, and/or to differentially charge for network service usage based on, for example, a network busy state, for protecting network capacity.

[0057] Intelligent network monitoring of the wireless network to effectively manage network service usage for protecting network capacity can include providing Device Assisted Services (DAS) for protecting network capacity in accordance with various embodiments described herein. For example, intelligent network monitoring of the wireless network to effectively manage network service usage for protecting network capacity can include differentially controlling over the air software updates and/or performing software updates via wired connections only. As another example, intelligent network monitoring of the wireless network to effectively manage network service usage for protecting network capacity can include differentially controlling various applications that demand significant network resources or network capacity. As another example, intelligent network monitoring of the wireless network to effectively manage network service usage for protecting network capacity can include managing network access connection requests resulting from repeated power down modes in the modem, which can cause resource intensive re-connection and/or re-authentication processes. As another example, intelligent network monitoring of the wireless network to effectively manage network service usage for protecting network capacity can include techniques for keeping PPP sessions alive to avoid the need to consume network resources to re-establish PPP sessions (e.g., unless the application behavior analysis predicts that a mean access time is long enough for the PPP session to be dropped off and yet not causing overall network resource limitations).

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[0058] Unlike traditional QoS techniques, which are used to establish a single end or end to end guaranteed service level(s) on a network, techniques disclosed herein for protecting network capacity facilitate implementation of services on a network to facilitate differential control of certain services to protect network capacity (e.g., to reduce network congestion, network capacity demand, network resource demand; and/or to increase network availability). As also disclosed herein, techniques disclosed herein for protecting network capacity facilitate implementation of services on a network to facilitate differential control of certain services to protect network capacity can also facilitate QoS implementations by maintaining needed levels of network capacity/availability to facilitate delivery of certain QoS levels/classes. For example, techniques disclosed herein for protecting network capacity can aggregate across multiple services and/or devices to facilitate differential control of certain services to protect network capacity. As another example, techniques disclosed herein for protecting network capacity can be used to provide for dynamic QoS classifications (e.g., dynamically assigning/classifying and reassigning/reclassifying (based on various criteria, events, and/or measures) network service usage activities to various QoS levels/classes, such as described herein) to facilitate differential control of certain services to protect network capacity.

[0059] Accordingly, Device Assisted Services (DAS) for protecting network capacity is provided. In some embodiments, DAS for protecting network capacity provides for protection of network capacity (e.g., network congestion and/or network access/resource demand and/or network availability on an edge element of the network, such as on the Radio Access Network (RAN) of a wireless network, and/or from a device to a base station/base station controller), such as by controlling network service activity usage activities of a device in wireless communication with the network to reduce demands on the network. For example, controlling network service usage activities can include classifying and/or controlling network access requests (e.g., IP address requests), network access reservation requests (e.g., a QoS

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reservation/sequence), network capacity/resources usage (e.g., bandwidth usage), and/or any other network service usage activities. In some embodiments, applications, OS functions, and/or other network service usage activities that request IP addresses from network address server resources are classified and/or controlled so that the IP address requests are withheld, delayed, time windowed, reduced in frequency, aggregated or otherwise controlled. In some embodiments, such "IP address request control policies"" for one or more applications, OS functions, and/or other network service usage activities are set, updated, and/or modified before communicating it over a network connection to a network element (e.g., a service controller or another network element/function). In some embodiments, network service usage activities are generated/requested by applications, operating system (OS) functions, and/or other software/functions executed on a device in communication with the network. In some embodiments, it is desirable to apply a service usage control policy for the network service usage activities to protect network capacity (e.g., reduce network capacity demand). For example, some applications and/or OS functions have limited capabilities to defer certain traffic types based on fixed settings in the application, and such applications and/or OS functions typically cannot optimize network service usage activities based on a current network busy state (e.g., based on changing levels of network capacity and/or network performance available to the device). In some embodiments, the network busy state (e.g., or conversely the network availability state) is a characterization of the congestion (e.g., or conversely available capacity) of the network for one or more device connections. For example, the network busy state can provide a measure of how busy or congested the network or a network segment (e.g., network edge element) is for one or more device connections. As another example, network availability state can provide a measure of what network connection resources are available to one or more device connections. Thus, network busy state and network availability state can be viewed as converse ways of providing similar information, and as described herein with respect to various embodiments, these terms can be used interchangeably.

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[0060] In some embodiments, techniques are provided for assigning a priority to a network service usage activity and controlling traffic associated with the network services usage activity based on the assigned priority. In some embodiments, techniques are provided for a implementing a differentiated and dynamic background services classification, for example, as a function of network availability state and/or network busy state.

[0061] In some embodiments, a service usage control policy is used for assisting in network access control of network service usage activities (e.g., deferring some or all of the network capacity demand from these source activities). In some embodiments, some or all of the network capacity demand is satisfied at a point where the network resources or capacity are more available or less busy. In some embodiments, techniques are provided for classifying network service activities associated with one or more applications or OS functions to a background service class and differentially controlling the background service class traffic. In some embodiments, techniques are provided for classifying one or more network service activities associated with an application or OS function to a background service class, while other network service activities associated with that application or OS function are classified to other service classes (e.g., or to different background service class priority levels).

[0062] In some embodiments, techniques are provided for determining a network busy state (e.g., for a network edge element connection to a device, such as for a RAN for the device's current wireless network access and/or to the current base station/base station controller in wireless communication with the device). In some embodiments, techniques are provided for implementing a service usage control policy to differentially control network services traffic based on a network busy state for an activity, a group of activities, or for a service class.

[0063] In some embodiments, DAS for protecting network capacity includes monitoring a network service usage activity of the communications device in network communication; classifying the network service usage activity for differential network access control for

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protecting network capacity; and associating the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity.

[0064] In some embodiments, a network service usage activity is any activity by the device that includes wireless network communication. In some embodiments, an application, an operating system (OS), and/or other device function generates a network service usage activity. In some embodiments, an application, an operating system (OS), and/or other device function generates one or more network service usage activities. Examples of a network service usage activity include the following: a voice connection (e.g., coded voice connection or voice over IP (VOIP) connection), a device application or widget connection, a device OS function connection, an email text connection, an email download connection, a file download connection, a streaming media connection, a location service connection, a map services connection, a software update (e.g., application, operating system, and/or antimalware software update) or firmware update connection, a device backup connection, an RSS feed connection, a website connection, a connection to a server, a web browser connection, an Internet connection for a device based service activity, establishing a sync service account, a user data synchronization service, a device data synchronization service, a network connection flow or stream, a socket connection, a TCP connection, a destination/port assigned connection, an IP connection, a UDP connection, an HTTP or HTTPS connection, a TLS connection, an SSL connection, a VPN connection, a general network services connection (e.g., establishing a PPP session, authenticating to the network, obtaining an IP address, DNS service), and various other types of connections via wireless network communication as will be apparent to one of ordinary skill in the art.

[0065] In some embodiments, a network service usage activity is classified, associated with, and/or assigned to a background class (e.g., a background service or QoS class) to facilitate

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differential network service usage control to protect network capacity. In some embodiments, differential network service usage control includes one or more of the following: monitoring network service usage activity; accounting for network service usage activity; reporting network service usage activity; generating a user notification for a network service usage activity; requesting a user preference for control of network service usage activity; accepting a user preference for network service usage activity; implementation of a network service usage activity policy (e.g., block/allow; traffic control techniques, such as throttle, delay, priority queue, time window, suspend, quarantine, kill, remove, and other well known traffic control techniques); implementing UI intercept procedures; generating a network busy state notification; generating a background class notification; generating a user notification for differential network service usage control of a network service usage activity; and various other techniques as described herein.

[0066] In some embodiments, a network availability state includes a state or measure of availability/capacity of a segment of a network (e.g., a last edge element of a wireless network). In some embodiments, a network busy state includes a state or measure of the network usage level or network congestion of a segment of a network (e.g., a last edge element of a wireless network). In some embodiments, network availability state and network busy state are inverse measures. As used herein with respect to certain embodiments, network availability state and network busy state can be used interchangeably based on, for example, a design choice (e.g., designing to assign background policies based on a network busy state or a network availability state yields similar results, but they are different ways to characterize the network performance and/or capacity and/or congestion). In some embodiments, network availability state and network busy state are dynamic measures as such states change based on network usage activities (e.g., based on a time of day, availability/capacity level, congestion level, and/or

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performance level). In some embodiments, differential network service usage control of a network service usage activity is based on a network busy state or network availability state.

[0067] In some embodiments, certain network service usage activities are classified as background services. In some embodiments, lower priority and/or less critical (and/or based on various other criteria/measures) network service usage activities are classified as background services based on a network busy state and differentially controlled based on a network busy state to protect network capacity. In some embodiments, differential network service usage control policies are based on a time of day, a network busy state, background services and/or QoS class changes based on a time of day and/or a network busy state, a random back-off for access for certain network service usage activities, a deterministic schedule for certain network service usage activities, a time windowing in which network service usage control policies for one or more service activities or background/QoS classes changes based on time of day, network busy state, a service plan, and various other criteria, measures, and/or techniques as described herein.

[0068] In some embodiments, a network capacity controlled service or network capacity controlled services class includes one or more network services (e.g., background download services and/or various other types or categories of services as described herein) selected for differential network service usage control for protecting network capacity. In some embodiments, a network capacity controlled services classification includes one or more network services associated with a network capacity controlled service/class priority setting for differential network service usage control for protecting network capacity. In some embodiments, a network capacity controlled service or network capacity controlled services class includes one or more network services associated with a QoS class for differential network service usage control for protecting network capacity. In some embodiments, a network capacity controlled service or network capacity controlled services class includes one or more

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network services associated with a dynamic QoS class for differential network service usage control for protecting network capacity.

[0069] For example, differentially controlling network service usage activities based on network capacity controlled services or dynamic QoS or QoS classifications can protect network capacity by, for example, improving network performance, increasing network availability, reducing network resources demand, and/or reducing network capacity demand (e.g., based on an individual device, aggregate devices connected to an edge element, and/or aggregate devices connected to many edge elements). In some embodiments, differentially controlling network service usage activities based on network capacity controlled services or dynamic QoS or QoS classifications can protect network capacity while maintaining proper device operation. In some embodiments, differentially controlling network service usage activities based on network capacity controlled services or dynamic QoS or QoS classifications can protect network capacity while maintaining an acceptable user experience (e.g., proper and/or expected device operation, proper and/or software/application/OS/function operation, avoiding (whenever possible) significant adverse impact on device functions, and/or user notifications to keep the user informed of various differential control implemented on the device).

[0070] In some embodiments, dynamic QoS classifications include QoS classifications that can be dynamically modified (e.g., reclassified, reprioritized, upgraded, and/or downgraded) based on various criteria, measures, settings, and/or user input as described herein (e.g., based on a time of day and/or day of week, based on a network busy state, based on a user preference, and/or based on a service plan). In some embodiments, the various techniques described herein related to DAS for providing network capacity and/or QoS for DAS are applied to dynamic QoS related techniques.

[0071] As wireless networks, such as mobile networks, evolve towards higher bandwidth services, which can include or require, for example, various levels of Quality of Service (QoS)

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(e.g., conversational, interactive data, streaming data, and/or various (end-to-end) real-time services that may benefit from QoS), demands will increase for converged network services to facilitate such services for end-to-end services between networks (e.g., to allow for control and/or support for such services, for example, QoS support, across network boundaries, such as between wireless networks (such as various service provider networks) and IP networks (such as the Internet), and/or other networks). While various efforts have attempted to address such QoS needs, such as policy management frameworks for facilitating QoS end-to end solutions, there exists a need to facilitate various QoS requirements using Device Assisted Services (DAS).

[0072] Accordingly, Quality of Service (QoS) for Device Assisted Services (DAS) is provided. In some embodiments, QoS for DAS is provided.

[0073] To establish a QoS channel, differentiated services are typically available, in which one class/level of service has a higher priority than another to provide for differentiated services on a network, such as a wireless network. For example, in a wireless network, various network elements/functions can be provisioned and controlled to establish a single end or end to end QoS channel. In some embodiments, a centralized QoS policy coordination and decision function using DAS techniques to assist in coordinating the QoS channel setup and control among the various elements of a wireless network is provided.

[0074] In some embodiments, QoS channel refers to the logical communication channel connected to a device that provides a desired level of QoS service level. For example, the QoS channel can be created with one or more QoS links, in which each link represents a QoS enabled connection that spans a portion of the total end to end network communication path from a near end device to a far end device. For example, the far end device can be on the same network or on a different network, potentially with different access technology and/or a different access network carrier. In some embodiments, the QoS channel includes one or more

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QoS links in which each link in the channel is QoS enabled, or one or more of the links in the channel is QoS enabled and others are not. As an example, a QoS channel can include the following links: a first device traffic path link, a first device to access network equipment element link (e.g., 2G/3G/4G wireless base station, WiFi access point, cable network head end, DSLAM, fiber aggregation node, satellite aggregation node, or other network access point/node), a first carrier core network, a long haul IPX network, a second carrier core network, a second device to access network equipment element link, and a second device traffic path link as similarly described herein with respect to various embodiments.

[0075] In some embodiments, each of the links described above have the ability to provide QoS services for that segment of an overall QoS channel. In some embodiments, the device traffic path link and/or the device to access network equipment element link are QoS enabled, but the carrier core network and/or IPX network links are not QoS enabled. In some embodiments, the core network and/or IPX network have sufficient over-provisioning of bandwidth that QoS is not limited by these network elements and, for example, can be limited by the device traffic link and/or the device to access network equipment element link do not have sufficient excess bandwidth making it desirable to QoS enable these QoS channel links. A common example is a 2G/3G/4G wireless network in which a device traffic path link and the device to access network element link (e.g., Radio Access Bearer (RAB)) are QoS enabled while the carrier core network and IPX network links are not (e.g., are provided at a best effort service level or other service levels).

[0076] In some embodiments, a QoS session refers to the QoS enabled traffic for a given device that flows over a QoS channel or QoS link. This QoS traffic supports a QoS service activity. In some embodiments, a QoS service activity includes a device service usage that is requested, configured, or preferably serviced with a given level of QoS. In some embodiments, a device QoS activity is a combination of one or more of the following: application, destination,

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source, socket (e.g., IP address, protocol, and/or port), socket address (e.g., port number), URL or other similar service identifier, service provider, network type, traffic type, content type, network protocol, session type, QoS identifier, time of day, network capacity (e.g., network busy state), user service plan authorization or standing, roaming/home network status, and/or other criteria/measures as similarly described herein. For example, QoS service activities that are supported by QoS sessions can include VOIP traffic, streaming video traffic, differentiated access bandwidth during busy network periods, real-time interactive traffic, such as network connected multimedia meetings (e.g., shared presentations, picture, video, voice, and/or other such applications/services), best effort interactive, such as Internet browsing, time sensitive services, such as email message body delivery, near real-time interactive services, such as SMS or push to talk, background download services, such as email downloads and other file transfers (e.g., FTP), and/or truly background download services, such as software updates (e.g., OS or application software updates and/or antimalware updates including content/signature updates).

[0077] In some embodiments, various QoS levels or classes are supported. For example a conversation class can provide for real-time traffic, which is typically very delay sensitive but can tolerate bit errors and packet losses. The conversational class is typically used for Voice Over IP (VOIP) and video telephony, in which users of such services benefit from the short delay features of the conversational class. A streaming class is similar to the conversational class except that the streaming class typically can tolerate more delay than the conversational class. The streaming class is generally used for when one end of the connection is a user (e.g., human user) and the other end is a machine/computer (e.g., for streaming content applications, such as streaming of video, such as movies or other video content). An interactive class is generally intended for traffic that allows delay variation while requiring reasonably low response time (e.g., web browsing or other applications in which the channel can be unused for long

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periods of time but when a user makes a request for a new page/data, the response time should be reasonably low). A background class is generally used for lowest priority service usages (e.g., typically used for e-mail with and without downloads/attachments, application software updates, OS software updates, and/or other similar applications/functions). In some embodiments, various QoS classes or services are applicable to the conversational class. In some embodiments, various QoS classes or services are also applicable to the streaming class. In some embodiments, various QoS classes or services are also applicable to the interactive class but typically not applicable to the background class. As will now be apparent to one of ordinary skill in the art, various other classes can be provided with lower or higher granularity based on service usage/channel requirements and/or network architectures.

[0078] In some embodiments, a QoS link or a QoS channel supports one QoS session. In some embodiments, a QoS link or a QoS channel supports multiple QoS sessions. In some embodiments, QoS link provisioning is provided to setup the QoS traffic level for a given QoS session or group of QoS sessions.

[0079] In some embodiments, a QoS channel is a single ended QoS channel or an end to end QoS channel. For example, if a QoS channel is end to end, then the QoS channel provisioning is accomplished in a coordinated manner for each QoS enabled link in the QoS channel. If a QoS channel is single ended, then the network elements and/or device participate in provisioning as much of one end of the QoS channel as possible, leaving provisioning of the QoS for the other end of the channel as the responsibility of the device and/or network elements that handle the traffic at the other end of the QoS channel. In some embodiments, a single ended QoS channel includes another single ended QoS channel at the other end. In some embodiments, only one end has single ended QoS channel enablement while the other end of the channel is a best effort service level, which, for example, can be used where one end of the QoS channel has tighter constraints on traffic capacity or quality than the other end (e.g., a

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VOIP call with one end that is QoS enabled on a 3G wireless network that has relatively tight bandwidth compared to a lightly loaded cable modem network device on the other end which may not need to be QoS enabled in order to achieve adequate voice quality).

[0080] In some embodiments, a QoS request (e.g., a QoS channel request or QoS service request) is a request for a QoS provisioning event to enable a QoS channel for one or more QoS service activities. In some embodiments, QoS availability assessment includes determining whether one or more of the links in a possible QoS channel are available (e.g., based on network capacity and transmission quality) to provision the necessary level of QoS for a requested QoS channel. In some embodiments, a QoS request is initiated by a device, a user, an application, and/or a network element/function as similarly described herein.

[0081] In some embodiments, a service plan refers to the collection of access service capabilities, QoS capabilities, and/or network capacity controlled services that are associated with a communications device. In some embodiments, the access service capabilities, QoS capabilities, and/or network capacity controlled services are determined by the collection of access service control policies for the device. In some embodiments, these service control policies are implemented in the network equipment. In some embodiments, these access service control policies are implemented both in the device and in the network equipment. In some embodiments, these access service control policies are implemented in the device. In some embodiments, there are different levels of service control capabilities (e.g., policies) based on different levels of service plan payments or device standing or user standing. In some embodiments, there are different levels of service control policies based on network type, time of day, network busy status, and/or other criteria/measures as similarly described herein with respect to various embodiments. In some embodiments, the access control and QoS control policies are based on the type of service activity being sought. In some embodiments, the QoS level and access level available for a given service activity for a given device or user is

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determined by the policies associated with the service plan. In some embodiments, a QoS authorization assessment is performed to determine whether a device or user has sufficient service plan standing to allow the requested level of QoS.

[0082] In some embodiments, before a QoS channel or link is provisioned (or before a QoS request is responded to or filled), a QoS availability assessment is performed to determine whether sufficient communication channel resources are available to provision the necessary level of QoS for the QoS channel or link. In some embodiments, this QoS availability assessment is determined by assessing the available QoS capacity for one or more necessary QoS links in the channel. For example, the available QoS link capacity can be assessed for one or more of a device traffic path, a device to access network equipment element link, a core network link, and/or an IPX network link. If the QoS assessment shows that the necessary channel capacity and quality is available for the desired QoS level for one or more desired QoS service activities, then a QoS channel request or QoS service request can be granted. In some embodiments, a QoS link or QoS channel reservation process is provided to reserve QoS capacity and quality in advance of link or channel provisioning to ensure that the available QoS resources are not assigned between the time of QoS availability assessment and QoS channel provisioning.

[0083] In some embodiments, the QoS availability assessment is performed after QoS authorization assessment. This prevents the unnecessary exercising of network elements when the device or user does not have sufficient service plan standing to receive the desired level of QoS even if it is available. This can be an important screening function performed on the device in the service processor, or by a centralized network function such as the service controller (e.g., or interchangeably, the home agent; Home Location Register (HLR); Authentication, Authorization, and Accounting (AAA) server/gateway/function; base station; one of the gateways, policy and charging rules function (PCRF), or other network element/function). In

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some embodiments, QoS availability is assessed without conducting a QoS authorization assessment or before receiving the response to a QoS authorization assessment.

[0084] In some embodiments, a QoS channel is provisioned to create the QoS channel to support a QoS session (e.g., a QoS service activity). In some embodiments, QoS channel provision includes assigning, routing, and/or otherwise causing the QoS session traffic to flow over one or more QoS links in the assigned QoS channel.

[0085] In some embodiments, device assisted service traffic control and QoS apply readily and directly to the problems of managing a QoS device link for QoS channel provisioning. Accordingly, in some embodiments, a service provider is provided to assist in provisioning the device portion of the QoS channel. In some embodiments, the service processor provisions the device link portion of the QoS channel by placing a higher priority on higher QoS level traffic. In some embodiments, this QoS priority is implemented in a number of ways, including routing the higher priority QoS traffic into first priority in the downstream and/or upstream traffic queues. Upstream traffic queuing is performed directly in some embodiments by transmitting guaranteed bit rate traffic first at higher available throttling rates, differentiated QoS traffic second with a controlled throttling rate, best effort traffic third with possibly lower controlled throttled rates, and/or background traffic fourth when/if bandwidth not needed by the higher levels of QoS traffic and at lower controlled throttling rates. For example, downstream traffic can be handled by queuing traffic and delaying or preventing TCP acknowledgements to be returned for the lower levels of QoS priority, while immediately passing the traffic and TCP acknowledgements for higher levels of QoS priority. The device link portion of the QoS channel is thus provisioned by assigning policies for the queuing priority, delay, throttle rate, and TCP acknowledgement return rate for device traffic in accordance with the bandwidth that is available at any point in time for the device. In some embodiments, various device service processor traffic control capabilities

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regulate or partially regulate QoS in accordance with a set of network policy instructions, including, in some embodiments, a service plan policy set.

[0086] In some embodiments the device service processor establishes multiple QoS channels through the device traffic path with each QoS channel having traffic control policies as described herein, with each QoS channel policy set creating a different class of QoS. In some embodiments, employing this multiple QoS channel approach, QoS for a given service activity is provided by routing the traffic for that QoS activity to the appropriate QoS channel with the appropriate QoS policy settings. The routing to the appropriate QoS channel can be provided using various techniques. For example, the routing can be provided by applying a common service traffic control policy set to traffic associated with all QoS service activities that require or request the QoS provided by the common service traffic control policy set. The application of the service traffic control policy set can be accomplished in a number of ways utilizing the embodiments described for the policy implementation agent and the policy control agent described herein. In such embodiments, the problem of assigning a QoS channel to a number of QoS service activities is reduced to applying a pre-determined set of service traffic control policies to each of the QoS service activities, with each pre-determined set of service traffic control policies representing a different QoS class. The device can then manage the overall QoS for all traffic based on the available traffic capacity and quality, the total aggregate traffic demand for each QoS traffic class and the policy rules that determine how each traffic class is provided with differential bit rate and traffic quality as compared to the other traffic classes for a given level of available traffic capacity and quality.

[0087] Based on the aggregate demand for each traffic QoS class, and the traffic capacity and quality level available to the device, the service processor can adjust the total available bit rate or percentage of available traffic capacity for each QoS class. For example, in some embodiments, the aggregate demand for the real-time interactive traffic control class (e.g.

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services, such as VOIP, emergency communication services or high performance real-time competitive gaming) can be determined, and the QoS routing function on the device (e.g., a QoS router agent/function) can first allocate enough constant bit rate traffic capacity from the available traffic capacity to satisfy these services, with each QoS service activity that requires this QoS class being assigned to this QoS channel. As more QoS service activities require this traffic class, the capacity allocated to the QoS channel out of the available device capacity is increased, and when fewer QoS service activities require this traffic class the capacity for this QoS channel is released. In the event that the device does not have any more available capacity with a guaranteed bit rate QoS level, then additional QoS service activities that desire, require or request this QoS level will not be provided this QoS level, and instead will either be provided with a lower QoS level or will not be allowed to connect to the access network. In some embodiments, there can be a hierarchy among the possible QoS service activities so that if there is no more capacity available at a given service QoS level, then the available capacity for that QoS class is provided to the service activities requiring that QoS from highest priority to lowest, until the available QoS class capacity is consumed, and then one or more QoS service activities that are too low on the priority list to obtain service with that QoS class are either bumped to a lower QoS class or are denied access. In some embodiments, once the required capacity to satisfy the real-time constant rate traffic needs is satisfied, the remaining capacity available to the device is then divided among the other QoS channel classes in accordance with a priority policy, with the priority policy being based on the relative priority of each service class, the relative priority of each QoS service activity, or a combination of the relative priority of each QoS service class and each QoS service activity. For example, these relative priority policies can vary from device to device based on service plan selection, device type, user standing, user group, device location, device network connection, type of network, time of day, network busy state, and/or other criteria/measures.

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[0088] In some embodiments, a QoS link is established between the device and an access network equipment element. For example, such equipment element embodiments can include a 2G/3G/4G wireless base station, a wireless access point, a cable network head end, a DSL network DSLAM, a fiber network device traffic aggregator, a satellite network device traffic aggregator, a frame relay aggregation node, an ATM aggregation node, and/or other network equipment. In some embodiments, a logical communication channel is created between the device and the network equipment element, with the logical communication channel supporting a given level of QoS or QoS class traffic policy set. For example, the logical channel can include a RAB formed between a 2G/3G/4G base station and a wireless end point device. The RAB can be formed by controlling the media access control (MAC) parameters of the base station radio channel so that a given level of QoS class policies can be implemented. For example, the RAB can support constant bit rate, low latency communication traffic for guaranteed bit rate real-time traffic, or a differentiated high priority access channel for streaming traffic, or a best effort random access channel for best effort traffic, or an available unused capacity traffic for background traffic. The QoS channel link created in this manner can be dedicated to a single device, or shared with a subset of devices, or available to all devices. The QoS channel link created in this manner can be used by the device to support a single QoS activity as described herein, or a group of QoS activities as described herein. It will now be apparent to one of ordinary skill in the art that similar settings for cable head end and cable modem MAC can yield similar QoS classes for QoS links for the cable modem case and that similar techniques can be applied for a wireless access point or a satellite system MAC to achieve similar QoS classes for QoS links. It will also now be apparent to one of ordinary skill in the art that by creating multiple logical channels in the device link, and/or adjusting the available access network capacity and quality for each logical device communication channel in the DSLAM or fiber aggregator, similar QoS class QoS links can be established for the DSL and fiber distribution network cases.

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[0089] In some embodiments the device service processor serves to route QoS service activities to the appropriate logical communication channel established for the desired QoS class supported by a QoS link between the device and the access network equipment element. In some embodiments, the device service processor elements (e.g., the policy implementation agent and/or the policy control agent) can be used in some embodiments to assign the same QoS traffic control policies to one or more QoS service activities that require the same QoS level. In a similar manner, in some embodiments, the device service processor elements can be used to assign or route service activity traffic for a given QoS class to the correct logical communication channel between the device and the access network element (e.g., a 2G/3G/4G base station) that supports the traffic control policies for the desired QoS class. For example, a QoS service link that supports guaranteed bit rate and latency can be established with one or more RABs from a base station to the device, and a second QoS service link can be established that supports differentiated preferred access for streaming content using one or more differentiated access RABs, and a third best effort RAB can be used to support best effort traffic. Each of the required RABs is first requested and then provisioned as described herein based on the aggregate required capacity and quality for one or more QoS service activities that require or desire the specific QoS service class associated with the RAB logical channel policy parameters. Once the set of logical QoS channels is thus established, the service processor (e.g., QoS router agent/function) routes the traffic associated with each QoS service activity to the appropriate RAB. In some embodiments, the service processor can detect increases or decreases in aggregate QoS class demand for each QoS class as QoS activities are initiated or terminated for that QoS class, and the service processor can communicate the required increases or decreases in the RAB assignments required to support that logical QoS channel.

[0090] In some embodiments, the access QoS link is established by direct communication from the device in which the device requests the QoS channel or link from the access network

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equipment element, or the device requests the QoS channel or link from an intermediate networking device, such as a service controller (e.g., or a readily substituted device with similar features, such as a home agent, an HLR, a mobile switching center, a base station, an access gateway, a AAA system, PCRF, or a billing system). In some embodiments, the device service processor bases the QoS channel or link request on an association the device performs to match a QoS service activity with a desired or required QoS class or QoS traffic control policy set. For example, this association of QoS class or QoS traffic control policy set with QoS service activity can be determined by a predefined policy mapping that is stored on the device and used by the service processor. In some embodiments, this policy mapping store is populated and/or updated by a service controller (e.g., or similar function as described herein). In some embodiments, the mapping is determined by a service controller (e.g., or similar function as described herein) based on a report from the device of the QoS service activity that needs the QoS channel or link.

[0091] In some embodiments, the required or desired QoS level for one or more QoS service activities is determined by a set of QoS service traffic control policies that are pre-assigned to various QoS service activities. For example, a given application can be pre-assigned a QoS class. As another example, a web service destination such as a VOIP service site can be assigned a QoS class. As another example, a given application can have one QoS assignment level for general Internet traffic but have a QoS assignment for real-time gaming traffic. As another example, a real-time broadcasting website can have a best effort QoS level assigned to programming information and general browsing and have a differentiated streaming QoS level for broadcast traffic content. In some embodiments, detection of QoS need or QoS assignment request for a given activity can be assigned by a device service processor according to a pre-defined QoS policy rules table (e.g., QoS activity table), or can be determined by a service controller based on information reported by the device, or can be requested by an application

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through a QoS application interface (e.g., QoS API), or can be determined by the nature of incoming traffic.

[0092] In embodiments, in which both end points in the QoS channel participate in establishing an end to end QoS channel, the required QoS level is determined and/or communicated by the originating end point. In some embodiments, the required QoS level is determined and/or communicated by the receiving end point. In some embodiments the QoS level is determined and/or communicated by the originating end point service controller (e.g., or the access network element (such as a base station), the HLR, home agent, mobile switching center, AAA, gateway, or other network element/function). In some embodiments, the QoS level is determined and/or communicated by the receiving end point service controller (e.g., or alternatively the access network element (such as a base station), the HLR, home agent, mobile switching center, AAA, gateway, or other network element/function). In some embodiments, the receiving end point service controller (e.g., or the access network element (such as a base station), the HLR, home agent, mobile switching center, AAA, gateway or other network function) and the originating end point service controller (e.g., or other similar function) communicate with one another to coordinate establishment of the QoS channel between the end points.

[0093] In some embodiments, the near end or originating end device service processor contacts the far end or terminating device service processor to initiate a QoS channel. In some embodiments, the initiation of the QoS channel from the near end or originating device is performed automatically by the far end device when its service processor detects that a given level of QoS is needed for the communication between the two devices. In some embodiments, the near end or originating device service processor detects the need for a QoS channel to the far end or terminating device and contacts a central network resources, such as the service controller (e.g., or other equipment element with similar function for this purpose), and the

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service controller provisions the far end of the QoS channel, either by communicating directly with the far end device or by communicating with the far end device's service controller (e.g., or other equipment element with similar function for this purpose). In some embodiments, in which the far end device service controller is contacted to assist in provisioning the QoS channel, there is a look up function to determine the address of the far end service controller based on a look up index formed from some aspect of the far end device credentials (e.g., phone number, SIM ID, MEID, IMSI, IP address, user name, and/or other device credentials).

[0094] In some embodiments, the mapping of QoS service activity to the desired level of QoS class or QoS traffic control policies is determined by providing a QoS API in the device service processor that applications use to request a QoS class or QoS channel connection. In some embodiments, an API is provided so that application developers can create application software that uses the standard interface commands to request and set up QoS channels. In some embodiments, the API does one or more of the following: accepts QoS requests from an application, formats the QoS channel request into a protocol appropriate for transmission to network equipment responsible for assessing QoS channel availability (e.g., including possibly the device traffic control system), coordinates with other network elements (e.g., including possibly the device traffic control system) to reserve a QoS channel, coordinates with other network elements (e.g., including possibly the device traffic control system) to provision a QoS channel, informs the application that the desired QoS channel can be created or not, and/or coordinates with other network elements (e.g., including possibly the device traffic control system) to connect the application with the desired QoS channel class. In some embodiments, the QoS API accepts the application QoS request and communicates and possibly coordinates with one or more QoS network equipment elements, such as a base station, cable head end or access point. In some embodiments, the QoS API accepts the QoS request from the application and communicate and possibly coordinates with an intermediate network element,

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such as a service processor (e.g., or other similar function as described herein). In some embodiments the QoS API assesses the QoS service plan standing for the device or user before sending QoS channel requests to other network elements, and only initiates the QoS request sequence if required service plan authorization is in place. In this manner, the potentially complex process of establishing a QoS channel with all the specific equipment communication protocols that typically need to be supported to assess QoS channel availability and provision the QoS channel are simplified into a limited set of API commands that are easy for an application development community to learn about and use for QoS differentiated services and applications.

[0095] In some embodiments, local traffic control on the device service processor is combined with traffic control in the link between the device and the access network equipment element. In this manner, both the device traffic control path QoS link and the device to access network element QoS link can be coordinated for best device QoS performance results given the available capacity and quality of the access network traffic for the device. In some embodiments, the policies for how the device manages local traffic control, establishes access network element logical channels (e.g., RABs) and routes traffic to and from the access network element logical channels is all determined by predefined policy rules loaded onto the device by the service controller (or other equivalent network element). In some embodiments, these policies are determined in the service controller itself.

[0096] In some embodiments, a QoS user interface (e.g., QoS UI) is presented to the device user. In some embodiments, the QoS UI notifies the user what level of QoS services the device is authorized to receive based on the service plan selection. In some embodiments, the QoS UI notifies the user what level of QoS services are available on the present network the device is connected to at the present time. In some embodiments, the QoS UI notifies the user when a level of QoS service that is higher than that authorized by the user service plan is required or

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desirable for a given service activity that the device has initiated. In some embodiments, the QoS UI provides the user with a set of one or more upgrade options to upgrade the service plan to include a higher level of QoS for one or more service activities. In some embodiments, the QoS UI provides the user with an opportunity to specify what level of QoS the user would like to employ for one or more service usage activities. In some embodiments, the QoS UI allows the user to specify a service plan setting that provides differentiated QoS during times when the network is busy. In some embodiments, the QoS UI allows the user to purchase one or more grades of service QoS with either a post-pay for a pre-defined service period and one or more pre-defined service usage limits by QoS class, a pre-pay for one or more pre-defined service usage limits by QoS class, or another payment system for differentiated QoS services. In some embodiments, the QoS UI provides the user with an opportunity to QoS enable or pay for QoS services for a connection that is initiated by an incoming connection to the device.

[0097] In some embodiments, QoS for DAS techniques include verifying that the device is properly implementing the QoS traffic control policies, for example, in accordance with a service plan. This ensures that errors, hacking, user device software settings manipulations, or other malware events do not result in inappropriate levels of QoS for a given device or group of devices. Accordingly, in some embodiments, the traffic control and QoS verification techniques described herein are employed to verify that the proper level of QoS is applied for a given service usage activity in accordance with a QoS priority policy. For example, verification of QoS channel request policy rules behavior can be implemented in a variety of ways including, as an example, monitoring device QoS channel requests and comparing the level of QoS requested with the level of QoS the device is authorized to receive in the service plan in effect for the device. Verification of proper QoS channel usage behavior by a device can be implemented in a variety of ways including, for example, monitoring network based reports of QoS service usage and comparing the network based reports against the service policy rules that should be

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in effect given the device service plan. Verification of proper device traffic control to implement a QoS service policy that is in effect can be accomplished in a variety of ways by verifying that the appropriate traffic control policy rules are being properly implemented as described herein. In some embodiments, DAS for protecting network capacity techniques include various verification techniques (e.g., verifying monitoring, traffic controlling, reporting, and/or other functions implemented or performed by the device), as described herein.

[0098] In some embodiments, the QoS router prioritizes traffic on the device. In some embodiments, the QoS router connects the QoS enabled session to the RAB that has the proper QoS level. In some embodiments, one session is routed to the RAB. In some embodiments, more than one session can be routed to an RAB. In some embodiments, multiple RABs providing multiple QoS levels are created to the device, and the QoS router routes each service activity to the RAB dictated by the QoS policy rules in effect on the device.

[0099] In some embodiments, the network collects service usage charges for different QoS classes. In some embodiments, there is differentiated service charging for the different classes of QoS service usage. As an example, since guaranteed bit rate traffic consumes network resources whether the traffic capacity is used or not, there can be a time element involved in the charging calculations. As a more detailed example, guaranteed bit rate services can be charged by the total bandwidth provisioned to the device at a given time multiplied by the amount of time that that bandwidth is made available. In some embodiments, differentiated access traffic that has higher QoS than best effort traffic but is not guaranteed bit rate can be charged at a higher rate than best effort traffic but lower than guaranteed bit rate. In some embodiments, such traffic can be charged based on the time the QoS channel is made available and the total amount of data transmitted over the channel, or can only be based on the total amount of data transmitted over the channel. Best effort traffic is charged in some embodiments based only on the total amount of data used, with the data charges being less

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than differentiated streaming access services. Background data services in some embodiments are charged at the lowest rate, possibly with only certain times of the day or periods of low network traffic demand being available for such services, and with the service being based on total data transmitted. In some embodiments, all QoS service levels can be charged based on a fixed price for a fixed charging period, possibly with a service usage cap with additional charges if the service cap is exceeded. In such fixed price scenario embodiments, the price charged is again higher for higher levels of QoS. In some embodiments, the network collects service usage charges for different network capacity controlled service classes. In some embodiments, there is differentiated service charging for the different classes of network capacity controlled service usage, as described herein.

[00100] In some embodiments, the network equipment (e.g., access network element, gateways, AAA, service usage storage systems, home agent, HLR, mobile data center, and/or billing systems) record and report service usage for one or more of the QoS service classes used by the device. In some embodiments, the device service processor records and reports service usage for one or more of the QoS service classes used by the device and reports the QoS service class usage to the service controller (e.g., or another substitute network element). In some embodiments, in which the device is recording reporting usage for one or more QoS service classes, it is important to verify the device service usage reports to ensure that the device usage reports are not distorted, tampered with, and/or otherwise in error. In some embodiments, verifying service usage reports against service usage that should be occurring given the service control policies in place on the device, service processor agent functional operation verification, test service usage events, agent query response sequences, device service processor software protection techniques, device service processor software environment checks, and several other techniques are provides as described herein. For example, using one or more of these verification techniques can provide a verifiable device

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assisted QoS service usage charging system. As another example, using one or more of these verification techniques can provide a verifiable network capacity controlled service usage charging system. In some embodiments, the network equipment (e.g., access network element, gateways, AAA, service usage storage systems, home agent, HLR, mobile data center, and/or billing systems) record and report service usage for one or more of the network capacity controlled service classes used by the device, as described herein.

[00101] In some embodiments, device assisted traffic control is provided for managing network congestion as follows. For example, when a given base station or group of base stations experience traffic demand that is high relative to the available capacity and/or service quality that can be provided, and such a condition is determined (e.g., detected or reported) based on a network busy state assessment as described below and further herein, then a service controller (e.g., or another network function) can issue, send, and/or implement traffic control throttling policies to/for the devices in accordance with a measure of the excess traffic demand the one or more base stations is experiencing. For example, the device service processors connected to an overly busy base station can be instructed to reduce the traffic control priority for one or more classes of QoS traffic, reducing the queuing priority, throttling rate, delay and/or access allowance for some or all of one or more classes of traffic. As another example, the device service processors connected to an overly busy base station can be instructed to reduce the traffic control priority for one or more classes of network capacity controlled services traffic, reducing the queuing priority, throttling rate, delay and/or access allowance for some or all of one or more classes of such traffic. As another example, one or more classes of network capacity controlled services traffic, such as background download processes, which can include, for example, software updates can be turned off completely or throttled back significantly. As another example, best effort traffic such as Internet browsing can be throttled or reduced for a group of devices connected to base stations experiencing excess traffic

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demand. As another example, a policy can be implemented on the devices connected to busy base stations in which the device is allowed to browse or conduct other best effort service activities at a relatively high throttling rate for a period of time, but if the device uses more than a certain amount of service (e.g., total data downloaded and/or uploaded) in a certain period of time then the device may be traffic controlled according to an adaptive throttling policy as described herein. In some embodiments, higher QoS level traffic cannot be throttled in such circumstances, such as VOIP traffic where real-time guaranteed bit rate is important to meet user service needs or expectations, while lower priority traffic such as interactive browsing and/or background download are throttled and/or blocked. In some embodiments, the QoS availability assessment processes described herein are adjusted so that higher QoS channels are not provided and provisioned in times or locations in which a given base station or group of base stations experience excess demand or demand above a given threshold.

[00102] In some embodiments, users or devices that have service plans with higher QoS levels, or service plans with higher priority during busy network periods have different traffic control policies (e.g., for QoS services and/or network capacity controlled services) applied to them that result in a higher level of traffic performance and/or a higher level of QoS service availability. For example, emergency service workers can be given higher traffic control access policies that result in differentiated services during peak busy times on the network or a portion of the network. In some embodiments, users can obtain a premium service plan for differentiated access during peak busy time periods or may use higher levels of QoS service settings and/or service plans to achieve differentiated service during peak busy periods. As another example, services that demand high levels of QoS classes, such as real-time voice services, instant messaging, push to talk, differentiated video streaming, and/or interactive gaming, are not traffic controlled to the same extent that other lower priority services or lower class service plans are traffic controlled during peak busy times. For example, this type of

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service differentiation can also be applied based on device type, user group, user standing, user reward zone points, and/or other criteria/measures as similarly described herein.

[00103] In some embodiments, the decision to control (e.g., reduce, increase, and/or otherwise control in some manner) the access traffic control settings as described above is made by the device service processor based on the device's assessment of the network capacity, which can be determined using various techniques as described herein. In some embodiments, the decision to control the access traffic control settings as described above is made by a service controller (e.g., or other interchangeable network equipment element or elements as described herein) connected to the device that provides instructions to the device to adjust the access policy settings. For example, the service controller can obtain the network capacity information from access equipment elements, from device reports of traffic capacity and/or quality as described herein, or from reports on traffic capacity and/or quality obtained from dedicated devices used for the purpose of assessing network capacity. In some embodiments, the decision to control the access traffic control settings as described above is based on the time of day, the day of week, or both to accommodate cyclical patterns in network capacity and traffic demand.

[00104] In some embodiments, a service controller (e.g., or another network equipment element or elements, as described herein) assesses network busy state and then controls device traffic demand by reducing the offered capacity for one or more service classes (e.g., for QoS services and/or network capacity controlled services) supported by the access network equipment elements, such as a wireless base station. In such embodiments, the service controller (e.g., or similar function) gathers the network capacity information with one of the techniques described herein and instructs one or more of the access network equipment elements to reduce the offered capacity for one or more levels of QoS classes and/or network capacity controlled service classes, to one or more of the devices connected to the access

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network equipment elements. For example, the determination of which devices to throttle back can be made based on an equal throttling of all devices of a given service plan status, or based on the device traffic usage patterns in the recent past as described herein, or based on a combination of service plan status and recent traffic usage patterns.

[00105] In some embodiments, the device is enabled with ambient services that have differentiated QoS services and/or network capacity controlled services as part of the ambient service offering. For example, ambient QoS techniques can be provided using the pre-assigned QoS policies for a given service activity set within the ambient service, or using an ambient service application that requests QoS through the QoS API. Other embodiments for providing QoS differentiated service activities within ambient service offerings will now be apparent to one of ordinary skill in the art. As another example, ambient network capacity controlled service techniques can be provided using the pre-assigned network capacity controlled policies for a given service activity set within the ambient service, monitoring and dynamically assigned techniques, and/or using an ambient service application that uses API or emulated API techniques, and/or other techniques as described herein.

[00106] In some embodiments, a QoS service control policy is adapted as a function of the type of network the device is connected to. For example, the QoS traffic control policies and/or the QoS service charging policies can be different when the device is connected to a wireless network (e.g., a 3G/4G network where there is in general less available QoS enabled traffic capacity) than when the device is connected to a wired network (e.g., a cable or DSL network where there is in general a higher level of QoS capacity available). In such embodiments, the device service processor and the service controller can coordinate to adapt the QoS service control policies and/or the QoS service charging policies to be different depending on which network the device is connected to. Similarly, the device QoS service control policy and/or QoS service charging policy can also be adapted based on whether the device is connected to a

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home wireless network or a roaming wireless network. In some embodiments, a network capacity controlled service control policy and/or a network capacity controlled charging policy is adapted as a function of the type of network the device is connected to, as similarly described herein.

[00107] In some embodiments, various of the QoS related techniques and/or network capacity controlled services techniques described herein are performed on the device using DAS techniques and/or on the service controller in secure communication with a verified service processor executed on the device using DAS techniques. In some embodiments, various of the QoS related techniques and/or network capacity controlled services techniques described herein are performed by/in coordination/communication with one or more intermediate network elements/functions for assisting in various techniques (e.g., functions) for QoS techniques and/or network capacity controlled services techniques as described herein.

[00108] FIG. 1 illustrates a functional diagram of a network architecture for providing quality of service (QoS) for device assisted services (DAS) and/or for providing DAS for protecting network capacity in accordance with some embodiments. In some embodiments, QoS for DAS techniques described herein are implemented using the network architecture shown in FIG. 1. In some embodiments, DAS for protecting network capacity techniques described herein are implemented using the network architecture shown in FIG. 1.

[00109] As shown, FIG. 1 includes a 4G/3G/2G wireless network operated by, for example, a central provider. As shown, various wireless devices 100 are in communication with base stations 125 for wireless network communication with the wireless network (e.g., via a firewall 124), and other devices 100 are in communication with Wi-Fi Access Points (APs) or Mesh 702 for wireless communication to Wi-Fi Access CPE 704 in communication with central provider access network 109. In some embodiments, one or more of the devices 100 are in communication with other network element(s)/equipment that provides an access point, such as

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a cable network head end, a DSL network DSLAM, a fiber network aggregation node, and/or a satellite network aggregation node. In some embodiments, each of the wireless devices 100 includes a service processor 115 (as shown) (e.g., executed on a processor of the wireless device 100), and each service processor connects through a secure control plane link to a service controller 122 (e.g., using encrypted communications).

[00110] In some embodiments, service usage information includes network based service usage information (e.g., network based service usage measures or charging data records (CDRs), which can, for example, be generated by service usage measurement apparatus in the network equipment), which is obtained from one or more network elements (e.g., BTS/BSCs 125, RAN Gateways (not shown), Transport Gateways (not shown), Mobile Wireless Center/HLRs 132, AAA 121, Service Usage History/CDR Aggregation, Mediation, Feed 118, or other network equipment). In some embodiments, service usage information includes micro-CDRs. In some embodiments, micro-CDRs are used for CDR mediation or reconciliation that provides for service usage accounting on any device activity that is desired. In some embodiments, each device activity that is desired to be associated with a billing event is assigned a micro-CDR transaction code, and the service processor 115 is programmed to account for that activity associated with that transaction code. In some embodiments, the service processor 115 periodically reports (e.g., during each heartbeat or based on any other periodic, push, and/or pull communication technique(s)) micro-CDR usage measures to, for example, the service controller 122 or some other network element. In some embodiments, the service controller 122 reformats the heartbeat micro-CDR usage information into a valid CDR format (e.g., a CDR format that is used and can be processed by an SGSN or GGSN or other network elements/equipment used/authorized for generating or processing CDRs) and then transmits it to a network element/function for CDR mediation (e.g., CDR Storage, Aggregation, Mediation, Feed 118).

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[00111] In some embodiments, CDR mediation is used to account for the micro-CDR service usage information by depositing it into an appropriate service usage account and deducting it from the user device bulk service usage account. For example, this technique provides for a flexible service usage billing solution that uses pre-existing solutions, infrastructures, and/or techniques for CDR mediation and billing. For example, the billing system (e.g., billing system 123 or billing interface 127) processes the mediated CDR feed from CDR mediation, applies the appropriate account billing codes to the aggregated micro-CDR information that was generated by the device, and then generates billing events in a manner that does not require changes to the existing billing systems (e.g., using new transaction codes to label the new device assisted billing capabilities). In some embodiments, network provisioning system 160 provisions various network elements/functions for authorization in the network, such as to authorize certain network elements/functions (e.g., CDR storage, aggregation, mediation, feed 118 or other network elements/functions) for providing micro-CDRs, reformatted micro-CDRs, and/or aggregated or reconciled CDRs.

[00112] As shown in Figure 1, a CDR storage, aggregation, mediation, feed 118 is provided. In some embodiments, the CDR storage, aggregation, mediation, feed 118 receives, stores, aggregates and mediates micro-CDRs received from mobile devices 100. In some embodiments, the CDR storage, aggregation, mediation, feed 118 also provides a settlement platform using the mediated micro-CDRs, as described herein. In some embodiments, another network element provides the settlement platform using aggregated and/or mediated micro-CDRs (e.g., central billing interface 127 and/or another network element/function).

[00113] In some embodiments, various techniques for partitioning of device groups are used for partitioning the mobile devices 100 (e.g., allocating a subset of mobile devices 100 for a distributor, an OEM, a MVNO, and/or another partner or entity). As shown in Figure 1, a MVNO core network 210 includes a MVNO CDR storage, aggregation, mediation, feed 118, a MVNO

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billing interface 122, and a MVNO billing system 123 (and other network elements as shown in Figure 1). In some embodiments, the MVNO CDR storage, aggregation, mediation, feed 118 receives, stores, aggregates and mediates micro-CDRs received from mobile devices 100 (e.g., MVNO group partitioned devices).

[00114] Those of ordinary skill in the art will appreciate that various other network architectures can be used for providing device group partitions and a settlement platform, and Figure 1 is illustrative of just one such example network architecture for which device group partitions and settlement platform techniques described herein can be provided.

[00115] In some embodiments, CDR storage, aggregation, mediation, feed 118 (e.g., service usage 118, including a billing aggregation data store and rules engine) is a functional descriptor for, in some embodiments, a device/network level service usage information collection, aggregation, mediation, and reporting function located in one or more of the networking equipment apparatus/systems attached to one or more of the sub-networks shown in Figure 1 (e.g., central provider access network 109 and/or central provider core network 110), which is in communication with the service controller 122 and a central billing interface 127. As shown in Figure 1, service usage 118 provides a function in communication with the central provider core network 110. In some embodiments, the CDR storage, aggregation, mediation, feed 118 function is located elsewhere in the network or partially located in elsewhere or integrated with/as part of other network elements. In some embodiments, CDR storage, aggregation, mediation, feed 118 functionality is located or partially located in the AAA server 121 and/or the mobile wireless center/Home Location Register(HLR) 132 (as shown, in communication with a DNS/DHCP server 126). In some embodiments, service usage 118 functionality is located or partially located in the base station, base station controller and/or base station aggregator, collectively referred to as base station 125 in Figure 1. In some embodiments, CDR storage, aggregation, mediation, feed 118 functionality is located or partially located in a networking

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component in the central provider access network 109, a networking component in the core network 110, the central billing system 123, the central billing interface 127, and/or in another network component or function. This discussion on the possible locations for the network based and device based service usage information collection, aggregation, mediation, and reporting function (e.g., CDR storage, aggregation, mediation, feed 118) can be easily generalized as described herein and as shown in the other figures and embodiments described herein by one of ordinary skill in the art. Also, as shown in Figure 1, the service controller 122 is in communication with the central billing interface 127 (e.g., sometimes referred to as the external billing management interface or billing communication interface), which is in communication with the central billing system 123. As shown in Figure 1, an order management 180 and subscriber management 182 are also in communication with the central provider core network 110 for facilitating order and subscriber management of services for the devices 100 in accordance with some embodiments.

[00116] In some embodiments, a service processor download 170 is provided, which provides for periodical downloads/updates of service processors (e.g., service processor 115). In some embodiments, verification techniques include periodically updating, replacing, and/or updating an obfuscated version of the service processor, or performing any of these techniques in response to an indication of a potential compromise or tampering of any service processor functionality (e.g., QoS functionality and/or network capacity controlled services functionality) executed on or implemented on the device 100.

[00117] In some embodiments, the CDR storage, aggregation, mediation, feed 118 (and/or other network elements or combinations of network elements) provides a device/network level service usage information collection, aggregation, mediation, and reporting function. In some embodiments, the CDR storage, aggregation, mediation, feed 118 (and/or other network elements or combinations of network elements) collects device generated/assisted service

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usage information (e.g., micro-CDRs) for one or more devices on the wireless network (e.g., devices 100); and provides the device generated service usage information in a syntax and a communication protocol that can be used by the wireless network to augment or replace network generated usage information for the one or more devices on the wireless network. In some embodiments, the syntax is a charging data record (CDR), and the communication protocol is selected from one or more of the following: 3GPP, 3GPP2, or other communication protocols. In some embodiments, as described herein, the CDR storage, aggregation, mediation, feed 118 collects/receives micro-CDRs for one or more devices on the wireless network (e.g., devices 100). In some embodiments, the CDR storage, aggregation, mediation, feed 118 (e.g., or other network elements and/or various combinations of network elements) includes a service usage data store (e.g., a billing aggregator) and a rules engine for aggregating the collected device generated service usage information. In some embodiments, the network device is a CDR feed aggregator, and the CDR storage, aggregation, mediation, feed 118 (and/or other network elements or combinations of network elements) also aggregates (network based) CDRs and/or micro-CDRs for the one or more devices on the wireless network; applies a set of rules to the aggregated CDRs and/or micro-CDRs using a rules engine (e.g., bill by account, transactional billing, revenue sharing model, and/or any other billing or other rules for service usage information collection, aggregation, mediation, and reporting), and communicates a new set of CDRs for the one or more devices on the wireless network to a billing interface or a billing system (e.g., providing a CDR with a billing offset by account/service). In some embodiments, a revenue sharing platform is provided using various techniques described herein. In some embodiments, QoS usage accounting/charging and/or network capacity controlled services usage accounting/charging is provided using various techniques described herein.

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[00118] In some embodiments, the CDR storage, aggregation, mediation, feed 118 (and/or other network elements or combinations of network elements) communicates a new set of CDRs (e.g., aggregated and mediated CDRs and/or micro-CDRs that are then translated into standard CDRs for a given wireless network) for the one or more devices on the wireless network to a billing interface (e.g., central billing interface 127) or a billing system (e.g., central billing system 123). In some embodiments, the CDR storage, aggregation, mediation, feed 118 (and/or other network elements or combinations of network elements) communicates with a service controller (e.g., service controller 122) to collect the device generated service usage information (e.g., micro-CDRs) for the one or more devices on the wireless network. In some embodiments, the CDR storage, aggregation, mediation, feed 118 (and/or other network elements or combinations of network elements) communicates with a service controller, in which the service controller is in communication with a billing interface or a billing system. In some embodiments, the CDR storage, aggregation, mediation, feed 118 (and/or other network elements or combinations of network elements) communicates the device generated service usage information to a billing interface or a billing system. In some embodiments, the CDR storage, aggregation, mediation, feed 118 (and/or other network elements or combinations of network elements) communicates with a transport gateway and/or a Radio Access Network (RAN) gateway to collect the network generated/based service usage information for the one or more devices on the wireless network. In some embodiments, the service controller 122 communicates the device assisted service usage information (e.g., micro-CDRs) to the CDR storage, aggregation, mediation, feed 118 (e.g., or other network elements and/or various combinations of network elements).

[00119] In some embodiments, the CDR storage, aggregation, mediation, feed 118 (e.g., or other network elements and/or various combinations of network elements) performs rules for performing a bill by account aggregation and mediation function. In some embodiments, the

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CDR storage, aggregation, mediation, feed 118 (and/or other network elements or combinations of network elements) performs rules for performing a service billing function, as described herein, and/or for performing a service/transactional revenue sharing function, as described herein. In some embodiments, the service controller 122 in communication with the CDR storage, aggregation, mediation, feed 118 (and/or other network elements or combinations of network elements) performs a rules engine for aggregating and mediating the device assisted service usage information (e.g., micro-CDRs). In some embodiments, a rules engine device in communication with the CDR storage, aggregation, mediation, feed 118 (e.g., or other network elements and/or various combinations of network elements) performs a rules engine for aggregating and mediating the device assisted service usage information (e.g., QOS service usage information and/or network capacity controlled services usage information).

[00120] In some embodiments, the rules engine is included in (e.g., integrated with/part of) the CDR storage, aggregation, mediation, feed 118. In some embodiments, the rules engine and associated functions, as described herein, is a separate function/device. In some embodiments, the service controller 122 performs some or all of these rules engine based functions, as described herein, and communicates with the central billing interface 127. In some embodiments, the service controller 122 performs some or all of these rules engine based functions, as described herein, and communicates with the central billing system 123.

[00121] In some embodiments, a settlement platform service is provided. For example, micro-CDRs can be aggregated and mediated to associate service usage for one or more services used by a communications device (e.g., a user of the communications device). A rules engine or another function can determine a revenue share allocation for the service usage for a particular service to determine the settlement for such service usage for the revenue sharing allocation/model and to distribute accounting and settlement information to one or more of

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carriers, distribution partners, MVNOs, wholesale partners, and/or other partners or entities. In some embodiments, the service is a transactional service.

[00122] In some embodiments, duplicate CDRs are sent from the network equipment to the billing system 123 that is used for generating service billing. In some embodiments, duplicate CDRs are filtered to send only those CDRs/records for devices controlled by the service controller and/or service processor (e.g., managed devices). For example, this approach can provide for the same level of reporting, lower level of reporting, and/or higher level of reporting as compared to the reporting required by the central billing system 123.

[00123] In some embodiments, a bill-by-account billing offset is provided. For example, bill-by-account billing offset information can be informed to the central billing system 123 by providing a CDR aggregator feed that aggregates the device assisted service usage data feed to provide a new set of CDRs for the managed devices to the central billing interface 127 and/or the central billing system 123. In some embodiments, transaction billing is provided using similar techniques. For example, transaction billing log information can be provided to the central billing interface 127 and/or the central billing system 123.

[00124] In some embodiments, the rules engine (e.g., performed by the service usage 118 or another network element, as described herein) provides a bill-by-account billing offset. For example, device assisted service usage information (e.g., micro-CDRs) includes a transaction type field or transaction code (e.g., indicating a type of service for the associated service usage information). For example, the rules engine can apply a rule or a set of rules based on the identified service associated with the device generated service usage information to determine a bill-by-account billing offset (e.g., a new CDR can be generated to provide the determined bill-by-account billing offset). In some examples, the determined bill-by-account billing offset can be provided as a credit to the user's service usage account (e.g., a new CDR can be generated with a negative offset for the user's service usage account, such as for network chatter service

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usage, or transactional service usage, or for any other purposes based on one or more rules performed by the rules engine).

[00125] As another example, for a transactional service, a first new CDR can be generated with a negative offset for the user's service usage account for that transactional service related usage, and a second new CDR can be generated with a positive service usage value to charge that same service usage to the transactional service provider (e.g., Amazon, eBay, or another transactional service provider). In some embodiments, the service controller 122 generates these two new CDRs, and the service usage 118 stores, aggregates, and communicates these two new CDRs to the central billing interface 127. In some embodiments, the service controller 122 generates these two new CDRs, and the service usage 118 stores, aggregates, and communicates these two new CDRs to the central billing interface 127, in which the central billing interface 127 applies rules (e.g., performs the rules engine for determining the bill-by-account billing offset).

[00126] In some embodiments, the service controller 122 sends the device generated CDRs to the rules engine (e.g., a service usage data store and rules engine, such as CDR storage, aggregation, mediation, feed 118), and the rules engine applies one or more rules, such as those described herein and/or any other billing/service usage related rules as would be apparent to one of ordinary skill in the art. In some embodiments, the service controller 122 generates CDRs similar to other network elements, and the rules (e.g., bill-by-account) are performed in the central billing interface 127. For example, for the service controller 122 to generate CDRs similar to other network elements, in some embodiments, the service controller 122 is provisioned on the wireless network (e.g., by network provision system 160) and behaves substantially similar to other CDR generators on the network).

[00127] In some embodiments, the service controller 122 is provisioned as a new type of networking function that is recognized as a valid, authorized, and secure source for CDRs by

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the other necessary elements in the network (e.g., CDR storage, aggregation, mediation, feed 118). In some embodiments, if the necessary network apparatus only recognize CDRs from certain types of networking equipment (e.g. a RAN gateway or transport gateway), then the service controller 122 provides authentication credentials to the other networking equipment that indicate that it is one of the approved types of equipment for providing CDRs. In some embodiments, the link between the service controller 122 and the necessary CDR aggregation and mediation equipment is secured, authenticated, encrypted, and/or signed.

[00128] In some embodiments, the CDR storage, aggregation, mediation, feed 118 discards the network based service usage information (e.g., network based CDRs) received from one or more network elements. In these embodiments, the service controller 122 provides the device assisted service usage information (e.g., device based CDRs or micro-CDRs) to the CDR storage, aggregation, mediation, feed 118 (e.g., the CDR storage, aggregation, mediation, feed 118 can just provide a store, aggregate, and communication function(s), as it is not required to mediate network based CDRs and device assisted CDRs), and the device based service usage information is provided to the central billing interface 127 or the central billing system 123.

[00129] In some embodiments, the device based CDRs (e.g., micro-CDRs) and/or new CDRs generated based on execution of a rules engine as described herein are provided only for devices that are managed and/or based on device group, service plan, or any other criteria, categorization, and/or grouping, such as based on ambient service or ambient service provider or transactional service or transactional service provider.

[00130] In some embodiments, QoS for DAS includes a service processor (e.g., any device assisted element/function) that facilitates coordination for and/or provisions wireless access/radio access bearers (e.g., RABs). In some embodiments, the service processor determines whether a request for QoS is authorized (e.g., according to QoS service level, user standing, available local network capacity (e.g., as reported by other device(s) and/or network)).

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In some embodiments, device QoS capacity demand reports provide and/or augment network capacity demand reports.

[00131] In some embodiments, QoS for DAS includes a service controller (e.g., any network device based service control element/function) that facilitates coordination for and/or provisions wireless access/radio access bearers (e.g., RABs) on a device (e.g., a communications device, such as a mobile wireless communications device and/or an intermediate networking device), on network, and/or on device plus network. In some embodiments, the service controller provides device QoS capacity demand reports to other network equipment/elements/functions, and then also provisions the RAB channel based on various criteria and determinations.

[00132] In some embodiments, QoS for DAS provides for device assisted monitoring, information, and/or functionality to facilitate QoS without and/or to assist network based monitoring, information, and/or functionality (e.g., Deep Packet Inspection (DPI) and/or provides such monitoring, information, and/or functionality that may not be available via network based monitoring, information, and/or functionality (e.g., encrypted activities on the device may not be accessible by DPI or other network based techniques). For example, QoS for DAS can assist in the QoS setup to facilitate the QoS setup and provide such information that may not otherwise be available using network based only techniques. For example, device assisted activity and/or service monitoring techniques can assist in classifying the QoS for the monitored activity and/or service using, for example, a QoS activity map (e.g., as described herein or other similar techniques). For example, using such device assisted techniques eliminates and/or minimizes DPI or other network based techniques that can give rise to privacy concerns/issues, network neutrality concerns/issues, and/or otherwise may not be able to provide similar or equivalent granular service/activity monitoring, as discussed above, and/or also off loads such processing from the network (e.g., network elements/devices/functionality) to the communications devices (e.g., at least for such communications devices that can perform such functions, based on their

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processing and/or memory capabilities, as would be apparent to one of ordinary skill in the art). In some embodiments, QoS for DAS includes the service provider for providing an initial authorization/clearance for a QoS request (e.g., using various techniques described herein), and the service controller determines if the QoS request should be authorized (e.g., based on various QoS authorization/clearance/approval criteria (e.g., QoS activity maps and/or QoS request rule) and/or network capacity, as described herein). In some embodiments, QoS for DAS includes the service provider for providing a QoS request including a QoS class to the service controller, and the service controller determines if the QoS request should be authorized, as described herein. In some embodiments, DAS for protecting network capacity provides for device assisted monitoring, information, and/or functionality to facilitate protecting network capacity without and/or to assist network based monitoring, information, and/or functionality (e.g., Deep Packet Inspection (DPI) and/or provides such monitoring, information, and/or functionality that may not be available via network based monitoring, information, and/or functionality (e.g., encrypted activities on the device may not be accessible by DPI or other network based techniques). In some embodiments, DAS for protecting network capacity provides for device assisted monitoring, information, and/or functionality to facilitate protecting network capacity without solely relying upon DPI and/or without any use or any significant use of DPI wireless network, which conserves network resources and network capacity by controlling device network access behavior at the device instead of deep in the core network at a DPI gateway (e.g., DPI based techniques consume over the air wireless network capacity even if chatty device behavior is blocked at a DPI gateway, in contrast, DAS for protecting network capacity techniques that do not use DPI based techniques for controlling device service usage can, for example, providing a device based usage notification and service selection UI that does not consume over the air wireless network capacity).

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[00133] In some embodiments, QoS for DAS and/or DAS for protecting network capacity includes providing or facilitating reports for base station (BTS) for network capacity (e.g., sector, channel, busy state information or network capacity usage/availability, and/or network capacity expected demand) based on, for example, one or more of the following: monitored application usage on the communications device, monitored user activity on the communications device, location of the communications, other available networks, and/or other monitored or determined activity, service usage measure, and/or metric. In some embodiments, at or after execution of an application that is determined to require network service usage (e.g., may require increased wireless network bandwidth, such as based on a service usage activity map), QoS for DAS sends information to the network (e.g., a network controller or other network device element/function) that capacity demand is forthcoming for the communications device (e.g., potentially initiating a provisioning of a QoS radio access bearer (RAB) or other type of RAB).

[00134] In some embodiments, network capacity (e.g., busy state information) is collected from one or more communications devices in communication with a wireless network (e.g., network capacity/usage information measured from each respective communications device's perspective is determined and stored by the service processor on each respective communications device) and reported to the service controller, and the service controller (e.g., or another network element/function) uses this information to determine what resources are available for allocation to various levels of QoS (e.g., to respond to/facilitate various QoS requests) and/or to workload balance across multiple base stations and/or networks (e.g., wired networks, cellular, Wi-Fi, and/or other wireless networks).

[00135] In some embodiments, the service processor executed on the communications device sends a QoS request (e.g., a wireless network bearer channel reservation request or Radio Access Bearer (RAB) request) to the service controller. The service controller verifies the request using various verification techniques as described herein. In some embodiments, the

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service controller facilitates coordination of various device QoS requests with one or more base stations (BTSs) in communication with the communications device to provide for the requested QoS reservation to facilitate the new QoS session. In some embodiments, the service controller provides a QoS routing function by, for example, providing various QoS routing instructions to a device service processor (e.g., aggregating, prioritizing, queuing, authorizing, allocating reservations/RABs, denying, re-routing (such as to other BTSs and/or other networks) and/or otherwise managing QoS requests), in which the BTS may or may not be QoS aware. For example, QoS priority can be based on activity (e.g., service usage and/or application), service level, user standing, network capacity, time of day, and/or QoS priority can be purchased on a transaction basis, a session basis, a pre-pay basis or a plan basis. As another example, QoS priority can also vary by device type, user within a group, group, application type, content type, or any other criteria or measure and/or any combination thereof. In some embodiments, the service controller also facilitates coordination of various device QoS requests with other network elements/functions for QoS implementation and management to provide for an end to end QoS solution.

[00136] In some embodiments, QoS can be symmetric for two mobile devices or asymmetric. In some embodiments, QoS resource availability can be from communications devices, BTS(s), other network functions (e.g., service control, service controller and/or any other network elements/functions) or any combination thereof. In some embodiments, the service controller provides QoS demand information to another network element/function. In some embodiments, the service controller provides the central aggregator and policy decision point (PDP). In some embodiments, the service controller controls (e.g., at least in part) QoS related functions for communications devices, BTS(s), and/or a combination of both.

[00137] In some embodiments, charging (e.g., monitoring and/or determining associating charging or billing) for QoS service usage/transactions and/or network capacity controlled

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services usage/transactions is determined using various techniques described herein. For example, the service processor can assist in charging for QoS and/or network capacity controlled activities. In some embodiments, the service processor uses device assisted Charging Data Records (CDRs) or micro-CDRs to assist in charging for QoS and/or network capacity controlled activities (e.g., using QoS class related transaction codes and/or network capacity controlled related transaction codes), as described herein with respect to various embodiments. In some embodiments, charging for QoS and/or network capacity controlled services is performed in whole or in part by one or more network elements/functions (e.g., service controller, SGSN/GGSN/other gateways, and/or billing interfaces/servers).

[00138] In some embodiments, service usage information includes network based service usage information. In some embodiments, the network based service usage information includes network based CDRs. In some embodiments, service usage information includes device based service usage information. In some embodiments, device based service usage information includes device assisted CDRs, also referred to herein as micro-CDRs, as described herein. In some embodiments, micro-CDRs are used for CDR mediation or reconciliation that provides for service usage accounting on any device activity that is desired (e.g., providing granular service usage information, such as based on application layer service usage monitoring, transaction service usage monitoring, QoS activities/sessions/transactions, network capacity controlled activities/sessions/transactions, and/or other types of service usage information). In some embodiments, each device includes a service processor (e.g., a service processor executed on a processor of a communications device, such as a mobile device or an intermediate networking device that can communicate with a wireless network).

[00139] In some embodiments, each device activity that is desired to be associated with a billing event (e.g., for a QoS related billing event) is assigned a micro-CDR transaction code, and the service processor is programmed to account for that activity associated with that

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transaction code (e.g., various transaction codes can be associated with service usage associated with certain services, applications, and/or based on QoS classes or priorities, respectively, which can be used for providing granular service usage for these various Internet/network based services/sites/transactions and/or any other Internet/network based services/sites, which can include transactional based services). For example, using these techniques, as described herein, essentially any type of device activity (e.g., including QoS classes and prioritization and/or network capacity controlled classes and prioritization) can be individually accounted for and/or controlled (e.g., throttled, restricted, and/or otherwise controlled as desired). In some embodiments, the service processor periodically reports (e.g., during each heartbeat or based on any other periodic, push, and/or pull communication technique(s)) micro-CDR usage measures to, for example, a service controller or some other network element/function. In some embodiments, the service controller reformats the heartbeat micro-CDR usage information into a valid CDR format (e.g., a CDR format that is used and can be processed by an SGSN or GGSN or some other authorized network element/function for CDRs) and then transmits the reformatted micro-CDRs to a network element/function for performing CDR mediation.

[00140] In some embodiments, CDR mediation is used to properly account for the micro-CDR service usage information by depositing it into an appropriate service usage account and deducting it from the user device bulk service usage account. For example, this technique provides for a flexible service usage billing solution that uses pre-existing solutions for CDR mediation and billing. For example, the billing system can process the mediated CDR feed from CDR mediation, apply the appropriate account billing codes to the aggregated micro-CDR information that was generated by the device, and then generate billing events in a manner that does not require changes to existing billing systems, infrastructures, and techniques (e.g., using new transaction codes to label the new device assisted billing capabilities).

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[00141] In some embodiments, the various QoS techniques performed on or by the communications device (e.g., using a service processor to provide or assist in providing QoS session provisioning, QoS policy management, QoS policy enforcement, and/or QoS accounting/charging, such as QoS charging records and reports) are verified (e.g., using various verification techniques described herein). In some embodiments, the various network capacity controlled services techniques performed on or by the communications device (e.g., using a service processor to provide or assist in providing network capacity controlled services policy management, network capacity controlled services policy enforcement, and/or network capacity controlled services charging, such as network capacity controlled services charging records and reports) are verified (e.g., using various verification techniques described herein).

[00142] For example, a QoS request, QoS related policy rules (e.g., QoS activity map, QoS related service plan and/or service policy settings) and implementation, QoS policy enforcement, and QoS charging are verified (e.g., periodically, per transaction, and/or based on some other criteria/metric). In some embodiments, verification techniques include one or more of the following: compare a network based service usage measure with a first service policy associated with the communications device, compare a device assisted service usage measure with the first service policy, compare the network based service usage measure to the device assisted service usage measure, perform a test and confirm a device assisted service usage measure based on the test, perform a User Interface (UI) notification (e.g., which can include a user authentication, password, question/answer challenge, and/or other authentication technique), and/or other similar verification techniques as will now be apparent to one of ordinary skill in the art. Accordingly, in some embodiments, QoS for DAS "closes the loop" for verification of various QoS related techniques, such as QoS requests, QoS grants, QoS usage, and/or QoS charging. In some embodiments, the service processor and the service controller serve as a verifiable QoS management/coordination system for other QoS elements/functions in

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network. In some embodiments, if such or other verification techniques determine or assist in determining that a QoS request, QoS report, and/or QoS policy behavior (e.g., or similarly, network capacity controlled services monitoring, reporting, and/or policy behavior) does not match expected requests, reports, and/or policy, then responsive actions can be performed, for example, the communications device (e.g., and/or suspect services) can be suspended, quarantined, killed/terminated, and/or flagged for further analysis/scrutiny to determine whether the device is malfunctioning, needs updating, has been tampered with or compromised, is infected with malware, and/or if any other problem exists.

[00143] In some embodiments, the communications device (e.g., the service processor) maintains a QoS flow table that associates or maps device activity to QoS level/class to RAB/QoS channel, and in some embodiments, the communications device also informs a QoS management network function/element of the relative priority of the QoS flows for the communications device (e.g., based on or using the QoS flow table). In some embodiments, the service controller receives or collects information from the communications device and maintains such a QoS flow table for the communications device and, in some embodiments, the service controller also informs a QoS management network function/element of the relative priority of the QoS flows for the communications device (e.g., based on or using the QoS flow table). In some embodiments, flows can be assigned to activities originating at the communications device in a transparent way, or simply by activity class or user preference, or using other techniques.

[00144] In some embodiments, the communications device maintains a table of QoS billing rates, scheduled transmission times, and/other QoS related information to implement an overlay MAC at the data networking level to manage QoS on legacy networks that are not QoS MAC enabled and/or do not have the various functionality to support QoS controls (e.g., and such techniques can also be used to provide for QoS functionality across different networks). In

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some embodiments, QoS related policies are exchanged between roaming and home service controllers to facilitate QoS support while roaming on a non-home network(s).

[00145] In some embodiments, the communications device serves as a network capacity indicator (e.g., collecting network capacity information for a local cell and communicating or reporting that network capacity information to the service controller). For example, permanent local cell communications devices can be placed in local cell areas to augment legacy equipment for such network capacity indicator/reporting functions. Various other techniques for determining network capacity and/or network availability are described herein.

[00146] In some embodiments, service partners and/or service providers can subsidize in whole or in part to upgrade a given user or group of users to better QoS related service level agreement(SLA)/class for a preferred destination. In some embodiments, based on monitored service usage and/or other monitored behavior of the communications device, such subsidized QoS upgrade/offers can be presented to a user of the communications device (e.g., as an incentive/reward for desired or preferred user behavior or for other reasons). Similarly, in some embodiments, these techniques are also applied to network capacity controlled services.

[00147] In some embodiments, QoS charging is based on QoS channel/reservation, service flow, or RAB charging (e.g., single flow per RAB, multi-flow per RAB, multi-RAB per flow). In some embodiments, charging (e.g., for QoS and/or for network capacity controlled services) is based on one or more of the following: network busy state, time criteria, user service class request, traffic volume and class, time and class, network capacity (e.g., network busy state) and class, time of day and class, location, traffic type, application type, application class, destination, destination type, partner service, and/or other criteria/measures. In some embodiments, QoS charging is verified using the various verification techniques described herein (e.g., test charging events). In some embodiments, network capacity controlled services charging is verified using the various verification techniques described herein (e.g., test

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charging events). In some embodiments, QoS charging is by data usage (e.g., by Megabyte (MB)), service flow by time by QoS class, speed by time, network busy state, time of day/day of week, service plan, current network, and/or other criteria/measures. In some embodiments, network capacity controlled services charging is by data usage (e.g., by Megabyte (MB)), service flow by time by network capacity controlled services class, speed by time, network busy state, time of day/day of week, service plan, current network, and/or other criteria/measures.

[00148] In some embodiments, QoS for DAS includes coordinating functions with one or more of the following: DAS elements/functions, Radio Access Network (RAN), Transport network, Core network, GRX network, IPX network, and/or other networks/elements/functions.

[00149] Figure 2 illustrates another functional diagram of another network architecture for providing quality of service (QoS) for device assisted services (DAS) and/or for providing DAS for protecting network capacity in accordance with some embodiments. In some embodiments, QoS for DAS techniques described herein are implemented using the network architecture shown in Figure 2. In some embodiments, DAS for protecting network capacity techniques described herein are implemented using the network architecture shown in Figure 2.

[00150] As shown, Figure 2 includes various devices 100 including service processors 115. For example, devices 100 can include various types of mobile devices, such as phones, PDAs, computing devices, laptops, net books, tablets, cameras, music/media players, GPS devices, networked appliances, and any other networked device; and/or devices 100 can include various types of intermediate networking devices, as described herein. The devices 100 are in communication with service control 210 and central provider access and core networks 220. Service policies and accounting functions 230 are also provided in communication with the central provider access and core networks 220. For example, devices 100 can communicate via the central provider access and core networks 220 to the Internet 120 for access to various

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Internet sites/services 240 (e.g., Google sites/services, Yahoo sites/services, Blackberry services, Apple iTunes and AppStore, Amazon.com, FaceBook, and/or any other Internet service or other network facilitated service).

[00151] In some embodiments, Figure 2 provides a wireless network architecture that supports various DAS for protecting network capacity techniques as described herein. Those of ordinary skill in the art will appreciate that various other network architectures can be used for providing various DAS for protecting network capacity techniques as described herein, and Figure 2 is illustrative of just another such example network architecture for which DAS for protecting network capacity techniques as described herein can be provided.

[00152] Figure 3 illustrates another functional diagram of an architecture 300 including a device based service processor 115 and a service controller 122 for providing quality of service (QoS) for device assisted services (DAS) and/or for providing DAS for protecting network capacity in accordance with some embodiments. In some embodiments, QoS for DAS techniques described herein are implemented using the functions/elements shown in Figure 3. In some embodiments, DAS for protecting network capacity techniques described herein are implemented using the functions/elements shown in Figure 3.

[00153] For example, the architecture 300 provides a relatively full featured device based service processor implementation and service controller implementation. As shown, this corresponds to a networking configuration in which the service controller 122 is connected to the Internet 120 and not directly to the access network 1610. As shown, a data plane (e.g., service traffic plane) communication path is shown in solid line connections and control plane (e.g., service control plane) communication path is shown in dashed line connections. As will be apparent to one of ordinary skill in the art, the division in functionality between one device agent and another is based on, for example, design choices, networking environments, devices and/or services/applications, and various different combinations can be used in various different

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implementations. For example, the functional lines can be re-drawn in any way that the product designers see fit. As shown, this includes certain divisions and functional breakouts for device agents as an illustrative implementation, although other, potentially more complex, embodiments can include different divisions and functional breakouts for device agent functionality specifications, for example, in order to manage development specification and testing complexity and workflow. In addition, the placement of the agents that operate, interact with or monitor the data path can be moved or re-ordered in various embodiments. For example, the functional elements shown in Figure 3 are described below with respect to, for example, Figures 4, 12, and 13 as well as Figures 5 through 11 (e.g., QoS for DAS related embodiments) and Figures 14 through 23 (e.g., DAS for protecting network capacity related embodiments).

[00154] As shown in Figure 3, service processor 115 includes a service control device link 1691. For example, as device based service control techniques involving supervision across a network become more sophisticated, it becomes increasingly important to have an efficient and flexible control plane communication link between the device agents and the network elements communicating with, controlling, monitoring, or verifying service policy. In some embodiments, the service control device link 1691 provides the device side of a system for transmission and reception of service agent to/from network element functions. In some embodiments, the traffic efficiency of this link is enhanced by buffering and framing multiple agent messages in the transmissions. In some embodiments, the traffic efficiency is further improved by controlling the transmission frequency or linking the transmission frequency to the rate of service usage or traffic usage. In some embodiments, one or more levels of security or encryption are used to make the link robust to discovery, eavesdropping or compromise. In some embodiments, the service control device link 1691 also provides the communications link and heartbeat timing for the agent heartbeat function. As discussed below, various embodiments disclosed herein for

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the service control device link 1691 provide an efficient and secure solution for transmitting and receiving service policy implementation, control, monitoring and verification information with other network elements.

[00155] As shown in Figure 3, the service controller 122 includes a service control server link 1638. In some embodiments, device based service control techniques involving supervision across a network (e.g., on the control plane) are more sophisticated, and for such it is increasingly important to have an efficient and flexible control plane communication link between the device agents (e.g., of the service processor 115) and the network elements (e.g., of the service controller 122) communicating with, controlling, monitoring, or verifying service policy. For example, the communication link between the service control server link 1638 of service controller 122 and the service control device link 1691 of the service processor 115 can provide an efficient and flexible control plane communication link, a service control link 1653 as shown in Figure 3, and, in some embodiments, this control plane communication link provides for a secure (e.g., encrypted) communications link for providing secure, bidirectional communications between the service processor 115 and the service controller 122. In some embodiments, the service control server link 1638 provides the network side of a system for transmission and reception of service agent to/from network element functions. In some embodiments, the traffic efficiency of this link is enhanced by buffering and framing multiple agent messages in the transmissions (e.g., thereby reducing network chatter). In some embodiments, the traffic efficiency is further improved by controlling the transmission frequency and/or linking the transmission frequency to the rate of service usage or traffic usage. In some embodiments, one or more levels of security and/or encryption are used to secure the link against potential discovery, eavesdropping or compromise of communications on the link. In some embodiments, the service control server link 1638 also provides the communications link and heartbeat timing for the agent heartbeat function.

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[00156] In some embodiments, the service control server link 1638 provides for securing, signing, encrypting and/or otherwise protecting the communications before sending such communications over the service control link 1653. For example, the service control server link 1638 can send to the transport layer or directly to the link layer for transmission. In another example, the service control server link 1638 further secures the communications with transport layer encryption, such as TCP TLS or another secure transport layer protocol. As another example, the service control server link 1638 can encrypt at the link layer, such as using IPSEC, various possible VPN services, other forms of IP layer encryption and/or another link layer encryption technique.

[00157] As shown in Figure 3, the service controller 122 includes an access control integrity server 1654 (e.g., service policy security server). In some embodiments, the access control integrity server 1654 collects device information on service policy, service usage, agent configuration, and/or agent behavior. For example, the access control integrity server 1654 can cross check this information to identify integrity breaches in the service policy implementation and control system. In another example, the access control integrity server 1654 can initiate action when a service policy violation (e.g., QoS policy violation and/or a network capacity controlled services policy violation) or a system integrity breach is suspected.

[00158] In some embodiments, the access control integrity server 1654 (and/or some other agent of service controller 122) acts on access control integrity agent 1694 (e.g., service policy security agent) reports and error conditions. Many of the access control integrity agent 1654 checks can be accomplished by the server. For example, the access control integrity agent 1654 checks include one or more of the following: service usage measure against usage range consistent with policies (e.g., usage measure from the network and/or from the device); configuration of agents; operation of the agents; and/or dynamic agent download.

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[00159] In some embodiments, the access control integrity server 1654 (and/or some other agent of service controller 122) verifies device service policy implementations by comparing various service usage measures (e.g., based on network monitored information, such as by using IPDRs or CDRs, and/or local service usage monitoring information) against expected service usage behavior given the policies that are intended to be in place (e.g., a QoS policy and/or a network capacity controlled services policy). For example, device service policy implementations can include measuring total QoS data passed, QoS data passed in a period of time, IP addresses, data per IP address, and/or other measures such as location, downloads, email accessed, URLs, and comparing such measures expected service usage behavior given the policies that are intended to be in place.

[00160] In some embodiments, the access control integrity server 1654 (e.g., and/or some other agent of service controller 122) verifies device service policy, and the verification error conditions that can indicate a mismatch in QoS service measure and QoS service policy include one or more of the following: unauthorized network access (e.g., access beyond ambient service policy limits); unauthorized network speed (e.g., average speed beyond service policy limit); network data amount does not match QoS policy limit (e.g., device not stop at limit without re-up/revising service policy); unauthorized network address; unauthorized service usage (e.g., VOIP, email, and/or web browsing); unauthorized application usage (e.g., email, VOIP, email, and/or web); service usage rate too high for plan, and policy controller not controlling/throttling it down; and/or any other mismatch in service measure and service policy. Accordingly, in some embodiments, the access control integrity server 1654 (and/or some other agent of service controller 122) provides a policy/service control integrity service to continually (e.g., periodically and/or based on trigger events) verify that the service control of the device has not been compromised and/or is not behaving out of policy (e.g., a QoS policy and/or a network capacity controlled services policy).

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[00161] As shown in Figure 3, service controller 122 includes a service history server 1650 (e.g., charging server). In some embodiments, the service history server 1650 collects and records service usage or service activity reports from the Access Network AAA Server 1621 and the Service Monitor Agent 1696. For example, although service usage history from the network elements can in certain embodiments be less detailed than service history from the device, the service history from the network can provide a valuable source for verification of device service policy implementation, because, for example, it is extremely difficult for a device error or compromise event on the device to compromise the network based equipment and software. For example, service history reports from the device can include various service tracking information, as similarly described above. In some embodiments, the service history server 1650 provides the service history on request to other servers and/or one or more agents. In some embodiments, the service history server 1650 provides the service usage history to the device service history 1618 (e.g., CDR feed and CDR mediation). In some embodiments, for purposes of facilitating the activation tracking service functions (described below), the service history server 1650 maintains a history of which networks the device has connected to. For example, this network activity summary can include a summary of the networks accessed, activity versus time per connection, and/or traffic versus time per connection. As another example, this activity summary can further be analyzed or reported to estimate the type of service plan associated with the traffic activity for the purpose of bill sharing reconciliation.

[00162] As shown in Figure 3, service controller 122 includes a policy management server 1652 (e.g., policy decision point (PDP) server) for managing service usage policies, such as QoS policies and/or a network capacity controlled services policies. In some embodiments, the policy management server 1652 transmits policies to the service processor 115 via the service control link 1653. In some embodiments, the policy management server 1652 manages policy settings on the device (e.g., various policy settings as described herein with respect to various

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embodiments) in accordance with a device service profile. In some embodiments, the policy management server 1652 sets instantaneous policies on policy implementation agents (e.g., policy implementation agent 1690). For example, the policy management server 1652 can issue policy settings, monitor service usage and, if necessary, modify policy settings. For example, in the case of a user who prefers for the network to manage their service usage costs, or in the case of any adaptive policy management needs, the policy management server 1652 can maintain a relatively high frequency of communication with the device to collect traffic and/or service measures and issue new policy settings. In this example, device monitored service measures and any user service policy preference changes are reported, periodically and/or based on various triggers/events/requests, to the policy management server 1652. In this example, user privacy settings generally require secure communication with the network (e.g., a secure service control link 1653), such as with the policy management server 1652, to ensure that various aspects of user privacy are properly maintained during such configuration requests/policy settings transmitted over the network. For example, information can be compartmentalized to service policy management and not communicated to other databases used for CRM for maintaining user privacy.

[00163] In some embodiments, the policy management server 1652 provides adaptive policy management on the device. For example, the policy management server 1652 can issue policy settings and objectives and rely on the device based policy management (e.g., service processor 115) for some or all of the policy adaptation. This approach can require less interaction with the device thereby reducing network chatter on the service control link 1653 for purposes of device policy management (e.g., network chatter is reduced relative to various server/network based policy management approaches described above). This approach can also provide robust user privacy embodiments by allowing the user to configure the device policy for user privacy preferences/settings so that, for example, sensitive information (e.g., geo-

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location data, website history, and/or other sensitive information) is not communicated to the network without the user's approval. In some embodiments, the policy management server 1652 adjusts service policy based on time of day. In some embodiments, the policy management server 1652 receives, requests, and/or otherwise obtains a measure of network availability/capacity and adjusts traffic shaping policy and/or other policy settings based on available network availability/capacity (e.g., a network busy state).

[00164] As shown in Figure 3, service controller 122 includes a network traffic analysis server 1656. In some embodiments, the network traffic analysis server 1656 collects/receives service usage history for devices and/or groups of devices and analyzes the service usage. In some embodiments, the network traffic analysis server 1656 presents service usage statistics in various formats to identify improvements in network service quality and/or service profitability. In some embodiments, the network traffic analysis server 1656 estimates the service quality and/or service usage for the network under variable settings on potential service policies. In some embodiments, the network traffic analysis server 1656 identifies actual or potential service behaviors by one or more devices that are causing problems for overall network service quality or service cost. In some embodiments, the network traffic analysis server 1656 estimates the network availability/capacity for the network under variable settings on potential service policies. In some embodiments, the network traffic analysis server 1656 identifies actual or potential service behaviors by one or more devices that are impacting and/or causing problems for overall network availability/capacity.

[00165] As shown in Figure 3, Service Analysis, Test & Download 122B includes a beta test server 1658 (e.g., policy creation point and beta test server). In some embodiments, the beta test server 1658 publishes candidate service plan policy settings to one or more devices. In some embodiments, the beta test server 1658 provides summary reports of network service usage or user feedback information for one or more candidate service plan policy settings. In

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some embodiments, the beta test server 1658 provides a mechanism to compare the beta test results for different candidate service plan policy settings or select the optimum candidates for further policy settings optimization, such as for protecting network capacity.

[00166] As shown in Figure 3, service controller 122 includes a service download control server 1660 (e.g., a service software download control server). In some embodiments, the service download control server 1660 provides a download function to install and/or update service software elements (e.g., the service processor 115 and/or agents/components of the service processor 115) on the device, as described herein.

[00167] As shown in Figure 3 service controller 122 includes a billing event server 1662 (e.g., micro-CDR server). In some embodiments, the billing event server 1662 collects billing events, provides service plan information to the service processor 115, provides service usage updates to the service processor 115, serves as interface between device and central billing server 1619, and/or provides trusted third party function for certain ecommerce billing transactions.

[00168] As shown in Figure 3, the Access Network HLR AAA server 1621 is in network communication with the access network 1610. In some embodiments, the Access Network AAA server 1621 provides the necessary access network AAA services (e.g., access control and authorization functions for the device access layer) to allow the devices onto the central provider access network and the service provider network. In some embodiments, another layer of access control is required for the device to gain access to other networks, such as the Internet, a corporate network and/or a machine to machine network. This additional layer of access control can be implemented, for example, by the service processor 115 on the device. In some embodiments, the Access Network AAA server 1621 also provides the ability to suspend service for a device and resume service for a device based on communications received from the service controller 122. In some embodiments, the Access Network AAA server 1621 also provides the ability to direct routing for device traffic to a quarantine network or to restrict or limit

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network access when a device quarantine condition is invoked. In some embodiments, the Access Network AAA server 1621 also records and reports device network service usage (e.g., device network service usage can be reported to the device service history 1618).

[00169] As shown in Figure 3, the device service history 1618 is in network communication with the access network 1610. In some embodiments, the device service history 1618 provides service usage data records used for various purposes in various embodiments. In some embodiments, the device service history 1618 is used to assist in verifying service policy implementation. In some embodiments, the device service history 1618 is used to verify service monitoring. In some embodiments, the device service history 1618 is used to verify billing records and/or billing policy implementation (e.g., to verify service usage charging). In some embodiments, the device service history 1618 is used to synchronize and/or verify the local service usage counter (e.g., to verify service usage accounting).

[00170] As shown in Figure 3, the central billing 1619 (e.g., central provider billing server) is in network communication with the access network 1610. In some embodiments, the central provider billing server 1619 provides a mediation function for central provider billing events. For example, the central provider billing server 1619 can accept service plan changes. In some embodiments, the central provider billing server 1619 provides updates on device service usage, service plan limits and/or service policies. In some embodiments, the central provider billing server 1619 collects billing events, formulates bills, bills service users, provides certain billing event data and service plan information to the service controller 122 and/or device 100.

[00171] As shown in Figure 3, in some embodiments, modem selection and control 1811 (e.g., in communication with connection manager 1804 as shown) selects the access network connection and is in communication with the modem firewall 1655, and modem drivers 1831, 1815, 1814, 1813, 1812 convert data traffic into modem bus traffic for one or more modems and are in communication with the modem selection and control 1811. In some embodiments,

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different profiles are selected based on the selected network connection (e.g., different service profiles/policies for WWAN, WLAN, WPAN, Ethernet and/or DSL network connections), which is also referred to herein as multimode profile setting. For example, service profile settings can be based on the actual access network (e.g., home DSL/cable or work network) behind the Wi-Fi not the fact that it is Wi-Fi (e.g., or any other network, such as DSL/cable, satellite, or T-1), which is viewed as different than accessing a Wi-Fi network at the coffee shop. For example, in a Wi-Fi hotspot situation in which there are a significant number of users on a DSL or T-1 backhaul, the service controller can sit in a service provider cloud or an MVNO cloud, the service controls can be provided by a VSP capability offered by the service provider or the service controller can be owned by the hotspot service provider that uses the service controller on their own without any association with an access network service provider. For example, the service processors can be controlled by the service controller to divide up the available bandwidth at the hotspot according to QoS or user sharing rules (e.g., with some users having higher differentiated priority (e.g., potentially for higher service payments) than other users). As another example, ambient services (e.g., as similarly described herein) can be provided for the hotspot for verified service processors.

[00172] In some embodiments, the service processor 115 and service controller 122 are capable of assigning multiple service profiles associated with multiple service plans that the user chooses individually or in combination as a package. For example, a device 100 starts with ambient services that include free transaction services wherein the user pays for transactions or events rather than the basic service (e.g., a news service, eReader, PND service, pay as you go session Internet) in which each service is supported with a bill by account capability to correctly account for any subsidized partner billing to provide the transaction services (e.g., Barnes and Noble may pay for the eReader service and offer a revenue share to the service provider for any book or magazine transactions purchased from

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the device 100). In some embodiments, the bill by account service can also track the transactions and, in some embodiments, advertisements for the purpose of revenue sharing, all using the service monitoring capabilities disclosed herein. After initiating services with the free ambient service discussed above, the user may later choose a post-pay monthly Internet, email, and SMS service. In this case, the service controller 122 would obtain from the billing system 123 in the case of network based billing (e.g., or the service controller 122 billing event server 1622 in the case of device based billing) the billing plan code for the new Internet, email and SMS service. In some embodiments, this code is cross referenced in a database (e.g., the policy management server 1652) to find the appropriate service profile for the new service in combination with the initial ambient service. The new superset service profile is then applied so that the user maintains free access to the ambient services, and the billing partners continue to subsidize those services, the user also gets access to Internet services and may choose the service control profile (e.g., from one of the embodiments disclosed herein). The superset profile is the profile that provides the combined capabilities of two or more service profiles when the profiles are applied to the same device 100 service processor. In some embodiments, the device 100 (service processor 115) can determine the superset profile rather than the service controller 122 when more than one "stackable" service is selected by the user or otherwise applied to the device. The flexibility of the service processor 115 and service controller 122 embodiments described herein allow for a large variety of service profiles to be defined and applied individually or as a superset to achieve the desired device 100 service features.

[00173] As shown in Figure 3, an agent communication bus 1630 represents a functional description for providing communication for the various service processor 115 agents and functions. In some embodiments, as represented in the functional diagram illustrated in Figure 3, the architecture of the bus is generally multipoint to multipoint so that any agent can communicate with any other agent, the service controller or in some cases other components of

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the device, such user interface 1697 and/or modem components. As described below, the architecture can also be point to point for certain agents or communication transactions, or point to multipoint within the agent framework so that all agent communication can be concentrated, or secured, or controlled, or restricted, or logged or reported. In some embodiments, the agent communication bus is secured, signed, encrypted, hidden, partitioned, and/or otherwise protected from unauthorized monitoring or usage. In some embodiments, an application interface agent (not shown) is used to literally tag or virtually tag application layer traffic so that the policy implementation agent(s) 1690 has the necessary information to implement selected traffic shaping solutions. In some embodiments, an application interface agent (not shown) is in communication with various applications, including a TCP application 1604, an IP application 1605, and a voice application 1602.

[00174] As shown in Figure 3, service processor 115 includes an API and OS stack interface 1693. In some embodiments, the API and OS stack interface 1693 provides the QoS API functionality as similarly described herein with respect to various embodiments. In some embodiments, a QoS API is used to report back QoS availability to applications. In some embodiments, the API and OS stack interface 1693 provides the network capacity controlled API and/or emulated API functionality as similarly described herein with respect to various embodiments. As shown, service processor 115 also includes a router 1698 (e.g., a QoS router agent/function and/or a network capacity controlled services router agent/function) and a policy decision point (PDP) agent 1692. In some embodiments, the router 1698 provides QoS router functionality as similarly described herein with respect to various embodiments. In some embodiments, the router 1698 provides network capacity controlled services router functionality as similarly described herein with respect to various embodiments. In some embodiments, the QoS router supports multiple QoS channels (e.g., one or more provisioned/allocated QoS links forming a QoS channel between the device and the desired end point, such as an access

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point/BTS/gateway/network for a single ended QoS channel or other communication device for an end to end QoS channel, depending on the QoS connection/network support/availability/etc.). In some embodiments, the QoS router supports multiple QoS channels, which can each have different QoS classes/levels. In some embodiments, the QoS router routes application/service usage traffic to an appropriate QoS channel. In some embodiments, the QoS router determines the routing/mapping based on, for example, one or more of the following: a QoS API request, a QoS activity map, a user request, a service plan, a service profile, service policy settings, network capacity, service controller or other intermediate QoS network element/function/device, and/or any other criteria/measure, as similarly described herein with respect to various embodiments. In some embodiments, multiple different applications/services are routed to a particular QoS channel using various techniques described herein. In some embodiments, different applications/services are routed to different QoS channels using various techniques described herein. In some embodiments, the QoS router assists in managing and/or optimizing QoS usage for the communications device. In some embodiments, the QoS router assists in managing and/or optimizing QoS usage across multiple communications devices (e.g., based on network capacity for a given cell area/base station or other access point). In some embodiments, PDP agent 1692 provides the PDP agent functionality as similarly described herein with respect to various embodiments. As shown, architecture 300 also includes a suspend resume interface 320, network QoS provisioning interfaces 330 (e.g., for providing the various QoS techniques described herein), and an activation/suspend resume server 340 and billing interface server 350 in the service controller 122A.

[00175] In some embodiments, device assisted services (DAS) techniques for providing an activity map for classifying or categorizing service usage activities to associate various monitored activities (e.g., by URL, by network domain, by website, by network traffic type, by

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application or application type, and/or any other service usage activity categorization/classification) with associated IP addresses are provided. In some embodiments, a policy control agent (not shown), service monitor agent 1696 (e.g., charging agent), or another agent or function (or combinations thereof) of the service processor 115 provides a DAS activity map. In some embodiments, a policy control agent (not shown), service monitor agent, or another agent or function (or combinations thereof) of the service processor provides an activity map for classifying or categorizing service usage activities to associate various monitored activities (e.g., by Uniform Resource Locator (URL), by network domain, by website, by network traffic type, by socket (such as by IP address, protocol, and/or port), by socket id (such as port address/number), by port number, by content type, by application or application type, and/or any other service usage activity classification/categorization) with associated IP addresses and/or other criteria/measures. In some embodiments, a policy control agent, service monitor agent, or another agent or function (or combinations thereof) of the service processor determines the associated IP addresses for monitored service usage activities using various techniques to snoop the DNS request(s) (e.g., by performing such snooping techniques on the device 100 the associated IP addresses can be determined without the need for a network request for a reverse DNS lookup). In some embodiments, a policy control agent, service monitor agent, or another agent or function (or combinations thereof) of the service processor records and reports IP addresses or includes a DNS lookup function to report IP addresses or IP addresses and associated URLs for monitored service usage activities. For example, a policy control agent, service monitor agent, or another agent or function (or combinations thereof) of the service processor can determine the associated IP addresses for monitored service usage activities using various techniques to perform a DNS lookup function (e.g., using a local DNS cache on the monitored device 100). In some embodiments, one or more of these techniques are used to dynamically build and maintain a DAS activity map that maps, for example, URLs to IP addresses, applications to IP addresses, content types to IP addresses, and/or any other

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categorization/classification to IP addresses as applicable. In some embodiments, the DAS activity map is used for various DAS traffic control and/or throttling techniques as described herein with respect to various embodiments for providing QoS for DAS and/or for providing DAS for protecting network capacity. In some embodiments, the DAS activity map is used to provide the user various UI related information and notification techniques related to service usage as described herein with respect to various embodiments. In some embodiments, the DAS activity map is used to provide service usage monitoring, prediction/estimation of future service usage, service usage billing (e.g., bill by account and/or any other service usage/billing categorization techniques), DAS techniques for ambient services usage monitoring, DAS techniques for generating micro-CDRs, and/or any of the various other DAS related techniques as described herein with respect to various embodiments.

[00176] In some embodiments, all or a portion of the service processor 115 functions disclosed herein are implemented in software. In some embodiments, all or a portion of the service processor 115 functions are implemented in hardware. In some embodiments, all or substantially all of the service processor 115 functionality (e.g., as discussed herein) is implemented and stored in software that can be performed on (e.g., executed by) various components in device 100. In some embodiments, it is advantageous to store or implement certain portions or all of service processor 115 in protected or secure memory so that other undesired programs (e.g., and/or unauthorized users) have difficulty accessing the functions or software in service processor 115. In some embodiments, service processor 115, at least in part, is implemented in and/or stored on secure non-volatile memory (e.g., non volatile memory can be secure non-volatile memory) that is not accessible without pass keys and/or other security mechanisms (e.g., security credentials). In some embodiments, the ability to load at least a portion of service processor 115 software into protected non-volatile memory also requires a secure key and/or signature and/or requires that the service processor 115 software

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components being loaded into non-volatile memory are also securely encrypted and appropriately signed by an authority that is trusted by a secure software downloader function, such as service downloader 1663 as shown in Figure 3. In some embodiments, a secure software download embodiment also uses a secure non-volatile memory. Those of ordinary skill in the art will also appreciate that all memory can be on-chip, off-chip, on-board, and/or off-board.

[00177] Figures 4A through 4C illustrates a functional diagram for providing quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments. In some embodiments, QoS for DAS techniques described herein are implemented using the network architecture shown in Figures 4A through 4C.

[00178] Referring to Figure 4A, in some embodiments, QoS functionality is performed at the communications device 100 using service processor 115 as similarly described herein. For example, the service processor 115 determines whether or not a QoS request is authorized (e.g., based on the associated service plan and/or other criteria/measures). If the QoS request is authorized, then the service processor 115 communicates with the base station (BTS) 125 to send the QoS request (e.g., a RAB or multi-RAB reservation request) to the local BTS. The BTS determines whether to accept or deny the QoS request (e.g., based on network capacity, such as using a first come first service QoS/network bandwidth or best effort access policy or other techniques, and/or other criteria/measures). The BTS responds to the QoS request accordingly. If the QoS request is granted, the QoS session can be initiated as similarly described herein. In some embodiments, the service processor 115 also performs various QoS charging functions using various techniques described herein, and the service processor 115 periodically sends QoS charging records or reports to the service controller 122 (e.g., and/or another network element/function). In some embodiments, the service processor 115 and the

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QoS related functions performed by the service processor 115 are periodically verified using the various techniques described herein.

[00179] Referring to Figure 4B, Figure 4B is similar to Figure 4A except that the service controller 122 is also shown to be in communication with the service processor 115 of the communications device 100, which can provide for the download and periodically updating of the QoS rules and/or other service plan/profile/policy information that can include QoS related information. In some embodiments, the service processor 115 also performs various QoS charging functions using various techniques described herein, and the service processor 115 periodically sends QoS charging records or reports to the service controller 122 (e.g., and/or another network element/function). In some embodiments, the service processor 115 and the QoS related functions performed by the service processor 115 are periodically verified using the various techniques described herein.

[00180] Referring to Figure 4C, at 410, the service processor 115 sends a QoS request to the service controller 122 (e.g., the service processor can also (at least in part) determine whether the QoS request is authorized as similarly described with respect to Figure 4A). At 420, the service controller 122 sends the QoS request to the BTS 125 if it is determined that the QoS request is authorized using various techniques described herein and/or whether the BTS 125 has network capacity for the QoS request. For example, the service controller can provide a central policy decision point function for QoS related activities (e.g., based on QoS prioritization, network capacity, and/or other criteria/measures/policies). At 430, the service controller 122 communicates the response to the QoS request accordingly. At 440, if the QoS request was approved, the device 100 initiates the QoS session (e.g., using a RAB or multi-RAB reservation) via the BTS 125. In some embodiments, the service processor 115 also performs various QoS charging functions using various techniques described herein, and the service processor 115 periodically sends QoS charging records or reports to the service controller 122 (e.g., and/or

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another network element/function). In some embodiments, the service processor 115 and the QoS related functions performed by the service processor 115 are periodically verified using the various techniques described herein.

[00181] In some embodiments, QoS techniques as described herein are implemented in the device (e.g., using the service processor 115) and one or more other network elements/functions, such as the BTS 125, service controller 125, RAN, SGSN/GGSN/other gateways and/or other network elements/functions, in which various of the QoS related functions can be distributed or allocated to such network elements/functions based on various design/network architecture approaches as will now be apparent to one of ordinary skill in the art, in which QoS related activities and/or functions at the device 100 are verified using various verification techniques described herein.

[00182] In some embodiments, the device determines QoS availability by directly querying QoS link reservation equipment in the network (e.g., an access point, such as the BTS 125). In some embodiments, the device determines QoS availability based on an intermediate network function that coordinates QoS requests with one or more network QoS link resources. In some embodiments, the device requests a QoS reservation in advance of QoS link establishment with one or more QoS network link resources. In some embodiments, in response to a QoS request, a QoS channel is reported as available only if/after it is determined that the necessary one or more QoS links required to create the QoS channel are available, and, for example, the QoS channel can then be reserved based on a confirmation or automatically be reserved in response to the QoS request.

[00183] Figure 5 illustrates a functional diagram for generating a QoS activity map for quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments. In particular, Figure 5 illustrates techniques for mapping a service plan or a set of service plan policies/rules for QoS 510 to a set of QoS activity rules 530. As shown, a set of QoS rules/QoS

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related device state information 510 (e.g., a set of associated service plan, service plan usage, other state such as network capacity or forecasted demand or time of day/day of week, activity usage, QoS level, and/or user preferences) is mapped using a QoS mapping function to a set of QoS activity rules 530 using various techniques described herein. At 530, activity rules (e.g., activity policy rules instructions) 530 are determined using the mapping function 520. In some embodiments, DAS for network capacity controlled services techniques can similarly be implemented using the techniques described with respect to Figure 5 (e.g., for generating and implementing a network capacity controlled services activity map).

[00184] In some embodiments, the service plan includes a list of activity policies, and each activity policy in the service plan specifies how the activity policy is modified by rules state information. In some embodiments, each activity policy then becomes the instruction for the engine (e.g., QoS mapping function 520) that maps the activity policy to QoS activity rules 530. In some embodiments, service controller 122 downloads QoS mapping function 520, which is implemented by service processor 115.

[00185] In some embodiments, the service processor determines (e.g., and classifies) application/service usage activity demand with or without granular application/service usage activity (e.g., depending on various user/service plan/service provider/network/legal and/or other privacy restrictions and/or any other related requirements or settings). For example, policies (e.g., service policy settings and/or service profile settings) can be downloaded to provide such application/service usage activity monitoring rules and a QoS activity map for assigning such monitored activities to various QoS classes or priorities, and, in some embodiments, such monitoring and the QoS activity map can also be implemented using various verification techniques described herein (e.g., periodically audited, tested, compared with network service usage information). In some embodiments, the QoS activity map is based on a service plan, service profile, and/or service policy settings associated with the communications device. In

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some embodiments, the QoS activity map is based on a device group and/or user group. In some embodiments, the QoS activity map is based on user input (e.g., a user of the communications device can identify QoS classes/service levels for various applications and/or service activities, in response to requests for user input, based on user configurations, user defined rules (e.g., to eliminate or mitigate privacy and/or net neutrality concerns/issues), and/or confirmed monitored user behavior QoS related patterns or preferences). In some embodiments, the QoS activity map includes mappings/associations based on one or more of the following: a user preference for a given destination, destination class, application, application class (e.g., by application class instead of with respect to a specific application can also eliminate or mitigate privacy and/or net neutrality concerns/issues), flow, traffic or flow class, time period, time of day, location, network busy state (e.g., provide QoS when you can, then charge more when busy, notify user of busy state), device type, user type, user plan, user group, user standing, partner service, tokens, service type, and/or other criteria or measures.

[00186] In some embodiments, various techniques described herein are managed for device 100 for incoming and/or outgoing QoS requests. In some embodiments, as shown in Figure 6, QoS for DAS includes establishing an end to end coordinated QoS service channel control:

[00187] Figure 6 illustrates a functional diagram for quality of service (QoS) for device assisted services for an end to end coordinated QoS service channel control in accordance with some embodiments. As shown in Figure 6, a wireless communications device 100A includes a service processor 115A in secure communication with service controller 122A. A wireless communications device 100B includes a service processor 115B in secure communication with service controller 122B. In some embodiments, when, for example, device 100A initiates a QoS request for a QoS class session in communication with device 100B (e.g., a VOIP call or another application service requiring or possibly using a QoS class/level session, such as a conversational or other QoS type of class/level), as sequence of actions are performed using

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service controller 122A and service controller 122B to facilitate/setup an end to end coordinated QoS service channel control. In some embodiments, as similarly described herein, assuming that service processor 115A and service controller 122A determine that the QoS request from device 100A is authorized for that device, then the service controller 122A contacts registry 650 (e.g., a device registry, such as an HLR, mobile services center, or other central database or registry including, for example, service controller mappings by device/IP address/other) to determine the service controller associated with/responsible for managing QoS/service control for device 100B. The registry 650 provides the service controller 122B information (e.g., IP address/other address) based on this lookup determination. In some embodiments, service controller 122A then initiates the QoS request with service controller 122B to determine if the device 100B is authorized and/or available for the QoS session requested by device 100A. In some embodiments, service controllers 122A/B communicate with BTSs 125A/B to determine whether the QoS request can be facilitated (e.g., based on network capacity) as similarly described herein. In some embodiments, the service controllers 122A and 122B provide the central QoS coordination function and can request appropriate QoS channels directly from the respective local BTSs. In some embodiments, the service controllers 122A and 122B also communicate with one or more of the following network elements/functions as shown in Figure 6 in order to facilitate an end to end coordinated QoS service channel control: RAN 610/670, Core Network 620/660, and IPX network 630. In some embodiments, service controllers 122A and 122B communicate with various necessary network elements for provisioning to facilitate session provisioning through the carrier core network as similarly discussed above. In some embodiments, service controllers 122A and 122B communicate with various necessary network elements for provisioning to facilitate session provisioning through the IPX network as similarly discussed above. As will be apparent to one of ordinary skill in the art, QoS for DAS techniques as described herein can be similarly implemented using these or similar techniques to various other network architectures.

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[00188] Figure 7 illustrates a flow diagram for quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments. At 702, the process begins. At 704, QoS rules are received or determined (e.g., a service processor receives or requests the QoS rules, which may be included in service plan, service profile, and/or service policy settings associated with the communications device). In some embodiments, the QoS rules are verified using various techniques as described herein (e.g., periodically updated, replaced, downloaded, obfuscated, and/or tested using by a service controller and/or using other verification techniques). In some embodiments, a QoS API is also used by various applications to initiate a QoS request, as described herein with respect to various embodiments. In some embodiments, the QoS rules are implemented in the form of a QoS activity map in accordance with various embodiments described herein. At 706, the communications device's standing for QoS is determined using various techniques described herein (e.g., based on the service plan, service profile, service policy settings, QoS rules, based on QoS class, current service usage, current billing standing, and/or any other criteria/measure). In some embodiments, in addition to verifying the device/user standing for the QoS request, whether the device is following or in compliance with an assigned QoS reservation request policy is also verified using various techniques described herein. If the device is determined to not be eligible for QoS, then at 708, the device User Interface (UI) provides information concerning the denial/ineligibility for QoS session(s) (e.g., denial/ineligibility explanation and/or options for providing for one or more QoS options, such as a service plan upgrade or payment for a certain/set of/period of time for QoS session(s) access). If the device is determined to be eligible for QoS, then at 710, QoS availability is determined (e.g., based on network capacity, which may be determined at the device, via communication with the service controller, via communication with the BTS, and/or any combination thereof, using the various techniques described herein). If QoS is determined to not be available, then at 712, the UI provides information and/or options concerning the QoS availability (e.g., unavailability explanation and/or options for providing for one or more QoS

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options, such as a service plan upgrade or payment for a certain/set of/period of time for QoS session(s) access). If QoS is determined to be available, then at 714, a request for network resources for the QoS session is sent to one or more network resources (e.g., service controller, BTS, gateway, core/transport network, IPX/GRX networks, and/or other network elements/functions/resources). At 716, a confirmation of the approved QoS session is received to close the loop for the QoS for DAS (e.g., a QoS schedule is received that provides the QoS session confirmation information, such as a scheduled RAB/multi-RAB and/or other reserved network resource(s) by schedule/other criteria). At 718, one or more verification techniques are performed to verify the QoS for DAS implementation on the device using various verification techniques described herein (e.g., comparing QoS service usage reports from a network source with the associated device policy; comparing QoS service usage reports from a network source with the QoS service usage reports from the device, and/or using other verification techniques as similarly described herein). At 720, the process is completed.

[00189] Figures 8A through 8C each illustrate another flow diagram for quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments. Figure 8A illustrates another flow diagram for quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments. At 802, the process begins. In some embodiments, the QoS policies are implemented on the device (e.g., service processor collects/receives an associated service plan that defines/specifies basic policies for QoS, which can include a QoS activity map, which, for example, maps QoS classes based on application, service usage, flow type, destination, time of day, network capacity, and/or other criteria/measures, as similarly described herein). In some embodiments, a QoS API is also used by various applications to initiate a QoS request, as described herein with respect to various embodiments. In some embodiments, the QoS rules are implemented in the form of a verified QoS activity map in accordance with various embodiments described herein. At 804, a QoS request is determined

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(e.g., by QoS class for a particular associated service/application). In some embodiments, the QoS request is determined at least in part by using the QoS activity map using various techniques described herein, for example, based on service/application usage monitoring on the device (e.g., by the service processor service usage monitoring agent). In some embodiments, the QoS request is determined based on the QoS API. In some embodiments, the QoS request is determined to be associated with an outgoing connection or an incoming connection. At 806, whether the QoS request is authorized is determined (e.g., whether the QoS request supported by the service plan, sufficient charging credit exists for this QoS request, and/or other criteria/measures). If not, then at 808, the UI provides a responsive notification and/or option as similarly described herein. If the QoS request is approved, then at 810, a request for network resources for the QoS session is sent to one or more network resources (e.g., service controller, BTS, gateway, core/transport network, IPX/GRX networks, a/another service controller in communication with another communications device such as for setting up a conversational class QoS connection with the other communications device, and/or other network elements/functions/resources). If the device is determined to be eligible for QoS, then at 810, QoS availability is determined (e.g., based on network capacity, which may be determined at the device, via communication with the service controller, via communication with the BTS or another network element/function, and/or any combination thereof, using the various techniques described herein). If QoS is determined to not be available, then at 812, the UI provides information and/or options concerning the QoS availability (e.g., unavailability explanation and/or options for providing for one or more QoS options, such as a service plan upgrade or payment for a certain/set of/period of time for QoS session(s) access). If QoS is determined to be available, then at 814, a request for network resources for the QoS session is sent to one or more network resources (e.g., service controller, BTS, gateway, core/transport network, IPX/GRX networks, and/or other network elements/functions/resources, to setup, for example, a QoS end to end connection – coordinate all resources end to end for the approved and verified

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QoS flow). At 816, a confirmation of the approved QoS session is received to close the loop for the QoS for DAS (e.g., a QoS schedule is received that provides the QoS session confirmation information, such as a scheduled RAB/multi-RAB and/or other reserved network resource(s) by schedule/other criteria). At 818, a QoS router is executed/performed on the communications device to assist in implementing QoS for DAS using various verification techniques described herein (e.g., to perform QoS queuing, throttling, and/or other QoS router related functions as described herein). At 820, verified QoS charging is performed (e.g., at least in part) on the device using various techniques described herein (e.g., using the service processor, such as the charging/service usage monitoring and/or other agents as described herein). In some embodiments, QoS charging records and/or reports are provided to one or more network elements for managing QoS billing and/or other QoS management/billing related service control functions (e.g., to the service controller and/or the billing interface or billing server). In some embodiments, QoS for DAS also facilitates reestablishing the QoS session/connection/channel/stream if the QoS session/connection/channel/stream is lost or goes down, using similar techniques to those described herein as would be apparent to one of ordinary skill in the art. At 822, the process is completed. In some embodiments, the QoS provisioning channel is closed when the device session is over to, for example, free up various resources.

[00190] Figure 8B illustrates another flow diagram for quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments. In some embodiments, QoS for DAS includes identifying the QoS requirements (e.g., QoS level or QoS class) for a service activity. At 824, the process begins. In some embodiments, the QoS policies are implemented on the device (e.g., service processor collects/receives an associated service plan that defines/specifies basic policies for QoS, which can include a QoS activity map, which, for example, maps QoS classes based on application, service usage, flow type, destination, time of

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day, network capacity, and/or other criteria/measures, as similarly described herein). In some embodiments, the QoS rules are implemented in the form of a verified QoS activity map in accordance with various embodiments described herein. At 826, the device monitors device activity, such as service/application usage activities. In some embodiments, the device detects the relevant activities based on various service usage monitoring techniques described herein. At 828, a QoS request is determined, for example, using various techniques described herein. At 830, a QoS level is determined based on the application and/or various device monitored service usage/application activities associated with the QoS request using various techniques described herein. For example, the QoS level can be determined using the QoS activity map, which provides a QoS policy defined by a table associating various QoS levels with a variety of activities that include various device monitored service usage/application activities. In some embodiments, the QoS activity map includes QoS level mappings based on one or more of the following: application, destination/source, traffic type, connection type, content type, time of day/day of week, network capacity, activity usage, service plan selection, current standing, user class, device class, home/roaming, network capabilities, and/or other criteria/measures as similarly described herein. In some embodiments, at 832, if the QoS level cannot be determined and/or in order to confirm a QoS level or selection among multiple potential appropriate/approved QoS levels, the UI presents options for a user to select the QoS level. At 834, the QoS request is initiated for the determined QoS level (e.g., QoS class and/or priorities). At 836, the process is completed.

[00191] Figure 8C illustrates another flow diagram for quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments. In some embodiments, QoS for DAS includes determining whether the network should grant the QoS request for a given device activity. At 842, the process begins. At 844, QoS request is determined. At 846, the communications device's standing for QoS is determined using various techniques described

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herein (e.g., a service processor in combination with a service controller or based on a communication for authorization of the QoS request sent to the service controller determines whether the QoS request is authorized, which can be based on the service plan, service profile, service policy settings, QoS rules, based on QoS class, current service usage, current billing standing, and/or any other criteria/measure). If the device is determined to not be eligible for QoS, then at 848, the device User Interface (UI) provides information concerning the denial/ineligibility for QoS session(s) (e.g., denial/ineligibility explanation and/or options for providing for one or more QoS options, such as a service plan upgrade or payment for a certain/set of/period of time for QoS session(s) access). If the device is determined to be eligible for QoS, then at 850, QoS availability is determined (e.g., based on network capacity, which may be determined at the device, via communication with the service controller, via communication with the BTS or another network element/function, and/or any combination thereof, using the various techniques described herein). If QoS is determined to not be available, then at 852, the UI provides information and/or options concerning the QoS availability (e.g., unavailability explanation and/or options for providing for one or more QoS options, such as a service plan upgrade or payment for a certain/set of/period of time for QoS session(s) access). If QoS is determined to be available, then at 854, a request for network resources for the QoS session is sent to one or more network resources (e.g., service controller, BTS, gateway, core/transport network, IPX/GRX networks, and/or other network elements/functions/resources can be queried directly and/or a centralized QoS resource/network function/element/database can be queried for determining such network resources and coordinating such scheduling). At 856, a confirmation of the approved QoS session is received to close the loop for the QoS for DAS (e.g., a QoS schedule is received that provides the QoS session confirmation information, such as a scheduled RAB/multi-RAB and/or other reserved network resource(s) by schedule/other criteria). At 858, a QoS router is performed. In some embodiments, the QoS router is performed on the device (e.g., service

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processor), on a network element/function (e.g., service controller), and/or in combinations thereof. In some embodiments, the QoS router prioritizes multiple QoS requests across a given communications device. In some embodiments, the QoS router prioritizes multiple QoS requests across multiple communications devices and/or across multiple BTSs. In some embodiments, the QoS router performs various QoS class degradation, promotion, and/or other throttling related techniques as similarly described herein (e.g., based on session priority, network capacity, workload balancing, QoS priority rules, and/or other criteria/measures/rules). At 860, the process is completed.

[00192] Figure 9 illustrates another flow diagram for quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments. In some embodiments, QoS for DAS includes QoS session provision for a service activity. At 902, the process begins. At 904, a new QoS session is granted and/or confirmed. At 906, a device service processor (e.g., policy decision point (PDP) agent, also referred to herein as a policy control agent) maps the QoS session grant to a QoS monitoring policy (e.g., based on a service controller provided QoS related policy, based on a service plan associated with the device, user, device/user group, and/or other criteria/measures, as similarly described herein). At 908, the QoS monitoring policy provides commands/instructions to a policy enforcement point (PEP) (e.g., PEP agent, also referred to herein as a policy implementation agent) for managing/enforcing the new QoS priorities/sessions. At 910, the PEP determines whether to allow, block, throttle, and/or queue priority (e.g., and/or otherwise control using various traffic control related techniques) a session based on the QoS monitoring policy. At 912, the process is completed.

[00193] Figure 10 illustrates another flow diagram for quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments. In some embodiments, Radio Access Bearer (RAB) support is available, and the following process is performed in accordance with some embodiments. At 1002, the process begins. At 1004, the device service processor

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detects a QoS request or QoS need (e.g., a QoS API request, a QoS request or need/benefit of QoS session based on service usage monitoring, such as by application and/or another service usage measure/activity). At 1006, the service processor and/or the service processor in communication with the service controller determines if the service plan allows/supports the requested QoS. If not, then at 1008, a UI event is generated (e.g., notifying the device user that such QoS/QoS level/class is not available, and potentially offering a QoS/service plan upgrade/purchase for that QoS/QoS level/class). At 1010, the service processor communicates the QoS request to the service controller (e.g., using a secure service control link or secure communication channel, as similarly described herein) to request the QoS level/class. At 1012, the service controller determines whether network resources are available using various techniques as described herein. In some embodiments, network capacity is determined using various techniques, such as local device measurements; dedicated local device measurement reports; BTS reports; other network element reports; by assessing, for example, a combination of one or more of available bandwidth, traffic delay or latency, available QoS level, variability in available bandwidth, variability in latency, and/or variability in available QoS level; and/or other techniques as described herein. At 1014, the service controller responds to the QoS request (e.g., grants or denies the QoS request). In some embodiments, another UI event is generated if the QoS request is denied as similarly described herein. At 1016 (assuming the QoS request is granted), the device requests a QoS channel from the BTS. In some embodiments, the request includes a QoS request authorization code received from the service controller. In some embodiments, the service controller provides a notification of the QoS request approval for the communications device to the BTS, so that the BTS can verify the approval of the QoS request. In some embodiments, the BTS confirms the device QoS channel request directly with the service controller. For example, various other techniques for verifying the QoS channel request can also be used as similarly described herein and as would be apparent to one of ordinary skill in the art. In some embodiments, the device service processor and/or service

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controller provides QoS related reports informing the BTS of how many QoS channels (e.g., RABs) to provision and how many best effort resources to provision based on device demand projections. At 1018 (assuming the QoS channel request is verified), the QoS session is initiated based on an allocated RAB or multi-RAB reservation received from the BTS (e.g., and/or other network elements as similarly described herein). At 1020, the process is completed.

[00194] Figure 11 illustrates another flow diagram for quality of service (QoS) for device assisted services (DAS) in accordance with some embodiments. In some embodiments, RAB support is not available, and the following process is performed in accordance with some embodiments. At 1102, the process begins. At 1104, the device service processor detects a QoS request or QoS need (e.g., a QoS API request, a QoS request or need/benefit of QoS session based on service usage monitoring, such as by application, or other service usage measure/activity). At 1106, the service processor and/or the service processor in communication with the service controller determines if the service plan allows/supports the requested QoS. If not, then at 1108, a UI event is generated (e.g., notifying the device user that such QoS/QoS level/class is not available, and potentially offering a QoS/service plan upgrade/purchase for that QoS/QoS level/class). At 1110, the service processor communicates the QoS request to the service controller (e.g., using a secure service control link or secure communication channel, as similarly described herein) to request the QoS level/class. At 1112, the service controller determines whether network resources are available using various techniques as described herein. In some embodiments, network capacity is determined using various techniques, such as local device measurements, BTS reports, other network element reports, and/or other techniques as described herein. In some embodiments, the service controller throttles other devices on the link so that the requested QoS level can be achieved (e.g., as RAB support is not available). In some embodiments, the service controller time slots

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traffic from the device end in synchronization with a BTS clock or absolute clock to facilitate the requested QoS level and to achieve necessary network capacity to support/facilitate the requested QoS level (e.g., minimizing jitter/inter-packet delay variation) based on current/forecasted network capacity on the link. At 1114, the service controller responds to the QoS request (e.g., grants or denies the QoS request). In some embodiments, another UI event is generated if the QoS request is denied as similarly described herein. At 1116 (assuming the QoS request is granted), the device initiates the QoS session. At 1118, the device service processor and/or the device service processor in secure communication with the service controller monitors and verifies the QoS session using various monitoring and verification techniques described herein (e.g., checks CDRs to determine if the QoS channel is properly implemented by the device). In some embodiments, a UI event is generated to notify the device user if there are potential problems with the QoS session implementation, to periodically inform the user of QoS charging, and/or other events/information related to QoS activities. At 1120, the process is completed.

[00195] Figure 12 illustrates a device stack for providing various service usage measurement techniques in accordance with some embodiments. Figure 12 illustrates a device stack providing various service usage measurement from various points in the networking stack for a service monitor agent (e.g., for monitoring QoS related activities and/or for monitoring network capacity controlled services as described herein), a billing agent, and an access control integrity agent to assist in verifying the service usage measures, QoS related activities and functions, and billing reports in accordance with some embodiments. As shown in Figure 12, several service agents take part in data path operations to achieve various data path improvements, and, for example, several other service agents can manage the policy settings for the data path service, implement billing for the data path service, manage one or more modem selection and settings for access network connection, interface with the user and/or provide service policy

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implementation verification. Additionally, in some embodiments, several agents perform functions to assist in verifying that the service control or monitoring policies intended to be in place are properly implemented, the service control or monitoring policies are being properly adhered to, that the service processor or one or more service agents are operating properly, to prevent unintended errors in policy implementation or control, and/or to prevent/detect tampering with the service policies or control. As shown, the service measurement points labeled I through VI represent various service measurement points for service monitor agent 1696 and/or other agents to perform various service monitoring activities. Each of these measurement points can have a useful purpose in various embodiments described herein. For example, each of the traffic measurement points that is employed in a given design can be used by a monitoring agent to track application layer traffic through the communication stack to assist policy implementation functions, such as the policy implementation driver/agent 1690 (e.g., policy enforcement point driver/agent), or in some embodiments the modem firewall agent 1655 or the application interface agent, in making a determination regarding the traffic parameters or type once the traffic is farther down in the communication stack where it is sometimes difficult or impossible to make a complete determination of traffic parameters. The particular locations for the measurement points provided in these figures are intended as instructional examples, and other measurement points can be used for different embodiments, as will be apparent to one of ordinary skill in the art in view of the embodiments described herein. Generally, in some embodiments, one or more measurement points within the device can be used to assist in service control verification and/or device or service troubleshooting.

[00196] In some embodiments, the service monitor agent and/or other agents implement virtual traffic tagging by tracking or tracing packet flows through the various communication stack formatting, processing and encryption steps, and providing the virtual tag information to the various agents that monitor, control, shape, throttle or otherwise observe, manipulate or modify

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the traffic. This tagging approach is referred to herein as virtual tagging, because there is not a literal data flow, traffic flow or packet tag that is attached to flows or packets, and the book-keeping to tag the packet is done through tracking or tracing the flow or packet through the stack instead. In some embodiments, the application interface and/or other agents identify a traffic flow, associate it with a service usage activity and cause a literal tag to be attached to the traffic or packets associated with the activity. This tagging approach is referred to herein as literal tagging. There are various advantages with both the virtual tagging and the literal tagging approaches. For example, it can be preferable in some embodiments to reduce the inter-agent communication required to track or trace a packet through the stack processing by assigning a literal tag so that each flow or packet has its own activity association embedded in the data. As another example, it can be preferable in some embodiments to re-use portions of standard communication stack software or components, enhancing the verifiable traffic control or service control capabilities of the standard stack by inserting additional processing steps associated with the various service agents and monitoring points rather than re-writing the entire stack to correctly process literal tagging information, and in such cases, a virtual tagging scheme may be desired. As yet another example, some standard communication stacks provide for unused, unspecified or otherwise available bit fields in a packet frame or flow, and these unused, unspecified or otherwise available bit fields can be used to literally tag traffic without the need to re-write all of the standard communication stack software, with only the portions of the stack that are added to enhance the verifiable traffic control or service control capabilities of the standard stack needing to decode and use the literal tagging information encapsulated in the available bit fields. In the case of literal tagging, in some embodiments, the tags are removed prior to passing the packets or flows to the network or to the applications utilizing the stack. In some embodiments, the manner in which the virtual or literal tagging is implemented can be developed into a communication standard specification so that various device or service product developers can independently develop the communication stack and/or service processor

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hardware and/or software in a manner that is compatible with the service controller specifications and the products of other device or service product developers.

[00197] It will be appreciated that although the implementation/use of any or all of the measurement points illustrated in Figure 12 is not required to have an effective implementation, such as was similarly shown with respect to various embodiments described herein, various embodiments can benefit from these and/or similar measurement points. It will also be appreciated that the exact measurement points can be moved to different locations in the traffic processing stack, just as the various embodiments described herein can have the agents affecting policy implementation moved to different points in the traffic processing stack while still maintaining effective operation. In some embodiments, one or more measurement points are provided deeper in the modem stack where, for example, it is more difficult to circumvent and can be more difficult to access for tampering purposes if the modem is designed with the proper software and/or hardware security to protect the integrity of the modem stack and measurement point(s).

[00198] Referring to Figure 12, describing the device communications stack from the bottom to the top of the stack as shown, the device communications stack provides a communication layer for each of the modems of the device at the bottom of the device communications stack. Example measurement point VI resides within or just above the modem driver layer. For example, the modem driver performs modem bus communications, data protocol translations, modem control and configuration to interface the networking stack traffic to the modem. As shown, measurement point VI is common to all modem drivers and modems, and it is advantageous for certain embodiments to differentiate the traffic or service activity taking place through one modem from that of one or more of the other modems. In some embodiments, measurement point VI, or another measurement point, is located over, within or below one or more of the individual modem drivers. The respective modem buses for each modem reside

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between example measurement points V and VI. In the next higher layer, a modem selection & control layer for multimode device based communication is provided. In some embodiments, this layer is controlled by a network decision policy that selects the most desirable network modem for some or all of the data traffic, and when the most desirable network is not available the policy reverts to the next most desirable network until a connection is established provided that one of the networks is available. In some embodiments, certain network traffic, such as verification, control, redundant or secure traffic, is routed to one of the networks even when some or all of the data traffic is routed to another network. This dual routing capability provides for a variety of enhanced security, enhanced reliability or enhanced manageability devices, services or applications. In the next higher layer, a modem firewall is provided. For example, the modem firewall provides for traditional firewall functions, but unlike traditional firewalls, in order to rely on the firewall for verifiable service usage control, such as access control and security protection from unwanted networking traffic or applications, the various service verification techniques and agents described herein are added to the firewall function to verify compliance with service policy and prevent/detect tampering of the service controls. In some embodiments, the modem firewall is implemented farther up the stack, possibly in combination with other layers as indicated in other Figures and described herein. In some embodiments, a dedicated firewall function or layer is provided that is independent of the other processing layers, such as the policy implementation layer, the packet forwarding layer and/or the application layer. In some embodiments, the modem firewall is implemented farther down the stack, such as within the modem drivers, below the modem drivers, or in the modem itself. Example measurement point IV resides between the modem firewall layer and an IP queuing and routing layer (e.g., QoS IP queuing and routing layer and/or a network capacity controlled services queuing and routing layer). As shown, an IP queuing and routing layer is separate from the policy implementation layer where the policy implementation agent implements a portion of the traffic control and/or service usage control policies. As described herein, in some

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embodiments, these functions are separated so that a standard network stack function can be used for QoS IP queuing and routing and/or for network capacity controlled services queuing and routing, and the modifications necessary to implement the policy implementation agent functions can be provided in a new layer inserted into the standard stack. In some embodiments, the IP queuing and routing layer is combined with the traffic or service usage control layer. For example, a combined routing and policy implementation layer embodiment can also be used with the other embodiments, such as shown in Figure 12. Measurement point III resides between the IP queuing and routing layer and a policy implementation agent layer. Measurement point II resides between the policy implementation agent layer and the transport layer, including TCP, UDP, and other IP as shown. The session layer resides above the transport layer, which is shown as a socket assignment and session management (e.g., basic TCP setup, TLS/SSL) layer. The network services API (e.g., HTTP, HTTPS, FTP (File Transfer Protocol), SMTP (Simple Mail Transfer Protocol), POP3, DNS) resides above the session layer. Measurement point I resides between the network services API layer and an application layer, shown as application service interface agent in the device communications stack of Figure 12.

[00199] As shown in Figure 12, the application service interface layer (e.g., QoS application service interface layer and/or network capacity controlled services interface layer) is above the standard networking stack API and, in some embodiments, its function is to monitor and in some cases intercept and process the traffic between the applications and the standard networking stack API. In some embodiments, the application service interface layer identifies application traffic flows before the application traffic flows are more difficult or practically impossible to identify farther down in the stack. In some embodiments, the application service interface layer in this way assists application layer tagging in both the virtual and literal tagging cases. In the case of upstream traffic, the application layer tagging is straight forward, because the traffic originates at the application layer. In some downstream embodiments, where the

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traffic or service activity classification relies on traffic attributes that are readily obtainable, such as source address or URL, application socket address, IP destination address, time of day or any other readily obtained parameter, the traffic type can be identified and tagged for processing by the firewall agent or another agent as it initially arrives. In other embodiments, as described herein, in the downstream case, the solution is generally more sophisticated when a traffic parameter that is needed to classify the manner in which the traffic flow is to be controlled or throttled is not readily available at the lower levels of the stack, such as association with an aspect of an application, type of content, something contained within TLS, IPSEC or other secure format, or other information associated with the traffic. Accordingly, in some embodiments the networking stack identifies the traffic flow before it is fully characterized, categorized or associated with a service activity, and then passes the traffic through to the application interface layer where the final classification is completed. In such embodiments, the application interface layer then communicates the traffic flow ID with the proper classification so that after an initial short traffic burst or time period the policy implementation agents can properly control the traffic. In some embodiments, there is also a policy for tagging and setting service control policies for traffic that cannot be fully identified with all sources of tagging including application layer tagging.

[00200] As shown in Figure 12, a service monitor agent, which is also in communication with the agent communication bus 1630, communicates with various layers of the device communications stack. For example, the service monitor agent, performs monitoring at each of measurement points I through VI, receiving information including application information, service usage and other service related information, and assignment information. An access control integrity agent is in communication with the service monitor agent via the agent communications bus 1630, as also shown.

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[00201] Figure 13 illustrates another device stack for providing various service usage measurement techniques in accordance with some embodiments. Figure 13 illustrates an embodiment similar to Figure 12 in which some of the service processor is implemented on the modem and some of the service processor is implemented on the device application processor in accordance with some embodiments. In some embodiments, a portion of the service processor is implemented on the modem (e.g., on modem module hardware or modem chipset) and a portion of the service processor is implemented on the device application processor subsystem. It will be apparent to one of ordinary skill in the art that variations of the embodiment depicted in Figure 13 are possible where more or less of the service processor functionality is moved onto the modem subsystem or onto the device application processor subsystem. For example, such embodiments similar to that depicted in Figure 13 can be motivated by the advantages of including some or all of the service processor network communication stack processing and/or some or all of the other service agent functions on the modem subsystem (e.g., and such an approach can be applied to one or more modems). For example, the service processor can be distributed as a standard feature set contained in a modem chipset hardware of software package or modem module hardware or software package, and such a configuration can provide for easier adoption or development by device OEMs, a higher level of differentiation for the chipset or modem module manufacturer, higher levels of performance or service usage control implementation integrity or security, specification or interoperability standardization, and/or other benefits.

[00202] Referring to Figure 13, describing the device communications stack from the bottom to the top of the stack as shown, the device communications stack provides a communication layer for modem MAC/PHY layer at the bottom of the device communications stack. Measurement point IV resides above the modem MAC/PHY layer. The modem firewall layer resides between measurement points IV and III. In the next higher layer, the policy implementation agent is

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provided, in which the policy implementation agent is implemented on the modem (e.g., on modem hardware). Measurement point II resides between the policy implementation agent and the modem driver layer, which is then shown below a modem bus layer. The next higher layer is shown as the IP queuing and routing layer, followed by the transport layer, including TCP, UDP, and other IP as shown. The session layer resides above the transport layer, which is shown as a socket assignment and session management (e.g., basic TCP setup, TLS/SSL) layer. The network services API (e.g., HTTP, HTTPS, FTP (File Transfer Protocol), SMTP (Simple Mail Transfer Protocol), POP3, DNS) resides above the session layer. Measurement point I resides between the network services API layer and an application layer, shown as application service interface agent in the device communications stack of Figure 13.

[00203] Additional Embodiments of DAS for Protecting Network Capacity

[00204] In some embodiments, DAS for protecting network capacity includes classifying a service activity as a network capacity controlled service and implementing a network capacity controlled services policy. In some embodiments, DAS for protecting network capacity includes device assisted/based techniques for classifying a service activity as a network capacity controlled service and/or implementing a network capacity controlled services policy. In some embodiments, DAS for protecting network capacity includes network assisted/based techniques (e.g., implemented on a network element/function, such as a service controller, a DPI gateway, a BTS/BTSC, etc., or a combination of network elements) for classifying a service activity as a network capacity controlled service and/or implementing a network capacity controlled services policy. In some embodiments, DAS for protecting network capacity includes providing a network access API or an emulated or virtual network access API (e.g., such an API can provide network busy state information and/or other criteria/measures and/or provide a mechanism for allowing, denying, delaying, and/or otherwise controlling network access). In some embodiments, DAS for protecting network capacity includes implementing a service plan

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that includes a network capacity controlled services policy (e.g., for differential network access control and/or differential charging for network capacity controlled services, which can also be based on a network busy state and/or other criteria/measures).

[00205] In some embodiments, DAS for protecting network capacity techniques also provide improved user privacy and facilitate network neutrality requirements. In contrast, network based techniques (e.g., DPI based techniques) can give rise to user privacy and network neutrality concerns and problems as discussed above. In some embodiments, DAS for protecting network capacity techniques include allowing a user to specify (e.g., permit or not permit) whether the network is aware of the user's Internet behavior (e.g., using UI input). In some embodiments, DAS for protecting network capacity techniques include allowing a user to select how they want their traffic usage and service plan costs to be managed.

[00206] Figure 14 illustrates a flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments. At 1402, the process begins. At 1404, monitoring a network service usage activity of a device in network communication (e.g., wireless network communication) is performed. At 1406, whether the monitored network service usage activity is a network capacity controlled service is determined. At 1408 (the monitored network service usage activity was determined not to be a network capacity controlled service), the network service usage activity is not classified for differential network access control. At 1410, (the monitored network service usage activity was determined to be a network capacity controlled service), the network service usage activity is classified (e.g., into one or more network capacity controlled services) for differential network access control for protecting network capacity. In some embodiments, classifying the network service usage activity includes classifying the network service usage activity into one or more of a plurality of classification categories for differential network access control for protecting network capacity (e.g., one or more network capacity controlled service classifications and/or a priority state

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classification, such as a background services classification and/or a background priority state classification). At 1412, associating the network service usage activity with a network capacity controlled services control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity is performed. At 1414, implementing differential network access control for protecting network capacity by implementing different traffic controls for all or some of the network service usage activities (e.g., based on a network busy state or another criteria/measure) is performed. At 1416, the process is completed.

[00207] Figure 15 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments. At 1502, the process begins. At 1504, monitoring network service usage activities of a device in network communication is performed. At 1506, monitored network service usage activity of the device is reported (e.g., to a network element/function). At 1508, a statistical analysis of a reported network service usage activities across a plurality of devices is performed (e.g., by a network element/function). At 1510, the device receives a network service usage activity classification list (e.g., a network capacity controlled services list, which can be generated, for example, based on the monitored network service usage activities and the statistical analysis as well as other criteria/measures, including, for example, a service plan and/or a network busy state) from the network element. At 1512, implementing differential network access control based on the network service usage activity classification list for protecting network capacity is performed. At 1514, the process is completed. In some embodiments, DAS for protecting network capacity further includes associating the network service usage activity with a network service usage control policy (e.g., a network capacity controlled services policy) based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity. In some embodiments, DAS for protecting network capacity further includes

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differentially controlling the network service usage activity (e.g., network capacity controlled service) based on the service usage activity classification list.

[00208] Figure 16 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments. At 1622, the process begins. At 1624, a first report of network service usage activity of a first device is received (e.g., at a network element/function) from the first device. At 1626, a second report of network service usage activity of a second device (e.g., at a network element/function) from the second device is received. At 1628, a statistical analysis of a plurality of reported service usage activities across a plurality of devices, including the first device and the second device, is performed (e.g., by a network element/function). At 1630, a network service usage activity classification list (e.g., a network capacity controlled services classification list) is sent to the first device (e.g., from a network element/function) for classifying network service usage activities (e.g., network capacity controlled services) based on the network service usage activity classification list for differential network access control for protecting network capacity. At 1632, a network service usage activity classification list is sent to the second device (e.g., from a network element/function) for classifying network service usage activities based on the network service usage activity classification list for differential network access control for protecting network capacity. At 1634, the process is completed. In some embodiments, DAS for protecting network capacity further includes associating the network service usage activity with a service usage control policy (e.g., a network capacity controlled services policy) based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity. In some embodiments, DAS for protecting network capacity further includes differentially controlling the network service usage activity (e.g., network capacity controlled service) based on the service usage activity classification list (e.g., network capacity controlled services classification list). In some embodiments, classifying network service usage activities is based

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on which network to which the device is connected. In some embodiments, the network service usage control policy is based on which network to which the device is connected.

[00209] Figure 17 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments. At 1702, the process begins. At 1704, monitoring a network service usage activity of a plurality of devices in network communication using network based techniques is performed. At 1706, a statistical analysis of monitored network service usage activities across the plurality of devices is performed. At 1708, a network service usage activity classification list (e.g., a network capacity controlled services classification list) is sent to each of the plurality of devices for classifying network service usage activities (e.g., network capacity controlled services) based on the service usage activity classification list for differential network access control for protecting network capacity. At 1710, the process is completed.

[00210] Figure 18 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments. At 1802, the process begins. At 1804, monitoring network service usage activities of a device in network communication is performed. At 1806, associating a network service usage activity (e.g., a network capacity controlled service) with a service usage control policy (e.g., a network capacity controlled services policy) based on a classification of the network service usage activity (e.g., a network capacity controlled services classification list) for differential network access control for protecting network capacity is performed. At 1808, a user notification based on the service usage control policy is generated. At 1810, the process is completed.

[00211] In some embodiments, the service usage control policy includes a service usage notification policy. In some embodiments, the user notification includes one or more of the following: a notification that the application to be downloaded and/or launched is a network capacity controlled service; a list of one or more service activities (e.g., applications, OS/other

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software functions/utilities, and/or other functions/utilities as described herein) that have a network capacity controlled services classification; type of service policy in effect for one or more network capacity controlled services; notification that a service activity belongs to a network capacity controlled services class; notification that a service activity that is classified as network capacity controlled service can have the service class changed; notification that if the service class is changed for a service activity the service charges will change; notification that one or more networks are available (e.g., one or more alternative networks and/or network busy state information and/or charging information and/or incentives associated with such networks), a service plan upgrade/downgrade offer/option; and an offer for a service plan that rewards a user that responds to the notification a service plan is lower cost/discounted for responding to notification to use or not to use service activity based on usage level warning notification. In some embodiments, the user notification includes a user preference selection, including one or more of the following: a provision to associate an access policy control with the application (e.g., allow/block, notify of usage, notify of usage at a given threshold, traffic control settings, allow during certain times, allow when network not busy, and/or other policy controls as described herein), an over-ride option for selecting the service usage control policy; a modify option to select the service usage control policy; a select option to select a new service plan (e.g., an option to review and select alternative/new service plan upgrade/downgrade options), and an acknowledgement request (e.g., to confirm/acknowledge receipt of the notification, in which the acknowledgement can be transmitted to a network element/function and/or stored locally for later reference/transmission).

[00212] In some embodiments, before a given device application, process, function, OS service or other service activity is allowed to start, the intention to start is intercepted by a launch manager, the background service policy set or the network protection service policy set for the service activity is retrieved, and any necessary user notification or service launch control

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policies are implemented prior to allowing the service activity to launch. In such embodiments, a launch intercept manager may be used to implement this functionality. In some embodiments, this launch intercept manager is provided with a list identifying the service activities (e.g. application identifiers, OS function identifiers, aggregate service activity identifiers, and/or component service activity identifiers) that have a launch control policy in effect. In some embodiments, the list of launch control policies includes blocking or delaying launch of the one or more service activities. In some embodiments, the launch control policy includes a user notification before, during or after the service activity is launched. In some embodiments, the user is informed that a service activity that has a background service control policy in effect or a network protection service control policy in effect is attempting to launch, is about to launch or has launched. In a further set of embodiments, the launch is held up until the user is notified and is allowed to decide if they would like to launch the service activity. In some embodiments, the user notification includes a message that the service activity attempting to launch consumes a large amount of service usage and asks the user if they would like to continue (e.g. "This application consumes a large amount of data, would you like to continue?", "This application consumes data even when you are not using it, would you like to continue?" "This application consumes data while you are roaming which adds cost to your usage bill, would you like to continue?", etc). In some embodiments, the decision on whether or not to launch a service activity is pre-programmed into the list identifying the service activities (e.g. application identifiers, OS function identifiers, aggregate service activity identifiers, and/or component service activity identifiers) that have a launch control policy in effect. In some embodiments a portion of the list is pre-programmed by the user in accordance with user preference for controlling usage of service activities. In some embodiments, a portion of the list is pre-programmed by a network element (e.g. a service controller) in accordance with network background service or network protection service policies specified by a service policy design management system operated by a service provider as described herein. In some

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embodiments, the policy implementation defined by the list identifying the service activities (e.g. application identifiers, OS function identifiers, aggregate service activity identifiers, and/or component service activity identifiers) that have a launch control policy in effect is verified to ensure that the user or malicious software has not defeated the policy enforcement specified in the list. In some embodiments the list identifying the service activities that have a launch control policy in effect includes launch policies that are a function of one or more of: background service state, network busy state (or performance state or QoS state), type of network the device is connected to, home or roaming connection, time of day or day of week.

[00213] In some embodiments, the various design techniques described herein that allow for intercepting a service activity intention to launch, and applying a background service policy set or a network protection service policy set can be designed into the OS itself. For example, the intercept and policy implementation functions can be designed into the activity manager, broadcast intent manger, media service manager, service manager, or other application or service activity management function in the Android OS. One of ordinary skill in the art will recognize that similarly, the various design techniques described herein that allow for intercepting a service activity intention to launch, and applying a background service policy set or a network protection service policy set can be designed into application launch management functions in the iPhone OS, windows mobile OS, windows PC OS, Blackberry OS, Palm OS, and other OS designs.

[00214] In some embodiments, the pre-launch user notification information indicates one or more of: typical service usage or cost, or projected service usage or cost for the service activity attempting to launch. In some embodiments, the user sets limitations on access for one or more service activities and once this limit is hit then when the service activities with exceeded limits attempt to launch the user is notified. In some embodiments, the user chooses from a set of service restrictions rather than simply blocking or allowing service activity launch, with

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example service restrictions including but not limited to: a pre-configured set of restriction policies to chose from (e.g. full access, limited access, highly restricted access or block access), block, throttle, delay, aggregate and hold, limit amount of usage per unit time, cap usage, set limit for additional notification, specify type of network, specify busy state (performance, QoS) or background state, or choose from pre-configured settings options.

[00215] In some embodiments, the user notification occurs after the user attempts to download or load an application onto the device (e.g., an application downloaded from the web or an online application store for a smart phone or other wireless/network computing device, such as an Apple iPhone or iPad, or Google Android/Chrome based device). In some embodiments, the user notification occurs after the user attempts to run the service activity or to initiate usage of a cloud based service/application (e.g., Google or Microsoft cloud service based apps). In some embodiments, the user notification occurs after one or more of the following: the service usage activity hits a usage threshold event, the service usage activity attempts a network service usage that satisfies a pre-condition, an update to a network capacity protection service activity classification list or policy set, and a network message is sent to the device triggering the notification. In some embodiments, the user notification provides information on the service usage activity that is possible, typical, or likely for the service usage activity. In some embodiments, the user notification includes a user option for obtaining more information about the service usage of the service activity (e.g., a message that the service usage activity may result in a high service usage and/or that the service usage activity may or will result in a high service usage as compared in some way to a limit of the current service plan) to make informed user preference settings.

[00216] In some embodiments, a user notification includes displaying (e.g., and as applicable, allowing users to provide UI input) one or more of the following: current and/or past/historical/logged network service usage activity list, current and/or past/historical/logged

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network capacity controlled service usage activities, current activity policy settings, current or available networks, service plan options (e.g., for how to treat one or more network capacity controlled service traffic types), selection option(s) to assign a network capacity controlled service activity into a different priority traffic control and/or charging buckets, network service usage by activity (e.g., network capacity controlled services and other services), network busy state (e.g., and with resulting policies in force), service activity policy setting vs. busy state and time/day/week, network service activity priority, network service activity usage statistics (e.g., vs. network busy state and/or network service usage control policy state).

[00217] In some embodiments, a UI notification is displayed when user attempts a network capacity controlled service activity during a network busy state (e.g., that modifies a network capacity controlled services policy). In some embodiments, the UI notification includes information on service plan choice and a network capacity controlled services policy over-ride option (e.g., one time, time window, usage amount, permanent by activity, and/or all), charging information based on a user selection, and/or service plan upgrade information and options.

[00218] In some embodiments, a UI notification is displayed for user input for preferences/configurations for multiple networks (e.g., WiFi, 4G, 3G, and/or other wired or wireless access networks) including charging policy. In some embodiments, a UI notification is displayed when a specified network traffic service usage activity (e.g., based on network capacity controlled services classification, QoS classification, priority classification, time based criteria, network capacity, service plan, charging criteria, and/or other criteria/measures) is being attempted or is occurring and providing options (e.g., allow, block, delay, throttle, and/or other options).

[00219] In some embodiments, a UI fuel gauge is displayed (e.g., to depict current and/or historical network service usage, for example, relative to a service plan for the device, by network, relative to network busy state, time based criteria, and/or other criteria/measures). In

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some embodiments, a user notification includes a communication sent to the user (e.g., an email, SMS or other text message, voice message/call, and/or other electronic form of communication). In some embodiments, the communication sent to the user includes network service usage information, network capacity controlled service usage related information, and/or an instruction to log into a web page or send a communication for more information (e.g. regarding an information update and/or alert or warning message, such as related to network service usage and/or charging for network service usage).

[00220] In some embodiments, a notification (e.g., a user or network service cloud notification) is generated based on an aggregate service activity reports usage (e.g., allows network provider to generate user notifications and/or to notify application provider/service activity provider). In some embodiments, a notification (e.g., a user or network service cloud notification) is generated based on a publishing of an updated/new network capacity controlled services list based on an aggregate monitored activity (e.g., based on a service plan, velocity, sockets opening frequency/rate (e.g., messaging layer behavior), total data usage, peak busy time usage to formulate or update black list for monitoring, notifying, and/or controlling, which can be applied to one, multiple, group, or all devices). In some embodiments, a notification (e.g., a user or network service cloud notification) is generated based on data usage trends for particular device relative to an associated service plan and/or other comparable devices or data usage thresholds/statistical based data usage measures.

[00221] In some embodiments an application is actually composed of several component applications, processes or functions. Examples of this include but are not limited to: the components of a Java application JAR file; applications that use OS functions; applications that use a proxy service function; applications, functions or processes that coordinate with one another to implement a composite process, function or application; and OS process functions that support an application or overall OS function. In such embodiments it is important to be

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able to categorize all applications, functions and processes on a device that contribute to the service usage of a service activity so that the service activity can be monitored for service usage, have the service usage accounted for, implement the appropriate user notification when one or more service activity components attempts to start or use the network, implement the appropriate user notification when one or more service activity components reaches a pre-determined service usage level that requires user notification, and implement the appropriate background service or network protection service usage controls as specified herein ((including but not limited to for example: block network access, restrict network access, throttle network access, delay network access, aggregate and hold network access, select for time of day network access restrictions, select network type restrictions, select roaming network access restrictions, select service usage restrictions such as a usage limit, select service cost restrictions such as a cost limit or otherwise place on another form of background service status or network usage restriction as described herein). In the case of service activity components that belong exclusively to one aggregate service activity (e.g. an application, application JAR file or OS function), this may be accomplished by including each of the component service activities on a list that identifies the service activity components that belong to the aggregate service activity, and then monitoring, possibly controlling and providing user notifications based on the aggregate or component behavior of each service activity in accordance with the policies specified for the aggregate service activity. For example, it is necessary to group all application launch behavior and/or network access behavior under the monitoring, launch, notification, accounting and background service controls or network protection service controls (or other background or network protection service policies as specified herein) in accordance with the background service or network protection service policies for the aggregate application that the JAR file supports. As another example, if an OS network synch or update function utilizes various software components or processes to implement the network synch or update function, then each of the software components or process must be monitored and aggregated under the

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background service policies or network protection service policies for the aggregate OS synch or update function.

[00222] In some embodiments, this ability to group usage for a related set of service activity components dedicated to an aggregate service activity as described herein is used to improve usage reporting of service activities to a service controller for the purpose of statistically identifying service activities that are candidates for background service policy controls or network protections service policy controls.

[00223] In some cases, multiple applications, processes, functions, OS services or other service activities can utilize a common set of component software applications, processes, functions or OS services. In such cases, in order to implement background service policies and/or network protection service policies for service activity monitoring and accounting, service activity launch control, user notification, or network access control as described herein, it is necessary to associate the specific network access data or information flows to and from the common component software applications, processes or functions that belong to the specific initiating application, process, function or other service activity that is to be managed according to a background service or network protection service policy set. In what follows, a specific set of examples are provided on how to map common component service activity for a set of common OS functions referred to as proxy service functions to a specific application, process, function, OS service or other service activity for the purpose of implementing a background service policy set or a network protection service policy set as described herein. Once these examples are reviewed, it will be obvious to one of ordinary skill in the art how to apply similar mapping of service activity for a common set of components to a service activity that is to be managed in accordance with a background service policy set or a network protection service policy set as described herein.

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[00224] In some embodiments, this ability to group usage for a common set of service activity components as described herein is used to improve usage reporting of service activities to a service controller for the purpose of statistically identifying service activities that are candidates for background service policy controls or network protections service policy controls.

[00225] In some embodiments, a proxy network service manager refers to an intermediary data flow function in a device operating system that sits on a data path between a device application and a device networking stack interface to provide a level of network service abstraction from the network stack interface, a higher level service function above the network stack interface, enhanced or special traffic processing functions, media service transfer management, file download service, HTTP proxy service functions, QoS differentiation, or other similar or related higher level traffic processing. Example Proxy Service Managers include the following: media service manager (e.g. android media service library function), email service manger, DNS function, software download service manager, media download manager (e.g. audio player, streaming media player, movie downloader, media service OS function, etc), data download service manager, Android "media" library function, Android.net library function, Jave.net library function, Apache library function, other similar software/library functions or services in other device operating systems, SMTP/IMAP/POP proxy, HTTP proxy, IM proxy, VPN service manager, SSL proxy, etc. Herein these alternative network access data flows that are initiated by an application are termed application proxy service flows. In such embodiments an app can sometimes simply requests a network access service activity from an OS component such as a proxy service component rather then directly accessing the network. In such embodiments, in order to implement background service controls or user notification of application service usage, it is necessary to monitor the application proxy service flows, classify them as being initiated by or belonging to a particular application or service activity, and implement the proper background service classifications, user notifications, application process

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launch intercept, background service accounting, and background service usage restrictions as described herein in accordance with the policies intended for the initiating application or service activity. This is accomplished by inserting service usage monitors that allow a mapping of (i) the initiating application identifier (e.g. app name, app fingerprint, application identification tag, application process number, application credential, or other secure or non-secure application or process identifier) to (ii) the request to the proxy service and subsequently to (iii) the network service flows between the proxy service and the network elements that service the information communications. Once this mapping is accomplished, the service usage flows of the proxy service can then be accounted back to the initiating application, device software process or other service activity, the proper policies can then be applied to each service usage flow for user notification, service activity launch control, service activity background accounting (including variable charge rating dependent on background service state and/or sponsored service charging), service activity background service controls or network usage restrictions as described herein (including but not limited to for example: block network access, restrict network access, throttle network access, delay network access, aggregate and hold network access, select for time of day network access restrictions, select network type restrictions, select roaming network access restrictions, select service usage restrictions such as a usage limit, select service cost restrictions such as a cost limit or otherwise place on another form of background service status or network usage restriction as described herein).

[00226] In some embodiments, this ability to track service usage for an service activity through a proxy service as described herein is used to improve usage reporting of service activities to a service controller for the purpose of statistically identifying service activities that are candidates for background service policy controls or network protections service policy controls.

[00227] In some embodiments, the various design techniques described herein that allow for monitoring, accounting for and/or implementing service policy for component service activities

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that belong to an aggregate service activity can be designed into the OS itself. For example, in certain current mobile OS implementations (e.g. Android, iPhone, Blackberry, etc) there are some applications available in the market that allow a user to get an estimate for how much data a certain subset of applications are consuming on a wireless service provider network, but it is not possible for the user or application to get an indication of the service usage for certain OS functions, whereas the embodiments disclosed herein will allow for this. As another example, in certain current mobile OS implementations it is not possible to associate proxy service usage (e.g. media download and media streaming proxy library software functions) with the specific applications that use the proxy service, so while the user can be informed of generic common OS functions or proxy services (e.g. in the case of Android: "media service", "media", "gallery", "google service framework" and other generic common OS software library functions or proxy services), there is no way for the user to determine what applications widgets or other service activities are actually generating this common service function usage, whereas the invention described herein permits the user full visibility on such usage monitoring examples. Furthermore, if the OS is retrofitted with the intercept and policy implementation functions can be designed into the activity manager, broadcast intent manger, media service manager, service manager, or other application or service activity management function in the Android OS. One or ordinary skill in the art will recognize that similarly, the various design techniques described herein that allow for intercepting a service activity intention to launch, and applying a background service policy set or a network protection service policy set can be designed into application launch management functions in the iPhone OS, windows mobile OS, windows PC OS, Blackberry OS, Palm OS, and other OS designs.

[00228] Figure 19 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments. At 1902, the process begins. At 1904, determining a network busy state of one or more networks is performed. In

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some embodiments, the one or more networks are selected from an access network, a wired network, and a wireless network. At 1906, classifying a network service usage activity (e.g., a network capacity controlled service) of a device based on the network busy state determination is performed to facilitate differential network access control for protecting network capacity of the one or more networks. In some embodiments, the network busy state is based on one or more of the following: network performance, network congestion, network availability, network resource availability, network capacity, or any other network service usage measure, and one or more time windows (e.g., time based criteria). In some embodiments, protecting network capacity of the one or more networks includes protecting network capacity of a last edge segment of a wireless network (e.g., RAN, BTS, BTSC, and/or other network elements). In some embodiments, the determining and classifying are performed using device assisted/based techniques. In some embodiments, the determining and classifying are performed using network assisted/based techniques (e.g., implemented on a network element/function, such as a service controller, a DPI gateway, a BTS/BTSC, etc., or a combination of network elements). In some embodiments, the determining and classifying are performed using a combination of device assisted/based techniques and network assisted/based techniques. At 1908, implementing differential traffic controls is performed based on the service usage activity classification for protecting network capacity is performed. At 1910, the process is completed. In some embodiments, a network busy state is determined based on one or more of the following: a time of day, a network reported busy state, and/or a device (e.g., near-end and/or far-end) determined/reported network busy state. In some embodiments, a network busy state is determined using one or more of the following: a network probe, a device query, a network probe report (e.g., including a BTS and/or BTSC), a network probe analysis, a device analysis based on performance of native traffic without probe such as TCP timeout, UDP retransmissions, a multiple network test, a device monitored network congestion based on network service usage activity (e.g., application based network access performance data)

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performed for a network to which the device is connected and/or one or more alternative networks. In some embodiments, a network congestion state is associated with a network busy state (e.g. a network busy state setting/level). For example, a network congestion level of 40% of network usage can be associated with a network busy state setting of 4, a network congestion level of 80% of network usage can be associated with a network busy state setting of 8, and so forth.

[00229] Figure 20 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments. At 2002, the process begins. At 2004, monitoring a network service usage activity of a device in network communication is performed. At 2006, classifying the network service usage activity (e.g., based on a classification of the network service usage activity for protecting network capacity, for example, as a network capacity controlled service) for protecting network capacity is performed. At 2008, accounting for network capacity controlled services (e.g., accounting for the network service usage activity based on a classification of the network service usage activity for protecting network capacity) is performed. At 2010, charging for network capacity controlled services is performed. At 2012, the process is completed. In some embodiments, DAS for protecting network capacity further includes classifying the network service usage activity as a network capacity controlled service. In some embodiments, DAS for protecting network capacity includes differentially accounting and/or differentially charging for network capacity controlled services and foreground services. In some embodiments, the network service usage control policy includes policies for differentially controlling, accounting, and/or charging for network capacity controlled services (e.g., based on a network busy state, a time based criteria, a service plan, network to which the device or network service usage activity is gaining access from, and/or other criteria/measures). In some embodiments, accounting for network capacity controlled services includes differentially collecting service usage for one or more network

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capacity controlled service classes in which the accounting is modified/varies (e.g., dynamically) based on one or more of the following: network busy state (e.g., modify/credit accounting during network congestion not satisfying the user preference), network service activity, access network (e.g., the network to which the device/service activity is currently connected), user preference selection, time based criteria (e.g., current time of day/day of week/month), associated service plan, option to time window. In some embodiments, charging for network capacity controlled services includes mapping an accounting to a charging report. In some embodiments, charging for network capacity controlled services includes sending the charging report to a network element (e.g., a service controller, a service cloud, a billing interface/server, and/or another network element/function). In some embodiments, charging for network capacity controlled services includes mediating or arbitrating CDRs/IPDRs for network capacity controlled service(s) vs. other network service usage activities or bulk network service usage activities. In some embodiments, charging for network capacity controlled services includes converting a charging report to a billing record or billing action. In some embodiments, charging for network capacity controlled services includes generating a user notification of network capacity controlled service charges upon request or based a criteria/measure (e.g., a threshold charging level and/or a threshold network service usage level). In some embodiments, charging for network capacity controlled services includes charge by application based on a charging policy (e.g., bill by application according to billing policy rules, such as for billing to a user or to a sponsored service provider, carrier, and/or other entity).

[00230] Figure 21 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments. In some embodiments, DAS for protecting network capacity includes providing a device service access API that provides an interface for applications, OS functions, and/or other service usage activities to a network access connection (e.g., or stack) for providing differential network access for

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protecting network capacity. In some embodiments, the differential network access is determined by one or more of the following: a service priority of the service usage activity and a network busy state. At 2102, the process begins. At 2104, a device service access API request is received. At 2106, the device service access API request is responded to. In some embodiments, the differential network access (e.g., for network capacity controlled services and/or based on network busy state and/or other criteria/measures) is implemented by one or more of the following: providing network busy state information to the service usage activity, receiving network busy state information, receiving network capacity demands for the service usage activity, receiving a scheduled time/time slot demand from the service usage activity, receiving and/or providing network location and/or physical location information (e.g., base station, communication channel, cell sector, roaming or non-roaming network to which the device is connected, and/or GPS or other physical location data), providing information to the service usage activity informing it when it is allowed to access the network, providing information to the service usage activity informing it what traffic controls must be applied/implemented, providing information to the service usage activity informing it when the network is available to it for access, and providing information to the service usage activity of its scheduled access time/time slot (e.g., based on one or more of the following: priority, network busy state, and time of day) (e.g., with a specified performance level or service level, such as data transfer size, speed, network capacity controlled service priority level, QoS level, data transfer type, scheduling time(s), and/or network connection parameters), and instructing the device and/or service usage activity to transition to a different state (e.g., power save state, sleep state dormant, idle, wait state, and/or an awake state). At 2108, differential network access is implemented. At 2110, the process is completed. In some embodiments, the device service access API is a programmatic interface, a virtual interface, and/or an emulated interface that provides instructions for differential access to a network to protect network capacity, as described herein.

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[00231] In some embodiments, the API is served or located on the device, on a network element (e.g., using a secure communication between the device and the network element for the API communication, such as HTTPS, TLS, SSL, an encrypted data connection or SS7 control channel, and/or other well known secure communication techniques), and/or both/partly in both. In some embodiments, a network based API is an API that facilitates an API or other interface communication (e.g. secure communication as discussed above) between an application executing on the device and a network element and/or service cloud for protecting network capacity. For example, a network API can provide an interface for an application to communicate with a service cloud (e.g., network server) for obtaining network access control information (e.g., network busy state, multiple network information based on available networks and/or network busy state information of available networks, network capacity controlled service priorities and availability, scheduled time/time slots for network access based on network busy state, service plan, network capacity controlled service, and/or other criteria/measures). As another example, a network API can facilitate an application provider, central network/service provider, and/or a third party with access to communicate with the application to provide and/or request information (e.g., physical location of the application, network location of the application, network service usage information for the application, network busy state information provided to the application, and/or other criteria/measures). As yet another example, a network API can facilitate a broadcast to one or more applications, OS functions, and/or devices (e.g., partitioned based on geography, network, application, OS function, and/or any other criteria/measure) with network capacity related information (e.g., network busy state, availability based on network capacity controlled service classification and/or priority level, scheduled time/time slots for certain network capacity controlled service classification and/or priority level, emergency/high priority software/antimalware/vulnerability update and scheduled time/time slots for such software updates, and/or other criteria/measures). In some embodiments, the network access API for protecting network capacity is an open API or standard/required API (e.g., required or

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standardized for applications for a certain network service provider, such as to be provided via the Verizon application store or the Apple AppStore) published for application and OS developers so that the applications and OS functions are designed to understand and implement the network access API for protecting network capacity. For example, a certification program can be established to provide application and OS developers with test specifications, working implementations, and/or criteria to make sure the network access API is properly implemented and is functioning in accordance with the specified requirements. In some embodiments, the network access API is an interface for communication with a service controller (e.g., service controller 122) or another network element/function (e.g., a service usage API for communication with a service usage server or billing interface/server or another network element/function that facilitates a secure communication for sending/receiving or otherwise communicating network access related information for protecting network capacity). In some embodiments, the network API provides for sponsored billing (e.g., reverse billing) of all, classified, and/or a subset of network service usage charges to a sponsored partner associated with the network service usage activity (e.g., application) that accesses the network API. In some embodiments, the network API provides for a sponsored service in which the network service usage activity (e.g., application) that accesses the network API provides a sponsored service partner credential to the network API, the credential is used as a billing mechanism to charge the sponsored partner, the user account is mediated to remove the sponsored partner charge, and the network API provides access service and/or information service (e.g., location information, local information, content information, network information, and/or any other information).

[00232] Figure 22 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments. At 2202, the process begins. At 2204, network service usage activities of a device are monitored (e.g., using a

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verified/verifiable service processor). At 2206, a network busy state (e.g., a measure of network capacity, availability, and/or performance) is determined based on the monitored network service usage activities (e.g., using various techniques as described herein). In some embodiments, a service processor on the device is used to determine (e.g., measure and/or characterize) a network busy state experienced by the device (e.g., which can be used to determine the network access control policy for one or more network capacity controlled services). At 2208, a network busy state report is sent to a network element/function (e.g., a service controller and/or another network element/function as described herein). At 2210, the process is completed. In some embodiments, the service processor is verified using various techniques described herein. In some embodiments, the network busy state report includes one or more of the following: data rate, latency, jitter, bit error rate, packet error rate, number of access attempts, number of access successes, number of access failures, QoS level availability, QoS level performance, and variability in any of the preceding parameters. In some embodiments, the network busy state report includes one or more of the following: base station ID, cell sector ID, CDMA ID, FDMA channel ID, TDMA channel ID, GPS location, and/or physical location to identify the edge network element that is associated with the network busy state report to a network element. In some embodiments, the monitoring of network service usage activities includes measuring the network performance for traffic the device is transmitting/receiving and/or generating network performance testing traffic. In some embodiments, the network busy state is collected (e.g., and/or used to assist, supplement, and/or verify device based network busy state measures) by one or more network elements that can measure and/or report network busy state (e.g., BTS, BTSC, base station monitor, and/or airwave monitor). For example, airwave monitors and/or base station monitors can be provided to facilitate a reliable characterization of network busy state in a coverage area of one or more base stations and/or base station sectors, such as affixed mobile terminals (e.g., trusted terminals that can include additional network busy state monitoring and/or reporting

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functionality) installed (e.g., temporarily or permanently) in the coverage area of one or more base stations and/or base station sectors (e.g., in which a sector is the combination of a directional antenna and a frequency channel) so that the affixed mobile terminals perform network busy state monitoring and reporting to the service controller, the local base station, and/or other network element(s)/function(s) as similarly described herein. In some embodiments, the permanently affixed mobile terminals provide network monitors for reporting, for example, network busy state, to a central network element, such as the service controller, which can, for example, aggregate such network busy state information to determine network busy state for one or more network coverage areas. In some embodiments, the permanently affixed mobile terminals are always present in these locations where installed and always on (e.g., performing network monitoring), and can be trusted (e.g., the permanently affixed mobile terminals can be loaded with various hardware and/or software credentials). For example, using the permanently affixed mobile terminals, a reliable characterization of network busy state can be provided, which can then be reported to a central network element and aggregated for performing various network busy state related techniques as described herein with respect to various embodiments. In some embodiments, the network element/function uses the network busy state report (e.g., and other network busy state reports from other devices connected to the same network edge element) to determine the network busy state for a network edge element connected to the device. In some embodiments, network element/function sends a busy state report for the network edge element to the device (e.g., and to other devices connected to the same network edge element), which the device can then use to implement differential network access control policies (e.g., for network capacity controlled services) based on the network busy state. In some embodiments, a network busy state is provided by a network element (e.g., service controller or service cloud) and broadcast to the device (e.g., securely communicated to the service processor).

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[00233] Figure 23 illustrates a network capacity controlled services priority level chart for device assisted services (DAS) for protecting network capacity in accordance with some embodiments. In some embodiments, various applications, OS functions, and/or other utilities/tools installed/loaded onto and/or launched/executing/active on a communications device (e.g., device 100) are classified as network capacity controlled services for protecting network capacity. In some embodiments, one or more of the network capacity controlled services are assigned or classified with network capacity controlled service levels or priority levels for protecting network capacity. In some embodiments, one or more of the network capacity controlled services are dynamically assigned or classified with network capacity controlled service levels or priority levels based on one or more criteria/measures (e.g., dynamic criteria/measures), such as network busy state, current access network, time based criteria, an associated service plan, and/or other criteria/measures. In some embodiments, a higher priority level means that the application or utility/function is granted higher relative priority for network access (e.g., a priority level 10 can provide for guaranteed network access and a priority level 0 can provide a blocked network access, while priority levels between 1 through 9 can provide relatively increasing prioritized network access potentially relative to allocated network access and other services requesting network access).

[00234] As shown in Figure 23, the network capacity controlled services are dynamically assigned or classified with network capacity controlled service levels or priority levels based on the network busy state of the current access network. For example, an email application, Microsoft Outlook, is assigned different priority levels for protecting network capacity based on the network busy state, as shown: a priority level 6 for a network busy state (NBS) level of 10% (e.g., up to about 10% of the network capacity is being utilized based on current or recently/last measured/detected/determined network capacity/resources usage using various techniques as described herein), a priority level 5 for a network busy state (NBS) level of 25%, a priority level 4

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for a network busy state (NBS) level of 50%, a priority level 3 for a network busy state (NBS) level of 75%, and a priority level 2 for a network busy state (NBS) level of 90%. As also shown, an antivirus (AV) software update application/utility/function is assigned different priority levels for protecting network capacity based on the network busy state: a priority level 9 for a network busy state (NBS) level of 10%, a priority level 7 for a network busy state (NBS) level of 25%, a priority level 5 for a network busy state (NBS) level of 50%, a priority level 3 for a network busy state (NBS) level of 75%, and a priority level 1 for a network busy state (NBS) level of 90%. Various other applications and utilities/functions are shown with various priority level assignments/classifications based on the network busy state levels shown in the network capacity controlled services priority level chart of Figure 23. As will be apparent to one of ordinary skill in the art, various assignments and/or techniques for dynamically assigning priority levels for network access based on network busy state levels can be applied for protecting network capacity (e.g., based on user preferences, service plans, access networks, a power state of device, a device usage state, time based criteria, and various other factors such as higher priority for urgent software and/or security updates, such as a high priority security or vulnerability software patch or update, and/or urgent or high priority emails or other communications, such as a 911 VOIP call).

[00235] Referring again to Figures 1 through 3, DAS for protecting network capacity is implemented using a service processor (e.g., a service processor 115) of the device (e.g., a device 100) using various DAS techniques as described herein to facilitate differential network service access control (e.g., for network capacity controlled services) to assist in protecting network capacity in accordance with some embodiments. In some embodiments, the service processor and/or one or more agents of the service processor is/are verified using one or more of the following verification techniques (e.g., and/or to specifically verify monitoring the network service usage activity, classifying one or more service activities into one or more network

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capacity controlled service classes, associating the one or more network capacity controlled service classes with one or more differential service activity policies, and/or determining a network busy state): compare a network based service usage measure with a service policy and/or service plan associated with the device, compare a device assisted service usage measure with the service policy and/or service plan associated with the device, compare the network based service usage measure to the device assisted service usage measure, compare a first device assisted service usage measure to a second device assisted service usage measure, verify presence of the service processor and/or one or more agents of the service processor, verify configuration of the service processor, verify service usage activities are reported properly (e.g., using test service usages to generate service usage events/reports for analysis and confirmation), verify billing events are reported properly, compare the network based service usage measure with reported device billing data, verify reporting of a test billing event, verify reporting of the communications device reports billing events from a transaction server, verify presence of an activation tracking system, verify device configuration or operation, verify device standing or service plan standing, verify proper operation of the service processor, verify service processor heartbeat response reports, verify monitoring of a test service event, download a new service processor (e.g., and/or one or more agents or new configuration settings of the service processor) and perform integrity checks, verify a service processor code configuration with agent self-diagnosis checks, verify that the communications device uses the first service only after being authorized, verify user standing, verify a network busy state (e.g., compare and/or statistically process network busy state measures from more than one device in which the network busy state monitoring apparatus, for example, is located in a secure execution environment on the device), verify various differential network access control implementations (e.g., network capacity controlled services are properly monitored/determined/detected, controlled, accounted for, and/or charged for), verify various QoS implementations (e.g., as discussed above), and verify an agent communications log.

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Various other verification techniques are described herein and similar and other verification techniques for providing DAS for protecting network capacity using device based implementations (e.g., service processors and/or other device based agents or software/hardware techniques) will now be apparent to one of ordinary skill in the art in view of the various embodiments described herein.

[00236] In some embodiments, the service processor is secured using various hardware and software techniques described herein, including, for example, implementing all and/or portions of the service processor in a secure virtual machine, protected execution environment, secure storage (e.g., secure memory), secure modem, and/or other secure implementation techniques as described herein and/or other or similar techniques as will now be apparent to one of ordinary skill in the art in view of the various embodiments described herein. For example, the service processor can be implemented in software and executed in a protected area of an OS executed on the device and/or executed in protected execution partitions (e.g., in CPU, APU, SIM chipset, modem, modem secure execution partition, SIM, other hardware function on the device, and/or any combination of the above).

[00237] In some embodiments, a network service usage counter is embedded into a secure execution environment (e.g., a program store in secure non-volatile memory located on a modem card and/or a modem chip not accessible by device applications, secure CPU environment for executing program and/or secure program operation for data path monitoring and/or control that cannot be bypassed by device applications to get to the modem connection to the network) in a device modem (e.g., using measurement points V, VI, and/or other measurement points of Figure 12). In some embodiments, the service usage counter counts data traffic (e.g., bytes and/or any other measure of service usage, such as file transactions, message transactions, connection time, time of connection or duration of connection, and/or traffic passed or transactions passed for a given QoS or network capacity controlled service

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priority level), traffic as a function of time, traffic according to a network service activity classification (e.g., by application, destination/source, port, traffic type, content type, time of day, network busy state, and/or any other criteria/measure). In some embodiments, the service usage counter counts data traffic (e.g., as discussed above) while coordinating with a VPN layer established, for example, for both layer-III (e.g., IPSEC) and layer-II (e.g., L2TP tunnel) so that precise over the air service usage measure is counted for billing mediation and/or network service usage charging (e.g., customer billing, sponsored service bill by service and/or any other charging or billing). In some embodiments, the service usage counter counts data traffic (e.g., as discussed above) while coordinating with accelerator software (e.g., a compression/decompression engine) which transforms frames for more efficient over the air transmission. As similarly discussed above, service processor coordination with the accelerator layer facilitates a precise over the air service usage measure for billing mediation and/or network service usage charging. In some embodiments, the service usage counter counts data traffic (e.g., as discussed above) while coordinating with both the VPN layer and accelerator software layer to facilitate a precise over the air service usage measure for billing mediation and/or network service usage charging.

[00238] In some embodiments, the service usage counter reports the service usage to a network element (e.g., a service controller, charging gateway, PCRF, AAA, HA, billing system, mediation system, traffic accounting database, base station or base station controller, and/or another network element/function or central network element/function). In some embodiments, the information reported to the network element is encrypted or signed with a corresponding key known by the network element. In some embodiments, the communication link to the network element to pass the service usage count is conducted over a wireless network specific channel such as SMS, MMS, SS-7, or another specialized control channel. In some embodiments, the communications link to the network element to pass the service usage count is conducted over

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a network channel (e.g., via IP, TCP, UDP, HTTP, HTTPS, TLS, SSL, point to point signed variants of TLS or SSL, or another data network channel via the network control channel connection to the device). In some embodiments, the data network control channel traffic is injected into the PPP stream at the modem. In some embodiments, the data network control channel traffic is passed up to the device networking stack for connection to the network. In some embodiments, a signed or encrypted service usage count from the modem subsystem is coordinated to provide a service usage count for a time period that also corresponds to a similar time period for a service processor heartbeat report that includes a service usage measure or count. For example, this provides the service controller or another network element with a secondary set of information that can be used to verify and/or secure the service usage measures reported by the service processor. Various techniques can be used to synchronize the time period for the modem service usage count and the service processor service usage count. For example, the service processor can request a latest count message from the modem, in which the modem counts all service usage since the previous request for latest count until the present request for latest count, encrypts the latest count message so that the service processor or other application software or OS software on the device cannot decode and/or tamper with the message, and the modem service usage counter then passes the encrypted message to the service processor. The service processor can then pass the encrypted service usage count message from the modem to the service controller along with the service processor service usage accounting message(s) for the same or similar time period. The service controller can then decode both service count messages from the secure modem subsystem and the service processor and correlate the two measures to verify the service usage reporting by, for example, looking for discrepancies that would indicate service usage control or charging errors or device service processor tampering. In some embodiments, the secure modem subsystem records byte counts for streams (e.g., and/or flows, socket connections, or combinations of IP destination/source/ports), potentially along with time of day, network busy

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state, QoS level, and/or other criteria/measures, and reports these counts for each stream that had traffic activity during the current reporting interval. For example, the service controller can then correlate the stream service usage information with the service usage information provided by the service processor heartbeat service usage report to verify that the service processor service usage report is consistent with the independent measure made in the modem subsystem. In some embodiments, service usage reports (e.g., certified service usage reports) are correlated on the device and/or in the network (e.g., using one or more network elements/functions, such as the service controller).

[00239] In some embodiments, a deeper analysis of traffic can be conducted in the modem subsystem service usage count. For example, a layer 7 analysis of the service usage can be conducted for HTTP or HTTPS traffic flowing through the modem in which the modem subsystem service usage counter performs an HTTP level analysis of the traffic to associate web traffic gets and other transfers with a given higher level service classification (e.g., ad server, content server, proxy server, and/or traffic that is referred by the local host serving up a web page). In some embodiments, the modem subsystem service usage count can be augmented for HTTPS, SSL or TLS traffic by including a trusted proxy server embedded in the modem system. For example, the proxy server can be trusted by the device stack so that the encryption keys for HTTPS, TLS or SSL are known by the proxy server allowing the modem based proxy server, located, for example, in a secure execution environment, to perform layer 7 analysis of encrypted traffic in a manner similar to that described above. In some embodiments, the embedded proxy server generates server SSL certificates for each connection to a specific remote host in real time based on a root certificate trusted by the device (e.g., and/or by network service usage activity, such as by application) and also trusted by the embedded proxy server, and the proxy server then becomes a middle man emulating a remote SSL host on one side and emulating the device (e.g., and/or network service usage activity, such as application) on the

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other side, decrypting the traffic, analyzing it and re-encrypting before forwarding to and from the remote host. Similarly, as in the case of layer 3 and 4 traffic analysis performed by the modem service usage counting subsystem, the layer 7 service usage count messages can be encrypted and passed to the service controller via various channels. In some embodiments, the layer 7 modem subsystem service usage counting system records service usage counts for a reporting time period that is similar to the reporting time period used by the service processor so that the service controller can correlate the service processor accounting messages against the modem accounting messages with layer 7 information.

[00240] In some embodiments, the secure service usage reporting system elements are located in a secure execution environment that includes the modem driver. In some embodiments, all traffic that gets to the modem for the network traffic being controlled or accounted for is required to go through the secure modem driver so that an independent count can be generated and reported to the service controller as described above without the need to embed the secure service usage counting and reporting elements in the modem.

[00241] In some embodiments, the secure service usage reporting system elements are located in a secure execution environment that includes the modem driver and modem hardware interface controller driver (e.g. USB controller for 2/3/4G and SDIO controller for WiFi). In some embodiments, all traffic that gets to the modem for the network traffic being controlled or accounted for is required to go through the secure modem driver and modem hardware interface controller driver (e.g. USB controller for 2/3/4G and SDIO controller for WiFi) so that precise count can be generated by either the modem driver and/or modem hardware interface controller driver (e.g. USB controller for 2/3/4G and SDIO controller for WiFi) and passed to the secure service usage reporting element to send it to the service controller for customer charging/billing. This scheme provides flexibility (e.g., most of the device software and operation system and its services/applications need not be located/executed in the secure

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execution environment) while ensuring usage counting to occur securely as it pertains to the customer accounting and billing.

[00242] In some embodiments, the layer 7 proxy server traffic accounting and reporting techniques used for processing HTTPS, TLS, and SSL traffic, as discussed above, are also used in the service processor itself to allow a detailed accounting of encrypted layer 7 traffic by the device. In some embodiments, the information thus obtained is filtered so that private user information is not transmitted to the network (e.g., service controller, PCRF, and/or any other network element/function) but only service usage information sufficient to allow for accounting of service plan usage, to verify service control policy implementation, or to verify service charging policy implementation is transmitted to the network (e.g., service controller, PCRF, and/or any other network element/function). In some embodiments, the layer 7 proxy server for processing secure or in the clear device service usage accounting messages is located in secure hardware execution environments in the device application processor or within secure software partitions in the operating system.

[00243] Various techniques can be used to verify and/or secure service usage controls or service usage charging reports. For example, if the secondary service usage reports indicate that service usage is outside of the service usage policy limits that are intended to be in effect (e.g., based on a service plan and/or service policy associated with the device), then the service controller can indicate an error flag for further analysis and action (e.g., implementing various verification and responsive actions as described herein, such as blocking the activity, throttling the activity, quarantining the device, updating/replacing the service processor, and/or monitoring the device using various additional DAS and/or network assisted monitoring techniques). As another example, if the service usage reports from the service processor do not match up with the secondary service usage reports, then the service controller can indicate an error flag for further analysis and action. For example, the correlation can be based on bulk measures of

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service usage (e.g., total bytes over a given period of time), or using finer grain measures of service usage (e.g., verifying the accounting between one group of service usage activities, such as application, destination/source, port, content type, time of day, network busy state, QoS level, and/or other criteria/measures) charged to one service plan charging record versus the accounting for another group of service usage activities charged to another service plan charging record. In some embodiments, the correlation process between the two service usage accounting reports is performed continuously on all device traffic in real time or near real time as the usage accounting reports are received. In some embodiments, the usage accounting reports are stored and analyzed or correlated later (e.g., periodically, based on a request or audit, and/or based on certain events, such as threshold network service usage events and/or any other events based on various criteria/measures). In some embodiments, only an audit of a portion of time is used to correlate the two usage accounting reports, which, for example, can reduce network traffic and/or network processing load in the service controller.

[00244] In some embodiments, correlation techniques are applied by the service controller to compare two different service usage measures as described above based on one or more of the following: total amount of data (e.g., bytes for file transfers, sessions, and/or other measures), amount of data per unit time, total number of accesses, number of accesses per unit time or frequency of accesses, accesses during a time interval (e.g., peak time), accesses during a network busy state, access requests, and individual versus group transmissions at a point in time (e.g., each for a given set of destinations or destinations and traffic types).

[00245] In some embodiments, service usage monitoring includes characterizing service usage activities by streams, flows, destination/port, packet inspection, and/or other criteria/measures using the various techniques as described herein and/or other or similar techniques as would be apparent to one of ordinary skill in the art. In some embodiments, service usage monitoring includes characterizing service usage activities by streams, flows, destination/port, packet

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inspection, and/or other criteria/measures and then correlating to find network service usage behavior patterns that identify likely association of behavior with one or more service activities being managed.

[00246] In some embodiments, DAS for network capacity control includes classifying traffic to determine which network service usage activity(ies) are causing traffic (e.g., increasing network capacity/resources usage beyond a threshold), and then determining if access network service usage activity(ies) are violating any rules (e.g., service usage policies or service plan settings associated with the device/user). In some embodiments, DAS for network capacity control includes generating a list for network capacity controlled services that specifies behavioral characteristics for one or more network service usage activities with expected access limits based on access control policy for each managed network service usage activity (e.g., based on service usage policies or service plan settings associated with the device/user). In some embodiments, DAS for network capacity control includes monitoring and/or controlling network service usage activities based on limits, which, for example, can be based on one or more of the following: total access traffic counters, counters for different types of access traffic, destinations, ports, frequency of accesses, access behavior during a given time, access behavior during a given busy state, access behavior for groups of activities (e.g., verify clumping), and/or other criteria/measures.

[00247] Accordingly, in some embodiments, a second secure and trusted service usage measure is provided that the service controller (e.g., or another network element/function) can use to verify or secure the service control or service charging reports for the service processor. In some embodiments, the secure and trusted service usage measure also provides for enhanced verification and service security in cases, in which, for example, network based service usage measures are available for additional correlation with the service processor service usage reports. In cases in which network based service usage measures are either not

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available or are only available at widely spaced time intervals (e.g., roaming networks or other networks with no timely network based service usage measure), these techniques facilitate real time or near real time verification or security for the device assisted service controls and charging.

[00248] In some embodiments, a SIM card performs a portion or all of the secure environment processing described above, with the device modem traffic, or a copy of the device modem traffic, being directed to the SIM secure subsystem for traffic accounting and reporting. In some embodiments, a SIM card is used to store QoS classifications and/or network capacity controlled services classifications for various service usage activities so that the user behavior in using certain network service usage activities and/or the user preferences in controlling certain network service usage activities do not need to be relearned or redownloaded as the user swaps the SIM between different devices. In some embodiments, the SIM keeps a local record of service usage activity for multiple devices that belong to the user or the user family plan, so that the service usage notification and policies can be immediately updated on a given device as the user swaps the SIM from device to device. In some embodiments, the manner in which this service usage history is stored on the SIM is secure so that it cannot be tampered with. In some embodiments, the SIM card is used to implement various application management and/or traffic control techniques described herein. In some embodiments, the SIM card is used to inspect traffic, classify traffic, create reports (e.g., certified service activity usage reports), encrypt the report, send the report to a network element/function, and the network element/function correlates the reports (e.g., using network assisted measures for comparisons and/or using various other techniques as described herein). In some embodiments, a SIM card performs a portion or all of the secure environment processing described above using one or more modem measurement points. For example, the traffic that is to be classified can be routed through the SIM and correlated with what is measured by the

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modem. In some embodiments, network assisted/based network service usage activity classifications are compared SIM based/assisted classifications for service usage monitoring/reporting verification (e.g., detected inconsistencies in monitored/reported network service usage activities can be identified, such as based on total traffic, streams/flows/sockets activities, and/or other criteria/measures). In some embodiments, the reports include a verified sequence so that reports cannot be spoofed and/or missing reports can be determined.

[00249] In some embodiments, a portion or all of the secure environment processing described above are applied to implement and/or verify QoS for DAS techniques and/or DAS for network capacity controlled services techniques as described herein.

[00250] In some embodiments, the reports include one or more of the following: a number of times the device is cycled from or to a power cycle state in the modem, a number of times during a time window or network busy state, a power cycle versus number of streams initiated during the cycle, and a power cycle versus the streams that are transmitted during that cycle, In some embodiments, device power cycle events trigger generating of a report.

[00251] In some embodiments, monitoring, reporting, control, accounting, charging, and/or policy implementation for network capacity controlled services is verified (e.g., using various verification techniques described herein). If any of the verification techniques determine or assist in determining that the network capacity controlled services monitoring, reporting, control, accounting, and/or charging, and/or policy implementation has been tampered with, disabled, and/or is not properly implemented or functioning, then responsive actions can be performed, for example, the device (e.g., and/or suspect services) can be suspended, quarantined, killed/terminated, and/or flagged for further analysis/scrutiny to determine whether the device is malfunctioning, needs updating, has been tampered with or compromised, is infected with malware, and/or if any other problem exists.

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[00252] In some embodiments, the service processor monitors a network service usage activity of a device. In some embodiments, monitoring of the service usage activity includes monitoring for multiple networks (e.g., to determine which networks are available and/or a network busy state of the available networks). In some embodiments monitoring a network service usage activity is performed by and/or assisted by a service cloud (e.g., one or more network elements that provide such a service). In some embodiments, monitoring the network service usage activity includes identifying the network service usage activity, measuring the network service usage of the network service usage activity, and/or characterizing the network service usage of the network service usage activity (e.g., using device assisted/based techniques, network assisted/based techniques, testing/offline monitoring/analysis techniques, and/or a combination thereof).

[00253] In some embodiments, the service processor implements differential network access service control (e.g., for network capacity controlled services), network service usage accounting, network service usage charging, and/or network service usage notification on the device to facilitate DAS for protecting network capacity.

[00254] In some embodiments, the service processor (e.g., a service processor 115) is updated, communicated with, set, and/or controlled by a network element (e.g., a service controller 122). In some embodiments, the service processor receives service policy information from a network function selected from a base station (e.g., a base station 125), a RAN gateway, a core gateway, a DPI gateway, a home agent (HA), a AAA server (e.g., AAA server 121), a service controller, and/or another network function or combinations of network functions as described herein and/or as will now be apparent to one of ordinary skill in the art in view of the various embodiments described herein. In some embodiments, the service processor is updated through over the air or over the network OS software updates or application software updates or device firmware updates. In some embodiments, the service

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processor uses an IP connection, SMS connection, and/or MMS connection, for a control channel with a service controller. In some embodiments, the service processor queries a service controller to determine the association of a monitored network service usage activity with a network service usage control policy. In some embodiments, the device (e.g., service processor) maintains a network capacity controlled services list and/or network capacity controlled services policy for one or more of the active services (e.g., actively executing and/or previously installed/downloaded to the device) that have been classified as a network capacity controlled service (e.g., as the number of applications continues to grow, as hundreds of thousands of applications are already available on certain platforms, maintaining a list specific and/or a set of policies unique or specific to each application is not efficient). In this embodiment, when a new application is active/launched and/or downloaded to the device, the device can request an updated network capacity controlled services list and/or an updated network capacity controlled services policy accordingly (e.g., and/or periodically refresh such lists/policies).

[00255] In some embodiments, differential network access control for protecting network capacity includes controlling network services traffic generated by the device (e.g., network capacity controlled services based on a network service usage control policy (e.g., a network capacity controlled services policy). In some embodiments, differential network access control for protecting network capacity includes providing assistance in control of the distribution of bandwidth among devices, network capacity controlled services (e.g., applications, OS operations/functions, and various other network services usage activities classified as network capacity controlled services), a differentiated QoS service offering, a fair sharing of capacity, a high user load network performance, and/or preventing one or more devices from consuming so much network capacity that other devices cannot receive adequate performance or performance in accordance with various threshold and/or guaranteed service levels. In some embodiments,

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differential network access control for protecting network capacity includes applying policies to determine which network the service activity should be connected to (e.g., 2G, 3G, 4G, home or roaming, WiFi, cable, DSL, fiber, wired WAN, and/or another wired or wireless or access network), and applying differential network access control rules (e.g., traffic control rules) depending on which network to which the service activity is connected. In some embodiments, differential network access control for protecting network capacity includes differentially controlling network service usage activities based on the service usage control policy and a user input (e.g., a user selection or user preference). In some embodiments, differential network access control for protecting network capacity includes differentially controlling network service usage activities based on the service usage control policy and the network the device or network service activity is gaining access from.

[00256] In some embodiments, the network service usage control policy is dynamic based on one or more of the following: a network busy state, a time of day, which network the service activity is connected to, which base station or communication channel the service activity is connected to, a user input, a user preference selection, an associated service plan, a service plan change, an application behavior, a messaging layer behavior, random back off, a power state of device, a device usage state, a time based criteria (e.g., time/day/week/month, hold/delay/defer for future time slot, hold/delay/defer for scheduled time slot, and/or hold/delay/defer until a busy state/availability state/QoS state is achieved), monitoring of user interaction with the service activity, monitoring of user interaction with the device, the state of UI priority for the service activity, monitoring the power consumption behavior of the service activity, modem power cycling or power control state changes, modem communication session set up or tear down, and/or a policy update/modification/change from the network. In some embodiments, the network service usage control policy is based on updated service usage behavior analysis of the network service usage activity. In some embodiments, the network

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service usage control policy is based on updated activity behavior response to a network capacity controlled service classification. In some embodiments, the network service usage control policy is based on updated user input/preferences (e.g., related to policies/controls for network capacity controlled services). In some embodiments, the network service usage control policy is based on updates to service plan status. In some embodiments, the network service usage control policy is based on updates to service plan policies. In some embodiments, the network service usage control policy is based on availability of alternative networks. In some embodiments, the network service usage control policy is based on policy rules for selecting alternative networks. In some embodiments, the network service usage control policy is based on network busy state or availability state for alternative networks. In some embodiments, the network service usage control policy is based on specific network selection or preference policies for a given network service activity or set of network service activities.

[00257] In some embodiments, associating the network service usage activity with a network service usage control policy or a network service usage notification policy, includes dynamically associating based on one or more of the following: a network busy state, a time of day, a user input/preference, an associated service plan (e.g., 25 MB data plan, 5G data plan, or an unlimited data plan or other data/service usage plan), an application behavior, a messaging layer behavior, a power state of device, a device usage state, a time based criteria, availability of alternative networks, and a set of policy rules for selecting and/or controlling traffic on one or more of the alternative networks.

[00258] In some embodiments, a network service usage control policy (e.g., a network capacity controlled services policy) includes defining the network service usage control policy for one or more service plans, defining network access policy rules for one or more devices or groups of devices in a single or multi-user scenarios such as family and enterprise plans, defining network access policy rules for one or more users or groups of users, allowing or disallowing network

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access events or attempts, modulating the number of network access events or attempts, aggregating network access events or attempts into a group of access events or attempts, time windowing network access events or attempts, time windowing network access events or attempts based on the application or function being served by the network access events or attempts, time windowing network access events or attempts to pre-determined time windows, time windowing network access events or attempts to time windows where a measure of network busy state is within a range, assigning the allowable types of access events or attempts, assigning the allowable functions or applications that are allowed network access events or attempts, assigning the priority of one or more network access events or attempts, defining the allowable duration of network access events or attempts, defining the allowable speed of network access events or attempts, defining the allowable network destinations for network access events or attempts, defining the allowable applications for network access events or attempts, defining the QoS rules for one or more network access events or attempts, defining or setting access policy rules for one or more applications, defining or setting access policy rules for one or more network destinations, defining or setting access policy rules for one or more devices, defining or setting access policy rules for one or more network services, defining or setting access policy rules for one or more traffic types, defining or setting access policy rules for one or more QoS classes, and defining or setting access policy rules based on any combination of device, application, network destination, network service, traffic type, QoS class, and/or other criteria/measures.

[00259] In some embodiments, a network service usage control policy (e.g., a network capacity controlled services policy) includes a traffic control policy. In some embodiments, the traffic control policy includes a traffic control setting. In some embodiments, the traffic control policy includes a traffic control/tier, and the traffic control/tier includes the traffic control setting. In some embodiments, the traffic control policy includes one or more of the following: block/allow

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settings, throttle settings, adaptive throttle settings, QoS class settings including packet error rate, jitter and delay settings, queue settings, and tag settings (e.g., for packet tagging certain traffic flows). In some embodiments, QoS class settings, include one or more of the following: throttle level, priority queuing relative to other device traffic, time window parameters, and hold or delay while accumulating or aggregating traffic into a larger stream/burst/packet/group of packets. In some embodiments, the traffic control policy includes filters implemented as indexes into different lists of policy settings (e.g., using cascade filtering techniques), in which the policy filters include one or more of the following: a network, a service plan, an application, a time of day, and a network busy state. For example, a two dimensional traffic control implementation scheme can be provided using a network busy state and/or a time of day as an index into a traffic control setting (e.g., a certain application's priority level can be increased or decreased based on a network busy state and/or time of day). In some embodiments, the traffic control policy is used for selecting the network from a list of available networks, blocking or reducing access until a connection is made to an alternative network, and/or modifying or replacing a network stack interface of the device to provide for intercept or discontinuance of network socket interface messages to applications or OS functions.

[00260] In some embodiments, a traffic control setting is selected based on the network service usage control policy. In some embodiments, the traffic control setting is implemented on the device based on the network service usage control policy. In some embodiments, the implemented traffic control setting controls traffic/traffic flows of a network capacity controlled service. In some embodiments, the traffic control setting is selected based on one or more of the following: a time of day, a day of week, a special time/date (e.g., a holiday or a network maintenance time/date), a network busy state, a priority level associated with the network service usage activity, a QoS class associated with the network service usage activity (e.g., emergency traffic), which network the network service activity is gaining access from, which

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networks are available, which network the network service activity is connected to, which base station or communication channel the network service activity is connected to, and a network dependent set of traffic control policies that can vary depending on which network the service activity is gaining access from (e.g., and/or various other criteria/measures as described herein). In some embodiments, the traffic control setting includes one or more of the following: allow/block, delay, throttle, QoS class implementation, queue, tag, generate a user notification, random back off, clear to send received from a network element, hold for scheduled transmission time slot, selecting the network from the available networks, and blocking or reducing access until a connection is made to an alternative network. In some embodiments, the traffic control setting is selected based on a network capacity controlled services priority state of the network service usage activity and a network busy state. In some embodiments, the traffic control setting is selected based on a network capacity controlled services priority state of the network service usage activity and a network busy state and is global (e.g., the same) for all network capacity controlled services activities or varies based on a network service usage activity priority, user preferences or option selection, an application, a time based criteria, a service plan, a network the device or service activity is gaining access from, a redetermination of a network congestion state after adapting to a previously determined network busy state, and/or other criteria/measures as described herein.

[00261] In some embodiments, network capacity controlled services traffic (e.g., traffic flows) is differentially controlled for protecting network capacity. For example, various software updates for an OS and one or more applications on the device can be differentially controlled using the various techniques described herein. As another example, security/antimalware software (e.g., antivirus, firewall, content protection, intrusion detection/prevention, and/or other security/antimalware software) can be differentially controlled using the various techniques described herein. As yet another example, network backups/imaging, content downloads (e.g.,

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exceeding a threshold individually and/or in aggregate, such as for image, music, video, eBook content, email attachments, content/media subscriptions, RSS/news feeds, text/image/video chat, software updates, and/or other content downloads) can be differentially controlled using the various techniques described herein.

[00262] For example, using the DAS for protecting network capacity techniques described herein an adaptive policy control for protecting network capacity can be provided. A network capacity controlled services list can be generated, updated, reported, and/or received by the device and stored on the device (e.g., the list can be based on adapted to the service plan associated with the device). If a monitored network service usage activity is not on the list, then the device can report the monitored network service usage activity to a network element (e.g., for a monitored network service usage activity that also exceeds a certain threshold, based on a network busy state, based on a time based criteria, and/or other criteria/measure). As an example, monitored network service usage activity can be reported if/when the monitored network service usage activity exceeds a data usage threshold (e.g., 50 MB total data usage per day, a socket opening frequency/rate, velocity of data usage at an instant in time, or more complicated thresholds over time, over peak periods, by content and time, by various other parameters/thresholds). As another example, the monitored network service usage activity can be reported based on testing of the network service usage behavior and/or application developer characterization input. The report can include information that identifies the network service usage activity and various network service usage parameters.

[00263] In some embodiments, a notification setting is selected based on a service usage notification policy. In some embodiments, a notification setting includes a user notification setting (e.g., various user notifications settings as described above with respect to Figure 18).

[00264] In some embodiments, classifying the network service usage activity further includes classifying the network service usage activity (e.g., using a usage threshold filter and/or

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cascading filter techniques) into one or more of a plurality of classification categories for differential network access control for protecting network capacity. In some embodiments, classifying the network service usage activity, further includes classifying the network service usage activity into one or more network capacity controlled services in which the network capacity controlled services include one or more of the following: applications requiring data network access, application software updates, applications requiring network information, applications requiring GPS or physical location, operating system software updates, security software updates, network based backups, email downloads, and a set of activities configured as network capacity controlled service activities based on a service profile and/or user input (e.g., and/or various other types of network service usage activities as described herein and as will now be apparent to one of ordinary skill in the art). For example, network capacity controlled services can include software updates for OS and applications, OS background network accesses, cloud synchronization services, RSS feeds & other background information feeds, browser/application/device behavior reporting, background email downloads, content subscription service updates and downloads (e.g., music/video downloads, news feeds), text/voice/video chat clients, security updates (e.g., antimalware updates), peer to peer networking application updates, inefficient network access sequences during frequent power cycling or power save state cycling, large downloads or other high bandwidth accesses, and greedy application programs that constantly/repeatedly access the network with small transmissions or requests for information. In some embodiments, a network capacity controlled services list is static, adaptive, generated using a service processor, received from a network element (e.g., service controller or service cloud), received from a network element (e.g., service controller or service cloud) and based at least in part on device activity reports received from the service processor, based on criteria set by pre-testing, report of behavior characterization performed by the application developer, and/or based at least in part on user

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input. In some embodiments, the network capacity controlled services list includes one or more network service activity background (QoS) classes.

[00265] In some embodiments, classifying the network service usage activity further includes classifying the network service usage activity based on one or more of the following: application or widget (e.g., Outlook, Skype, iTunes, Android email, weather channel weather widget, iCal, Firefox Browser, etc), application type (e.g., user application, system application/utility/function/process, OS application/utility/function/process, email, browser, widget, malware (such as a virus or suspicious process), RSS feed, device synchronization service, download application, network backup/imaging application, voice/video chat, peer to peer content application or other peer to peer application, streaming media feed or broadcast reception/transmission application, network meeting application, chat application or session, and/or any other application or process identification and categorization), OS/system function (e.g., any system application/utility/function/process and/or OS application/utility/function/process, such as a OS update and/or OS error reporting), modem function, network communication function (e.g., network discovery or signaling, EtherType messages, connection flow/stream/session set up or tear down, network authentication or authorization sequences, IP address acquisition, and DNS services), URL and/or domain, destination/source IP address, protocol, traffic type, socket (e.g., IP address, protocol, and/or port), socket address/label/identifier (e.g., port address/port number), content type (e.g., email downloads, email text, video, music, eBooks, widget update streams, and download streams), port (e.g., port number), QoS classification level, time of day, on peak or off peak, network time, network busy state, access network selected, service plan selected, user preferences, device credentials, user credentials, and/or status, modem power cycling or power state changes, modem authentication processes, modem link set up or tear down, modem management communications, modem software or firmware updates, modem power management

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information, device power state, and modem power state. In some embodiments, classifying the network service usage activity further includes associating the classified network service usage activity with an ID (e.g., an application ID, which can be, for example, a unique number, name, and/or signature). In some embodiments, classifying the network service usage activity further includes classifying the network service usage activity using a plurality of classification parameters, including one or more of the following: application ID, remote IP (e.g., URL, domain, and/or IP address), remote port, protocol, content type, a filter action class (e.g., network busy state class, QoS class, time of day, network busy state, and/or other criteria/measures), and access network selected. In some embodiments, classifying the network service usage activity further includes using a combination of parameters as discussed above to determine the classification of the network service usage activity.

[00266] In some embodiments, classifying the network service usage activity further includes classifying the network service usage activity as a network capacity controlled service, a non-network capacity controlled service, a blocked or disallowed service, and/or a not yet classified/identified service (e.g., unknown/yet to be determined classification or pending classification). In some embodiments, an application connection, OS connection, and/or other service activity is classified as a network capacity controlled service activity when the device has been inactive (e.g., or in a power save state) for a period of time (e.g., when the user has not interacted with it for a period of time, when it has not displayed user notification policy, and/or a user input has not been received for a period of time, and/or when a power save state is entered). In some embodiments, an application connection, OS connection, and/or other service activity is classified as a network capacity controlled service activity when the monitored network service usage activity exceeds a data usage threshold for more than one application connection, OS connection, and/or other service activity (e.g., aggregated data usage exceeds the data usage threshold); or for a specific application connection. In some embodiments, an

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application connection, OS connection, and/or other service activity is classified as a network capacity controlled service activity when the monitored network service usage activity exceeds a data usage threshold based on a predetermined list of one or more data usage limits, based on a list received from a network element, usage time limit (e.g., based on a period of time exceeding a usage limit), and/or based on some other usage related criteria/measures. In some embodiments, classifying the network service usage activity further includes classifying the network service usage activity as a network capacity controlled service based on a network peak time, a network busy state, or a network connection to the device falls below a certain performance level (e.g., higher/lower priorities assigned based on various such criteria/other input/factors).

[00267] In some embodiments, one or more of the network capacity controlled services are associated with a different network access policy set for one or more networks and/or one or more alternative networks. In some embodiments, one or more of the network capacity controlled services are associated with a different notification policy set for one or more networks and/or one or more alternative networks. In some embodiments, the network capacity controlled services list is stored on the device. In some embodiments, the network capacity controlled services list is received/periodically updated from a network element and stored on the device. In some embodiments, the network capacity controlled services list includes network capacity controlled services, non-network capacity controlled services (e.g., foreground services or services based on various possibly dynamic criteria are not classified as network capacity controlled services), and an unclassified set of services (e.g., grey list including one or more network service activities pending classification based on further analysis and/or input, such as from a network element, service provider, and/or user). In some embodiments, the network capacity controlled services list is based on one or more of the following: predefined/predesignated (e.g., network, service plan, pre-test and/or characterized by an

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application developer) criteria; device assisted/based monitoring (e.g., using a service processor); network based monitoring (e.g., using a DPI gateway); network assisted analysis (e.g., based on device reports of DAS activity analysis). For example, the device can report device monitored network service usage activities (e.g., all monitored network service usage activities or a subset based on configuration, threshold, service plan, network, and/or user input) to the network element. As another example, the network element can update the network capacity controlled services list and send the updated list to the device. As yet another example, the network element can perform a statistical analysis of network service activities across a plurality of devices based on the device based and/or network based network service usage activity monitoring/reporting. In some embodiments, a network service usage activity is determined to be an active application or process (e.g., based on a user interaction with the device and/or network service usage activity, such as a pop-up and/or other criteria/measures).

[00268] In some embodiments, implementing traffic control for network capacity controlled services is provided using various techniques. In some embodiments, the device includes a service processor agent or function to intercept, block, modify, remove or replace UI messages, notifications or other UI communications generated by a network service activity that whose network service usage is being controlled or managed (e.g., using various measurement points as shown in and described with respect to Figures 12 and 13). For example, this technique can be used to provide for an improved user experience (e.g., to prevent an application that is being controlled for protecting network capacity from generating repeated and/or confusing messages/alerts to the user). In some embodiments, a network stack interface of the device is replaced or modified to provide for intercept or discontinuance of network socket interface messages to applications or OS functions or other functions/software.

[00269] In some embodiments, implementing traffic control for network capacity controlled services using DAS techniques is provided using various techniques in which the network

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service usage activity is unaware of network capacity control (e.g., does not support an API or other interface for implementing network capacity control). For example, network service application messaging interface based techniques can be used to implement traffic control. Example network service application messaging interfaces include the following: network stack API, network communication stream/flow interface, network stack API messages, EtherType messages, ARP messages, and/or other messaging or other or similar techniques as will now be apparent to one of ordinary skill in the art in view of the various embodiments described herein. In some embodiments, network service usage activity control policies or network service activity messages are selected based on the set of traffic control policies or service activity messages that result in reduced or modified user notification by the service activity due to network capacity controlled service policies applied to the network service activity. In some embodiments, network service usage activity control policies or network service activity messages are selected based on the set of traffic control policies or service activity messages that result in reduced disruption of device operation due to network capacity controlled service activity policies applied to the network service activity. In some embodiments, network service usage activity control policies or network service activity messages are selected based on the set of traffic control policies or service activity messages that result in reduced disruption of network service activity operation due to network capacity controlled service activity policies applied to the network service activity. In some embodiments, implementing traffic control for network capacity controlled services is provided by intercepting opens/connects/writes. In some embodiments, implementing traffic control for network capacity controlled services is provided by intercepting stack API level or application messaging layer requests (e.g., socket open/send requests). For example, an intercepted request can be copied (e.g., to memory) and queued (e.g., delayed or throttled) or dropped (e.g., blocked). As another example, an intercepted request can be copied into memory and then a portion of the transmission can be retrieved from memory and reinjected (e.g., throttled). As yet another example, intercepting messaging

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transmissions can be parsed inline and allowed to transmit (e.g., allowed), and the transmission or a portion of the transmission can be copied to memory for classifying the traffic flow. In some embodiments, implementing traffic control for network capacity controlled services is provided by intercepting or controlling or modulating UI notifications. In some embodiments, implementing traffic control for network capacity controlled services is provided by killing or suspending the network service activity. In some embodiments, implementing traffic control for network capacity controlled services is provided by deprioritizing the process(es) associated with the service activity (e.g., CPU scheduling deprioritization).

[00270] In some embodiments, implementing traffic control for network capacity controlled services using DAS techniques for network service usage activities that are unaware of network capacity control is provided by emulating network API messaging (e.g., effectively providing a spoofed or emulated network API). For example, an emulated network API can intercept, modify, block, remove, and/or replace network socket application interface messages and/or EtherType messages (e.g., EWOULDBLOCK, ENETDOWN, ENETUNREACH, EHOSTDOWN, EHOSTUNREACH, EALRADY, EINPROGRESS, ECONNREFUSED, EINPROGRESS, ETIMEDOUT, and/other such messages). As another example, an emulated network API can modify, swap, and/or inject network socket application interface messages (socket(), connect(), read(), write(), close(), and other such messages) that provide for control or management of network service activity service usage behavior. As yet another example, before a connection is allowed to be opened (e.g., before a socket is opened), transmission, or a flow/stream is initiated, it is blocked and a message is sent back to the application (e.g., a reset message in response to a sync request or another message that the application will understand and can interpret to indicate that the network access attempt was not allowed/blocked, that the network is not available, and/or to try again later for the requested network access). As yet another example, the socket can be allowed to open but after some point in time (e.g., based on network

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service usage, network busy state, time based criteria, and/or some other criteria/measure), the stream is blocked or the socket is terminated. As yet another example, time window based traffic control techniques can be implemented (e.g., during non-peak, not network busy state times), such as by allowing network access for a period of time, blocking for a period of time, and then repeating to thereby effectively spread the network access out either randomly or deterministically. Using these techniques, an application that is unaware of network capacity control based traffic control can send and receive standard messaging, and the device can implement traffic controls based on the network capacity control policy using messaging that the network service usage activity (e.g., application or OS or software function) can understand and will respond to in a typically predictable manner as would now be apparent to one of ordinary skill in the art.

[00271] In some embodiments, implementing traffic control for network capacity controlled services using DAS techniques is provided using various techniques in which the network service usage activity is aware of network capacity control (e.g., the network service usage activity supports an API or other interface for implementing network capacity control). For example, a network access API as described herein can be used to implement traffic control for network capacity controlled services. In some embodiments, the API facilitates communication of one or more of the following: network access conditions, network busy state or network availability state of one or more networks or alternative networks, one or more network capacity controlled service policies (e.g., the network service can be of a current network access setting, such as allow/block, throttle, queue, scheduled time/time slot, and/or defer, which can be based on, for example, a current network, a current network busy state, a time based criteria, a service plan, a network service classification, and/or other criteria/measures), a network access request from a network service activity, a query/polled request to a network service activity, a network access grant to a network service activity (e.g., including a priority setting and/or network

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capacity controlled service classification, a scheduled time/time slot, an alternative network, and/or other criteria/measures), a network busy state or a network availability state or a network QoS state.

[00272] In some embodiments, implementing traffic control for network capacity controlled services using network assisted/based techniques is provided using various techniques in which the network service usage activity is unaware of network capacity control (e.g., does not support an API or other interface for implementing network capacity control). In some embodiments, DPI based techniques are used to control network capacity controlled services (e.g., to block or throttle network capacity controlled services at a DPI gateway).

[00273] In some embodiments, implementing traffic control for network capacity controlled services using network assisted/based techniques is provided using various techniques in which the network service usage activity is aware of network capacity control (e.g., does support an API or other interface for implementing network capacity control). In some embodiments, the application/messaging layer (e.g., a network API as described herein) is used to communicate with a network service activity to provide associated network capacity controlled service classifications and/or priorities, network busy state information or network availability of one or more networks or alternative networks, a network access request and response, and/other criteria/measures as similarly described herein.

[00274] In some embodiments, DAS for protecting network capacity includes implementing a service plan for differential charging based on network service usage activities (e.g., including network capacity controlled services). In some embodiments, the service plan includes differential charging for network capacity controlled services. In some embodiments, the service plan includes a cap network service usage for network capacity controlled services. In some embodiments, the service plan includes a notification when the cap is exceeded. In some embodiments, the service plan includes overage charges when the cap is exceeded. In some

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embodiments, the service plan includes modifying charging based on user input (e.g., user override selection as described herein, in which for example, overage charges are different for network capacity controlled services and/or based on priority levels and/or based on the current access network). In some embodiments, the service plan includes time based criteria restrictions for network capacity controlled services (e.g., time of day restrictions with or without override options). In some embodiments, the service plan includes network busy state based criteria restrictions for network capacity controlled services (e.g., with or without override options). In some embodiments, the service plan provides for network service activity controls to be overridden (e.g., one time, time window, usage amount, or permanent) (e.g., differentially charge for override, differentially cap for override, override with action based UI notification option, and/or override with UI setting). In some embodiments, the service plan includes family plan or multi-user plan (e.g., different network capacity controlled service settings for different users). In some embodiments, the service plan includes multi-device plan (e.g., different network capacity controlled service settings for different devices, such as smart phone v. laptop v. net book v. eBook). In some embodiments, the service plan includes free network capacity controlled service usage for certain times of day, network busy state(s), and/or other criteria/measures. In some embodiments, the service plan includes network dependent charging for network capacity controlled services. In some embodiments, the service plan includes network preference/prioritization for network capacity controlled services. In some embodiments, the service plan includes arbitration billing to bill a carrier partner or sponsored service partner for the access provided to a destination, application, or other network capacity controlled service. In some embodiments, the service plan includes arbitration billing to bill an application developer for the access provided to a destination, application or other network capacity controlled service.

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[00275] In some application scenarios, excess network capacity demand can be caused by modem power state changes on the device. For example, when an application or OS function attempts to connect to the network for any reason when the modem is in a power save state wherein the modem is not connected to the network, it can cause the modem to change power save state, reconnect to the network, and then initiate the application network connection. In some cases, this can also cause the network to re-initiate a modem connection session (e.g., PPP session) which in addition to the network capacity consumed by the basic modem connection also consumes network resources for establishing the PPP session. Accordingly, in some embodiments, network service usage activity control policies are implemented that limit or control the ability of applications, OS functions, and/or other network service usage activities (e.g., network capacity controlled services) from changing the modem power control state or network connection state. In some embodiments, a service usage activity is prevented or limited from awakening the modem, changing the power state of the modem, or causing the modem to connect to the network until a given time window is reached. In some embodiments, the frequency a service usage activity is allowed to awakening the modem, changing the power state of the modem, or causing the modem is limited. In some embodiments, a network service usage activity is prevented from awakening the modem, changing the power state of the modem, or causing the modem until a time delay has passed. In some embodiments, a network service usage activity is prevented from awakening the modem, changing the power state of the modem, or causing the modem until multiple network service usage activities require such changes in modem state, or until network service usage activity is aggregated to increase network capacity and/or network resource utilization efficiency. In some embodiments, limiting the ability of a network service usage activity to change the power state of a modem includes not allowing the activity to power the modem off, place the modem in sleep mode, or disconnect the modem from the network. In some embodiments, these limitations on network service usage activity to awaken the modem, change the power state of the modem, or cause the

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modem to connect to a network are set by a central network function (e.g., a service controller or other network element/function) policy communication to the modem. In some embodiments, these power control state policies are updated by the central network function.

[00276] FIG. 24 depicts a diagram of a network capacity protection system 2400 utilizing device-assisted services (DAS). The system 2400 includes wireless devices 2402-1 to 2402-N (referred to collectively as the wireless devices 2402), wireless networks 2404-1 to 2404-N (referred to collectively as the wireless networks 2404), a network traffic analysis engine 2406, a network service usage classification engine 2408, and a differential network access control engine 2410.

[00277] The wireless devices 2402 will at a minimum include a processor, memory (though the memory could be implemented in the processor), a radio, and a radio interface (though the radio interface could be implemented as "part of" the radio). In order to make the wireless devices 2402 useful, they will typically have at least one input device and at least one output device, including input and output interfaces, if applicable.

[00278] The wireless devices 2402 can be implemented as stations. A station, as used herein, may be referred to as a device with a media access control (MAC) address and a physical layer (PHY) interface to the wireless medium that comply with, e.g., the IEEE 802.11 standard. A station can be described as "IEEE 802.11-compliant" when compliance with the IEEE 802.11 standard is intended to be explicit. (I.e, a device acts as described in at least a portion of the IEEE 802.11 standard.) One of ordinary skill in the relevant art would understand what the IEEE 802.11 standard comprises today and that the IEEE 802.11 standard can change over time, and would be expected to apply techniques described in this paper in compliance with future versions of the IEEE 802.11 standard if an applicable change is made. IEEE Std 802.11™-2007 (Revision of IEEE Std 802.11-1999) is incorporated by reference. IEEE

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802.11k-2008, IEEE 802.11n-2009, IEEE 802.11p-2010, IEEE 802.11r-2008, IEEE 802.11w-2009, and IEEE 802.11y-2008 are also incorporated by reference.

[00279] In alternative embodiments, one or more of the wireless devices 2402 may comply with some other standard or no standard at all, and may have different interfaces to a wireless or other medium. It should be noted that not all standards refer to wireless devices as "stations," but where the term is used in this paper, it should be understood that an analogous unit will be present on all applicable wireless networks. Thus, use of the term "station" should not be construed as limiting the scope of an embodiment that describes wireless devices as stations to a standard that explicitly uses the term, unless such a limitation is appropriate in the context of the discussion.

[00280] The wireless networks 2404 will typically include an internetworking unit (IWU) that interconnects wireless devices on the relevant one of the wireless networks 2404 with another network, such as a wired LAN. The IWU is sometimes referred to as a wireless access point (WAP). In the IEEE 802.11 standard, a WAP is also defined as a station. Thus, a station can be a non-WAP station or a WAP station. In a cellular network, the WAP is often referred to as a base station.

[00281] The wireless networks 2404 can be implemented using any applicable technology, which can differ by network type or in other ways. The wireless networks 2404 can be of any appropriate size (e.g., metropolitan area network (MAN), personal area network (PAN), etc.). Broadband wireless MANs may or may not be compliant with IEEE 802.16, which is incorporated by reference. Wireless PANs may or may not be compliant with IEEE 802.15, which is incorporated by reference. The wireless networks 2404 can be identifiable by network type (e.g., 2G, 3G, WiFi), service provider, WAP/base station identifier (e.g., WiFi SSID, base station and sector ID), geographic location, or other identification criteria.

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[00282] The wireless networks 2404 may or may not be coupled together via an intermediate network. The intermediate network can include practically any type of communications network, such as, by way of example but not limitation, the Internet, a public switched telephone network (PSTN), or an infrastructure network (e.g., private LAN). The term "Internet" as used herein refers to a network of networks which uses certain protocols, such as the TCP/IP protocol, and possibly other protocols such as the hypertext transfer protocol (HTTP) for hypertext markup language (HTML) documents that make up the World Wide Web (the web).

[00283] In the example of FIG. 24, the network traffic analysis engine 2406 is coupled to the wireless device 2402-1. In a specific implementation, the network traffic analysis engine 2406 is implemented on a server and is coupled to the wireless device 2402-1 through the Internet. However, at least a portion of the network traffic analysis engine 2406 can alternatively be implemented on the wireless device 2402-1, with or without a connection to a server that includes another portion (e.g., a server portion) of the network traffic analysis engine 2406.

[00284] As used in this paper, an engine includes a dedicated or shared processor and, typically, firmware or software modules that are executed by the processor. Depending upon implementation-specific or other considerations, an engine can be centralized or its functionality distributed. An engine can include special purpose hardware, firmware, or software embodied in a computer-readable medium for execution by the processor. As used in this paper, a computer-readable medium is intended to include all mediums that are statutory (e.g., in the United States, under 35 U.S.C. 101), and to specifically exclude all mediums that are non-statutory in nature to the extent that the exclusion is necessary for a claim that includes the computer-readable medium to be valid. Known statutory computer-readable mediums include hardware (e.g., registers, random access memory (RAM), non-volatile (NV) storage, to name a few), but may or may not be limited to hardware.

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[00285] The network traffic analysis engine 2406 analyzes a subset of traffic between the wireless device 2402-1 and a source or destination. The analyzed traffic may or may not be limited to a network segment, such as between a cellular phone and a base station. The network traffic analysis engine 2406 can analyze traffic for a subset of devices in the wireless network 2404-1 service area. The analyzed traffic may or may not be limited to subscribers.

[00286] In the example of FIG. 24, the network service usage classification engine 2408 is coupled to the network traffic analysis engine 2406. In a specific implementation, the network service usage classification engine 2408 is implemented on a server, which may or may not be the same server on which the network traffic analysis engine 2406 is implemented. However, at least a portion of the network service usage classification engine 2408 can alternatively be implemented on the wireless device 2402-1, with or without a connection to a server that includes another portion (e.g., a server portion) of the network service usage classification engine 2408.

[00287] The network service usage classification engine 2408 can categorize traffic based upon the service class (e.g., conversational, streaming, interactive, background, or some other service class) requested or needed for a service. The categorization facilitates identification of a snapshot of service class use at a given time, and, in some implementations, predictions of future service class use based upon the snapshot (e.g., making an assumption that future service class use is at least somewhat related to service class use of the snapshot), historical data analysis (e.g., service class usage at certain times of day/days of the week), identification of trends, or the use of some other predictive technology.

[00288] In the example of FIG. 24, the differential network access control engine 2410 is coupled to the network service usage classification engine 2408. In a specific implementation, the network access control engine 2410 is implemented on a server, which may or may not be the same server on which the network traffic analysis engine 2406 and/or the network service

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usage classification engine 2408 are implemented. However, at least a portion of the network access control engine 2410 can alternatively be implemented on the wireless device 2402-1, with or without a connection to a server that includes another portion (e.g., a server portion) of the network access control engine 2410.

[00289] The differential network access control engine 2410 uses the predicted service class use from the network service usage classification engine 2408 to dynamically adjust resources allocated to service classes. For example, the differential network access control engine 2410 can perform a service class availability assessment to determine whether service class capacity for service classes on a channel are sufficient for predicted service usage, and either add resources if service class availability is insufficient for predicted service usage or reduce resources if service class availability is more than sufficient for predicted service usage.

[00290] Alternatively, the differential network access control engine 2410 can instead or in addition control applications on devices such that the applications change service usage levels or delay consumption of wireless resources (e.g., by delaying software updates until more resources become available). In an embodiment, a service usage control policy is implemented on the wireless device 2402-1. This may be necessary in some cases to ensure the wireless device 2402-1 can adjust application settings that are normally fixed, optimize network service usage activation based on network state (e.g., if the network is busy), control over-the-air software updates, throttle resource-hungry applications, manage network service usage requests from repeated power down modes, keep PPP sessions active, or otherwise facilitate dynamic service class adjustments or other device behavior.

[00291] In a specific implementation, subscribers can be incented to change service classes by, for example, charging more for higher service classes. The differential network access control engine 2410 can send a notification of differential charges for service classes. Alternatively, the charges could be implemented via subscriber account settings or preferences.

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[00292] In the example of FIG. 24, in operation, the network traffic analysis engine 2406 analyzes traffic from one or more devices, including the wireless device 2402-1. The network service usage classification engine 2408 predicts the amount of resources needed for service classes, and the differential network access control engine 2410 dynamically allocates resources on an as-needed basis to adjust the service classes that are available to the one or more devices and/or adjusts device behavior for a subset of the one or more devices or instructs a subset of the one or more devices to adjust device behavior such that the device consumes service class-specific resources in accordance with an access control policy appropriate for the resources allocated to the applicable service classes.

[00293] FIG. 25 depicts a diagram an example of a differential access control notification system 2500. In the example of FIG. 25, the system 2500 includes a network service usage analysis engine 2502, a network service usage classification engine 2504, a differential network access control engine 2506, a network service usage control policy datastore 2508, a network service usage notification engine 2510, a user interface 2512, and a service plan update engine 2514.

[00294] In the example of FIG. 25, the network service usage analysis engine 2502 analyzes network service usage activity. The analysis can include an analysis of traffic sent to or from a device, an application running on a device, a request for services, or other analysis that is informative of past, current, or future network service usage. For example, the network service usage activity can include an attempt to download or load an application onto the communications device, an attempt to execute the network service activity or the network service usage activity attempts to access the network, meeting or exceeding a network service usage threshold, satisfying a network service usage pre-condition, an update to a network capacity controlled service activity classification list, an update to a network capacity controlled services policy, and a network message is sent to the device triggering the notification, to name

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several by way of example. The analysis can occur on a non-WAP station, a WAP or base station, a server, or partly on one of these devices or some other device.

[00295] In the example of FIG. 25, the network service usage classification engine 2504 is coupled to the network service usage analysis engine 2502. The network service usage classification engine 2504 classifies the analyzed network service usage into one or more service classes. The classification can occur on a non-WAP station, a WAP or base station, a server, or partly on one of these devices or some other device.

[00296] In the example of FIG. 25, the differential network access control engine 2506 is coupled to the network service usage classification engine 2504. The differential network access control engine 2506 determines network access parameters using the service classes associated with the network service usage activity and network service usage control policies stored in the network service usage control policy datastore 2508. The determination can occur on a non-WAP station, a WAP or base station, a server, or partly on one of these devices or some other device. The network service usage control policy datastore 2508 can be implemented on a wireless device, but it is also possible to maintain the datastore remotely relative to the device (e.g., on a server). In a specific implementation, even if the network service usage control policy datastore 2508 is maintained remotely relative to the wireless device, the wireless device will still have a network service usage control policy implemented.

[00297] A datastore can be implemented, for example, as software embodied in a physical computer-readable medium on a general- or specific-purpose machine, in firmware, in hardware, in a combination thereof, or in an applicable known or convenient device or system. Datastores in this paper are intended to include any organization of data, including tables, comma-separated values (CSV) files, traditional databases (e.g., SQL), or other applicable known or convenient organizational formats. Datastore-associated components, such as database interfaces, can be considered "part of" a datastore, part of some other system

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component, or a combination thereof, though the physical location and other characteristics of datastore-associated components is not critical for an understanding of the techniques described in this paper.

[00298] Datastores can include data structures. As used in this paper, a data structure is associated with a particular way of storing and organizing data in a computer so that it can be used efficiently within a given context. Data structures are generally based on the ability of a computer to fetch and store data at any place in its memory, specified by an address, a bit string that can be itself stored in memory and manipulated by the program. Thus some data structures are based on computing the addresses of data items with arithmetic operations; while other data structures are based on storing addresses of data items within the structure itself. Many data structures use both principles, sometimes combined in non-trivial ways. The implementation of a data structure usually entails writing a set of procedures that create and manipulate instances of that structure.

[00299] In the example of FIG. 25, the network service usage notification engine 2510 is coupled to the differential network access control engine 2506 and the network service usage control policy datastore 2508. The network service usage notification engine 2510 is configured to generate a notification sufficient to indicate relevant access control information. For example, the notification could indicate what network service usage activities are network capacity controlled services, the type of network service policy in effect for one or more network capacity controlled services, that a network service activity belongs to a network capacity controlled services classification, that a service activity that is classified as network capacity controlled services classification can have the classification changed, that if the service class is changed for the network service activity that the associated network service usage charges will change, a service plan upgrade/downgrade offer, and an offer for a service plan that provides discounts

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and/or incentives for responding to one or more user notifications for protecting network capacity, to name several by way of example.

[00300] The notification may or may not also include a user preference selection. For example, the notification could include a provision to associate a network service usage control policy with the network service usage activity, an over-ride option for selecting the network service usage control policy, a modify option to select the service usage control policy, and a select option to select a new service plan, to name several by way of example. Other examples include network service usage activity information for one or more network capacity controlled services, predicted network service usage activity information for one or more network capacity controlled services, an option for obtaining more information about the network service usage of the network service usage activity, a message that the network service usage activity may result in network service usage that exceeds a threshold for a service plan associated with the device, an option to review or select an alternative service plan, an acknowledgement request, and an option to submit the acknowledgement request, to name several more by way of example.

[00301] In the example of FIG. 25, the user interface 2512 is coupled to the network service usage notification engine 2510. It may be noted that notifications can be disposed of by consulting user preferences (e.g., when a user indicates that maximum performance or minimum cost should be automatically selected). However, unless subscriber preferences are set as a default, a user is likely to have notifications displayed in the UI 2512. The notification can be in an applicable known or convenient form, such as SMS, email, a popup window, or the like. To the extent a response is permitted, a user can input a response to the notification using an input device (not shown).

[00302] In the example of FIG. 25, the service plan update engine 2514 is coupled to the UI 2512. As was previously mentioned, the UI can be bypassed because of, e.g., user preferences that are determinative of a selection provided in the notification. Regardless of how the

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selection associated with the notification is made, the service plan update engine 2514 can update a service plan, network service usage control policy, user preferences, or other parameters in accordance with the selection. The service plan update engine 2514 can also update accounting if costs accrue.

[00303] FIG. 26 depicts an example of a computer system 2600 on which techniques described in this paper can be implemented. The computer system 2600 may be a conventional computer system that can be used as a client computer system, such as a wireless client or a workstation, or a server computer system. The computer system 2600 includes a computer 2602, I/O devices 2604, and a display device 2606. The computer 2602 includes a processor 2608, a communications interface 2610, memory 2612, display controller 2614, non-volatile storage 2616, and I/O controller 2618. The computer 2602 may be coupled to or include the I/O devices 2604 and display device 2606.

[00304] The computer 2602 interfaces to external systems through the communications interface 2610, which may include a modem or network interface. It will be appreciated that the communications interface 2610 can be considered to be part of the computer system 2600 or a part of the computer 2602. The communications interface 2610 can be an analog modem, ISDN modem, cable modem, token ring interface, satellite transmission interface (e.g. "direct PC"), or other interfaces for coupling a computer system to other computer systems.

[00305] The processor 2608 may be, for example, a conventional microprocessor such as an Intel Pentium microprocessor or Motorola power PC microprocessor. The memory 2612 is coupled to the processor 2608 by a bus 2670. The memory 2612 can be Dynamic Random Access Memory (DRAM) and can also include Static RAM (SRAM). The bus 2670 couples the processor 2608 to the memory 2612, also to the non-volatile storage 2616, to the display controller 2614, and to the I/O controller 2618.

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[00306] The I/O devices 2604 can include a keyboard, disk drives, printers, a scanner, and other input and output devices, including a mouse or other pointing device. The display controller 2614 may control in the conventional manner a display on the display device 2606, which can be, for example, a cathode ray tube (CRT) or liquid crystal display (LCD). The display controller 2614 and the I/O controller 2618 can be implemented with conventional well known technology.

[00307] The non-volatile storage 2616 is often a magnetic hard disk, an optical disk, or another form of storage for large amounts of data. Some of this data is often written, by a direct memory access process, into memory 2612 during execution of software in the computer 2602. One of skill in the art will immediately recognize that the terms "machine-readable medium" or "computer-readable medium" includes any type of storage device that is accessible by the processor 2608 and also encompasses a carrier wave that encodes a data signal.

[00308] The computer system 2600 is one example of many possible computer systems which have different architectures. For example, personal computers based on an Intel microprocessor often have multiple buses, one of which can be an I/O bus for the peripherals and one that directly connects the processor 2608 and the memory 2612 (often referred to as a memory bus). The buses are connected together through bridge components that perform any necessary translation due to differing bus protocols.

[00309] Network computers are another type of computer system that can be used in conjunction with the teachings provided herein. Network computers do not usually include a hard disk or other mass storage, and the executable programs are loaded from a network connection into the memory 2612 for execution by the processor 2608. A Web TV system, which is known in the art, is also considered to be a computer system, but it may lack some of the features shown in FIG. 26, such as certain input or output devices. A typical computer

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system will usually include at least a processor, memory, and a bus coupling the memory to the processor.

[00310] In addition, the computer system 2600 is controlled by operating system software which includes a file management system, such as a disk operating system, which is part of the operating system software. One example of operating system software with its associated file management system software is the family of operating systems known as Windows® from Microsoft Corporation of Redmond, Washington, and their associated file management systems. Another example of operating system software with its associated file management system software is the Linux operating system and its associated file management system. The file management system is typically stored in the non-volatile storage 2616 and causes the processor 2608 to execute the various acts required by the operating system to input and output data and to store data in memory, including storing files on the non-volatile storage 2616.

[00311] FIG. 27 depicts a diagram of an example of a system 2700 for application-specific differential network access control. In the example of FIG. 27, the system 2700 includes a network service consuming application 2702, a network service usage analysis engine 2704, an application behavior datastore 2706, a network service usage classification engine 7708, an application traffic prioritization engine 2710, a network service usage control policy datastore 2712, a differential network access control engine 2714, an application traffic cache 2716, an application traffic override engine 2718, and a network interface 2720. The system 2700 is intended to represent a specific implementation of techniques described previously in this paper for illustrative purposes. The techniques may be applicable to an applicable known or convenient (wired or wireless) device for which there is a motivation to control network service usage.

[00312] In the example of FIG. 27, the network service consuming application 2702 is a application that is implemented on a device. In an expected use, the application is a software

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application stored at least in part in memory on a wireless device, though kernel-level instructions could be implemented as firmware or even hardware. The application can be referred to as "running" on the device or as being "executed" by the device in accordance with known uses of those terms. Wireless media are known to have more bandwidth constraints, which is why a wireless device is an expected use, though the technique may be applicable to wired devices in certain situations.

[00313] In the example of FIG. 27, the network service usage analysis engine 2704 is coupled to the network service consuming application 2702. The network service usage analysis engine 2704 analyzes traffic from the network service consuming application 2702 and stores relevant data in the application behavior datastore 2706. The data can include all traffic that is sent by the application, or a subset of the traffic (e.g., that which has a certain QoS classification or priority, that which has high resource consumption due to frequent transmission from the application, that which is sent to a particular destination, etc.) The data can also include traffic that is received for the application. The application behavior datastore 2706 can alternatively or in addition be implemented as a traffic source/destination datastore, which can be valuable if differential access control is based upon the source and/or destination of traffic. The application behavior datastore 2706 includes data structures (e.g., records) representative of data that is organized with implementation-specific granularity. For example, the data structures could be representative of frames (L2), packets (L3), or messages. (It may be noted that the term "packets" is often used to mean collections of data that are not limited to L3.) The desired granularity may depend upon where the network service usage analysis engine 2704 is located. Whether the data structures are changed over time (e.g., to change data associated with a record), replaced as records age, or maintained as historical data is also implementation-specific.

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[00314] In the example of FIG. 27, the network service usage classification engine 2708 is coupled to the network service usage analysis engine 2704 and the application behavior datastore 2706. The network service usage classification engine 2708 can categorize the traffic stored in the application behavior datastore 2706 based on, e.g., network type, time of day, connection cost, whether home or roaming, network busy state, QoS, and whether the particular service usage activity is in foreground of user interaction or in the background of user interaction, or other characteristics that are obtained from network service usage analysis or through other means. Classification rules can include, for example, examining if one or more of the following has taken place within a specified period of time: user has interacted with the device, user has interacted with the service usage activity, user has picked up the device, service usage activity UI content is in the foreground of the device UI, audio or video information is being played by the service usage activity, a certain amount of data has been communicated by the service usage activity, service usage activity is or is not on a foreground or background service list. Rules that define which service usage activities to classify as, e.g., background service usage activities can be user-selected, set by a service provider, or through some other applicable means.

[00315] Advantageously, the network service usage analysis engine 2704 can examine a particular service usage activity and the network service usage classification engine 2708 can determine if the particular service usage activity fits a set of one or more classification rules that define the particular service usage activity as, e.g., a background service usage activity.

[00316] In the example of FIG. 27, the application traffic prioritization engine 2710 uses a policy stored in the network service usage control policy datastore 2712 to determine an appropriate prioritization for traffic to and/or from the network service consuming application 2702. Prioritization can enable the system 2700 to fine-tune the amount of network resources consumed by the network service consuming application 2702, or the rate of network resource

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consumption. The control policy can require applications to throttle network resource consumption, prohibit the use of network resources by certain applications, etc.

[00317] Advantageously, the application traffic prioritization engine 2710 can determine a particular service usage activity has a particular characteristic, such as being a background service usage activity. This can involve checking whether a condition is satisfied.

[00318] In the example of FIG. 27, the differential network access control engine 2714 is coupled to the application traffic prioritization engine 2710 and the network service usage control policy datastore 2712. The differential network access control engine 2714 causes the network service consuming application 2702 traffic to be queued in the application traffic cache 2716. (If no throttling is required to follow the control policy, of course, the traffic need not be cached anywhere other than is typical, such as in an output buffer.) The application traffic cache 2716 is intended to represent a cache that is implemented on top of an output buffer or other standard caching device, and is used by the differential network access control engine 2714 to facilitate control over "rogue" applications, applications having anomalous behavior, or applications that must otherwise be controlled to conform with the control policy.

[00319] Advantageously, the differential network access control engine can restrict network access of a particular service usage activity when a condition is satisfied, such as when the service usage activity is a background activity.

[00320] In the example of FIG. 27, the application traffic override engine 2718 is coupled to the differential network access control engine 2714 and the application traffic cache 2716. The application traffic override engine 2718 enables a user or device to deviate from the control policy. Such deviation can be prompted by, for example, an incentive offer or a notification of cost.

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[00321] In an illustrative example, the device 2700 blocks chatter for an application running in the background that is attempting to report device or user behavior. The application traffic prioritization engine 2710 determines that the chatter has zero priority, such that the network service consuming application 2702 is prevented from consuming any resources. The user can be sent a notification by the application traffic override engine 2718 that their control policy prohibits the application from consuming network resources, but that the user can opt to deviate from the control policy if they are willing to pay for the consumed resources. If the user is willing to pay for the resources, traffic can be sent at a certain rate from the application traffic cache 2716 through the network interface 2720, or perhaps sent without using the application traffic cache 2716.

[00322] As another illustrative example, the device 2700 could identify application traffic as a software update. The differential network access control engine 2714 may determine that software updates can be received at a throttled rate (perhaps even slower than the lowest QoS categorization). The application traffic override engine 2718 can receive an indication from the user, from user preferences, service provider settings, or the like that the updates can ignore the control policy for a particular application (or for all applications).

[00323] Advantageously, the control policy can set up a priority to communicate cached elements, set minimum update frequencies, provide control policy overrides (typically for payment), or the like to fine-tune differential network access control policies. This can enable the system 2700 to encourage certain behavior, such as sending low QoS traffic when it is cheaper (e.g., when the network does not have a busy state, at historically low-use times of day, when on a certain type of network, such as Wi-Fi, as opposed to another, such as cellular, etc.).

[00324] Some portions of the detailed description are presented in terms of algorithms and symbolic representations of operations on data bits within a computer memory. These algorithmic descriptions and representations are the means used by those skilled in the data

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processing arts to most effectively convey the substance of their work to others skilled in the art. An algorithm is here, and generally, conceived to be a self-consistent sequence of operations leading to a desired result. The operations are those requiring physical manipulations of physical quantities. Usually, though not necessarily, these quantities take the form of electrical or magnetic signals capable of being stored, transferred, combined, compared, and otherwise manipulated. It has proven convenient at times, principally for reasons of common usage, to refer to these signals as bits, values, elements, symbols, characters, terms, numbers, or the like.

[00325] It should be borne in mind, however, that all of these and similar terms are to be associated with the appropriate physical quantities and are merely convenient labels applied to these quantities. Unless specifically stated otherwise as apparent from the following discussion, it is appreciated that throughout the description, discussions utilizing terms such as "processing" or "computing" or "calculating" or "determining" or "displaying" or the like, refer to the action and processes of a computer system, or similar electronic computing device, that manipulates and transforms data represented as physical (electronic) quantities within the computer system's registers and memories into other data similarly represented as physical quantities within the computer system memories or registers or other such information storage, transmission or display devices.

[00326] The present invention, in some embodiments, also relates to apparatus for performing the operations herein. This apparatus may be specially constructed for the required purposes, or it may comprise a general purpose computer selectively activated or reconfigured by a computer program stored in the computer. Such a computer program may be stored in a computer readable storage medium, such as, but is not limited to, read-only memories (ROMs), random access memories (RAMs), EPROMs, EEPROMs, magnetic or optical cards, any type of

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disk including floppy disks, optical disks, CD-ROMs, and magnetic-optical disks, or any type of media suitable for storing electronic instructions, and each coupled to a computer system bus.

[00327] The algorithms and displays presented herein are not inherently related to any particular computer or other apparatus. Various general purpose systems may be used with programs in accordance with the teachings herein, or it may prove convenient to construct more specialized apparatus to perform the required method steps. The required structure for a variety of these systems will appear from the description below. In addition, the present invention is not described with reference to any particular programming language, and various embodiments may thus be implemented using a variety of programming languages.

[00328] Although the foregoing embodiments have been described in some detail for purposes of clarity of understanding, the invention is not limited to the details provided. There are many alternative ways of implementing the invention. The disclosed embodiments are illustrative and not restrictive.

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CLAIMS

We claim:

1. A system, comprising:

a processor of a communications device configured to:

monitor a network service usage activity of the communications device in network communication;

classify the network service usage activity for differential network access control for protecting network capacity; and

associate the network service usage activity with a service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity; and

a memory coupled to the processor and configured to provide the processor with instructions.

2. A system, comprising:

a processor of a communications device configured to:

monitor a network service usage activity of the communications device in wireless network communication;

report the network service usage activity of the communications device to a network element, wherein the network element performs statistical analysis of a plurality of reported network service usage activities across a plurality of devices;

receive a network service usage activity classification list from the network element; and

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classify the network service usage activity based on the network service usage activity classification list for differential network access control for protecting network capacity; and

a memory coupled to the processor and configured to provide the processor with instructions.

3. The system recited in claim 2, wherein the processor of the communications device is further configured to:

associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity.

4. The system recited in claim 2, wherein the processor of the communications device is further configured to:

associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity; and

differentially control the network service usage activity based on the network service usage activity classification list, wherein the network service usage activity is a network capacity controlled service.

5. A system, comprising:

a processor of a network device configured to:

receive a first report of network service usage activities of a first device from the first device;

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receive a second report of network service usage activities of a second device from the second device;

perform a statistical analysis of a plurality of reported service usage activities across a plurality of devices, including the first device and the second device; and

send a network service usage activity classification list to the first device and the second device for classifying network service usage activities based on the service usage activity classification list for differential network access control for protecting network capacity; and

a memory coupled to the processor and configured to provide the processor with instructions.

6. The system recited in claim 5, wherein the processor of the network device is further configured to:

associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity.

7. The system recited in claim 5, wherein the processor of the network device is further configured to:

associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity; and

differentially control the network service usage activity based on the service usage activity classification list for protecting network capacity.

8. A system, comprising:

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a processor of a communications device configured to:

associate a network service usage activity of the communications device with a network service usage control policy based on a classification of the network service usage activity for differential network access control for protecting network capacity; and

generate a user notification based on the network service usage control policy; and

a memory coupled to the processor and configured to provide the processor with instructions.

9. The system recited in claim 8, wherein the network service usage control policy includes a network service usage notification policy.

10. The system recited in claim 8, wherein the user notification includes one or more of the following: one or more service activities classified as network capacity controlled services, type of network service policy in effect for one or more network capacity controlled services, notification that a network service activity belongs to a network capacity controlled services classification, notification that a service activity that is classified as network capacity controlled services classification can have the classification changed, notification that if the service class is changed for the network service activity that the associated network service usage charges will change, a service plan upgrade/downgrade offer, and an offer for a service plan that provides discounts and/or incentives for responding to one or more user notifications for protecting network capacity.

11. The system recited in claim 8, wherein the user notification includes a user preference selection, including one or more of the following: a provision to associate a network service usage control policy with the network service usage activity, an over-ride option for selecting the

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network service usage control policy, a modify option to select the service usage control policy, and a select option to select a new service plan.

12. The system recited in claim 8, wherein the user notification occurs after one or more of the following: an attempt to download or load an application onto the communications device, an attempt to execute the network service activity or the network service usage activity attempts to access the network, a network service usage activity meets or exceeds a network service usage threshold, a network service usage activity attempts a network service usage that satisfies a pre-condition, an update to a network capacity controlled service activity classification list, an update to a network capacity controlled services policy, and a network message is sent to the device triggering the notification.

13. The system recited in claim 8, wherein the user notification includes one or more of the following: network service usage activity information for one or more network capacity controlled services, predicted network service usage activity information for one or more network capacity controlled services, an option for obtaining more information about the network service usage of the network service usage activity, a message that the network service usage activity may result in network service usage that exceeds a threshold for a service plan associated with the device, an option to review or select an alternative service plan, an acknowledgement request, and an option to submit the acknowledgement request.

14. A system, comprising:

a processor of a communications device configured to:

determine a network busy state of a wireless network; and

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classify a network service usage activity of the communications device based on the network busy state to facilitate differential network access control for protecting network capacity of the wireless networks; and

a memory coupled to the processor and configured to provide the processor with instructions.

15. The system recited in claim 14, wherein the network busy state is based on one or more of the following: network performance, network congestion, network availability, network resource availability, network capacity, and a time based criteria.

16. The system recited in claim 14, wherein protecting network capacity of the wireless network includes protecting network capacity of a last edge segment of the wireless network, and the processor is further configured to:

send the network busy state to a network element.

17. A system, comprising:

a processor of a communications device configured to:

monitor a network service usage activity of a device in wireless network communication;

classify the network service usage activity to facilitate differential network access control for protecting network capacity; and

account for the network service usage activity based on a classification of the network service usage activity for differential network service usage accounting; and

a memory coupled to the processor and configured to provide the processor with instructions.

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18. The system recited in claim 17, wherein the processor of the communications device is further configured to:

charge for the network service usage activity based on the classification of the network service usage activity for differential network service usage charging, wherein charging for the network service usage activity includes mediating CDR/IPDR charging records for network capacity controlled services and non-capacity controlled services.

19. A system, comprising:

a processor of a communications device configured to:

receive an API request from a network service usage activity for wireless network access;

respond to the API request from the network service usage activity; and

implement differential network access for the network service usage activity for protecting network capacity, wherein the differential network access is based on a priority level associated with the network service usage activity and a network busy state; and

a memory coupled to the processor and configured to provide the processor with instructions.

20. The system recited in claim 19, wherein a response to the API request includes providing one or more of the following to the network service usage activity: a network busy state, whether the network service usage activity is allowed to access the network, which access network to which the network service usage activity is granted network access, what traffic controls the network service usage activity is required to implement for network access, when the network is available to the network service usage activity for access, a schedule for network access for the network service usage activity, a reservation for network access for the network

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service usage activity with a specified performance level, an instruction to transition to a dormant or power save state, and an instruction to awake from a dormant or power save state.

21. A system, comprising:

a processor of a network device configured to:

receive an API request from a network service usage activity of a communications device for wireless network access; and

respond to the API request from the network service usage activity for implementing differential network access for protecting network capacity;

wherein the differential network access is based on a priority level associated with the network service usage activity and a network busy state; and

a memory coupled to the processor and configured to provide the processor with instructions.

22. The system recited in claim 21, wherein a response to the API request includes providing one or more of the following to the network service usage activity: a network busy state, whether the network service usage activity is allowed to access the network, which access network to which the network service usage activity is granted network access, what traffic controls the network service usage activity is required to implement for network access, when the network is available to the network service usage activity for access, a schedule for network access for the network service usage activity, a reservation for network access for the network service usage activity with a specified performance level, an instruction to transition to a dormant or power save state, and an instruction to awake from a dormant or power save state.

23. The system recited in claim 21, wherein the API is a network element API that is in secure communication with the communications device, and wherein the communications device

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implements the differential network access, and the differential network access implementation is verified.

24. The system recited in claim 21, wherein the busy state information is obtained from one or more network elements.

25. A system, comprising:

a processor of a communications device configured to:

monitor a plurality of network service usage activities of the communications device;

determine a network busy state based on the monitored plurality of network service usage activities;

send a network busy state report to a network element; and

a memory coupled to the processor and configured to provide the processor with instructions.

26. The system recited in claim 25, wherein the communications device includes a verified service processor, and wherein the verified service processor monitors the plurality of network service usage activities of the communications device and determines the network busy state based on the monitored plurality of network service usage activities.

27. The system recited in claim 25, wherein determining the network busy state includes one or more of the following: data rate, latency, jitter, bit error rate, packet error rate, number of network access attempts, number of network access successes, number of network access failures, QoS level availability, QoS level performance, and variability in any of the preceding parameters.

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28. A system, comprising:

a processor of a network device configured to:

collect network busy state information for one or more access networks for a plurality of communications devices; and

implement differential network access for one or more network capacity controlled services for the plurality of communications devices based on the network busy state information associated with each of the one or more access networks for protecting network capacity; and

a memory coupled to the processor and configured to provide the processor with instructions.

29. The system recited in claim 28, wherein the network busy state information is collected from a plurality of network based measures transmitted to the network device, wherein the network based measures are received from one or more of the following: a base station, a base station monitor, an airwave monitor, and a base station controller.

30. A system, comprising:

a processor of a communications device configured to:

monitor a network service usage activity of the communications device in network communication;

classify the network service usage activity for differential network access control for protecting network capacity; and

associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity; and

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a memory coupled to the processor and configured to provide the processor with instructions.

31. The system recited in claim 30, wherein the communications device is a mobile communications device, and the service includes one or more Internet based services, and wherein the mobile communications device includes one or more of the following: a mobile phone, a PDA, an eBook reader, a music device, an entertainment/gaming device, a computer, laptop, a net book, a tablet, and a home networking system.

32. The system recited in claim 30, wherein the processor of the communications device is further configured to:

implement differential network access for the network service usage activity for protecting network capacity; and

verify implementation of the differential network access for the network service usage activity.

33. The system recited in claim 30, wherein the processor of the communications device is further configured to:

implement differential network access for the network service usage activity for protecting network capacity using a verified service processor.

34. The system recited in claim 30, wherein the processor of the communications device is further configured to:

implement differential network access for the network service usage activity for protecting network capacity using an emulated network access API.

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35. The system recited in claim 30, wherein the processor of the communications device is further configured to:

monitor the network service usage activity based on a service profile; and

determine that the network service usage activity is a network capacity controlled service based on the monitored use of the network service usage activity based on the service profile using a verified service processor.

36. The system recited in claim 30, wherein the processor of the communications device is further configured to:

determine if network access for the network service usage activity is authorized based on a service plan associated with the communications device, a network capacity controlled service priority level associated with the network service usage activity, and a network busy state.

37. The system recited in claim 30, wherein the processor is further configured to:

execute a router for dynamically managing one or more network capacity controlled services and/or QoS sessions for the communications device.

38. The system recited in claim 30, wherein the processor is further configured to:

execute a router for dynamically managing one or more network capacity controlled services and/or QoS sessions for the communications device; and

send network busy state information to a service controller, wherein the service controller provides a policy decision point for management for a plurality of communications devices in communication with one or more base stations.

39. The system recited in claim 30, wherein the processor is further configured to:

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execute a router for dynamically managing one or more network capacity controlled services and/or QoS sessions for the communications device;

send network busy state information to a service controller, wherein the service controller provides a policy decision point for management for a plurality of communications devices in communication with one or more base stations; and

receive router traffic control instructions from the service controller, wherein the service controller provides the router traffic control instructions to assist in dynamically managing network capacity usage for the plurality of communications devices in communication with the one or more base stations for protecting network capacity of one or more access networks.

40. The system recited in claim 30, wherein the classifying is based on a current access network and/or the network service usage control policy is based on a current access network.

41. The system recited in claim 30, wherein classifying includes dynamically assigning a network capacity controlled services priority level based on a network busy state.

42. The system recited in claim 30, wherein classifying includes querying a network element for determining a network capacity controlled services classification and/or associating includes querying a network element for determining an association with the network service usage control policy.

43. The system recited in claim 30, wherein the network service usage control policy includes one or more of the following: block/allow settings, throttle settings, adaptive throttle settings, QoS class settings, packet error rate, jitter and delay settings, queue settings, and tag settings.

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44. The system recited in claim 30, wherein the network service usage control policy includes traffic control policy filters.

45. The system recited in claim 30, wherein the network service usage control policy includes traffic control policy filters implemented as cascading filters.

46. The system recited in claim 30, wherein the network service usage control policy includes traffic control policy filters using a network busy state and/or a time of day as an index into a traffic control setting.

47. The system recited in claim 30, wherein the processor is further configured to:

differentially control the network service usage activity based on the network service usage control policy based on a network busy state, wherein the network service usage activity is classified as a network capacity controlled service.

48. The system recited in claim 30, wherein the processor is further configured to:

differentially control the network service usage activity based on the network service usage control policy based on a user input and/or a current access network, wherein the network service usage activity is classified as a network capacity controlled service.

49. The system recited in claim 30, wherein the processor is further configured to:

modify or replace a network stack interface of the communications device to provide for intercept or discontinuance of network access messaging for implementing traffic control for network capacity controlled services for protecting network capacity.

50. The system recited in claim 30, wherein the processor is further configured to:

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store a network capacity controlled service list, wherein the network capacity controlled service list is periodically updated based on monitored network service usage activities.

51. A method, comprising:

monitoring a network service usage activity of the communications device in network communication;

classifying the network service usage activity for differential network access control for protecting network capacity; and

associating the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity.

52. A computer program product, the computer program product being embodied in a computer readable storage medium and comprising computer instructions for:

monitoring a network service usage activity of the communications device in network communication;

classifying the network service usage activity for differential network access control for protecting network capacity; and

associating the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity.

53. A method comprising:

examining a particular service usage activity to determine if the particular service usage activity fits a set of one or more classification rules that define the particular service usage activity as a background service usage activity;

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determining whether a condition is satisfied, the condition including a finding that the particular service usage activity is determined to be a background service usage activity; and

when the condition is satisfied, restricting network access of the particular service usage activity.

54. The method of claim 53, wherein the set of one or more classification rules examines at least one of network type, time of day, connection cost, whether home or roaming, network busy state, QoS, and whether the particular service usage activity is in foreground of user interaction or in the background of user interaction.

55. The method of claim 53, wherein the set of one or more classification rules includes examining if one or more of the following has taken place within a specified period of time: user has interacted with the device, user has interacted with the service usage activity, user has picked up the device, service usage activity UI content is in the foreground of the device UI, audio or video information is being played by the service usage activity, a certain amount of data has been communicated by the service usage activity, service usage activity is or is not on a foreground or background service list.

56. The method of claim 53, further comprising obtaining user selection of rules that define which service usage activities to classify as background service usage activities.

57. The method of claim 56, wherein the user selection of classification rules includes user selection of specific service usage activities to classify as background service usage activities.

58. The method of claim 56, further comprising obtaining user selection of rules that define more than one level of service background class for the user to choose from.

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59. The method of claim 56, wherein the obtaining user selection includes presenting usage information for service usage activities to aid in determining which to define as background service usage activities.

60. The method of claim 56, wherein the obtaining user selection includes presenting cost information for service usage activities to aid in determining which to define as background service usage activities.

61. The method of claim 53, wherein the condition includes enabling the user to select a network for background service usage activities.

62. The method of claim 61, wherein the selection of the network is based on the time of day.

63. The method of claim 61, wherein the selection of the network is based on connection cost.

64. The method of claim 53, wherein the user can modify the set of one or more classification rules.

65. The method of claim 53, wherein the condition includes

detecting when the service usage activity was initiated or attempted to be initiated;

notifying the user that this is a background service usage activity; and

provides the user with an option to implement the step of restricting.

66. The method of claim 65, further comprising

informing the user of what the restriction options are; and

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implementing the restriction if the user chooses to implement a restriction option; and disabling the restriction if the user chooses to proceed.

67. The method of claim 66, wherein a network element sets the classification rules.

68. The method of claim 67, wherein the setting of the set of one or more classification rules is based on network manager input.

69. The method of claim 67, wherein the setting the set of one or more classification rules is based on characterizing application usage behavior.

70. The method of claim 66, wherein the setting the set of one or more classification rules is based on a policy instruction provided from a network element to the device.

71. The method of claim 53, wherein the examining takes place on the device.

72. The method of claim 53, wherein the set of one or more classification rules includes determining if an app is an OS function, client/server data sharing/update function, software update or download, background file download, email or calendar or contact update or synch function.

73. The method of claim 53, wherein the restricting includes one or more of: blocking, delaying, implementing a time window, aggregating/holding/transmitting, throttling, restricting to a range of NBS level, restricting to certain network types, restricting based on whether home or roaming, restricting to a certain time period, waiting for lower cost condition, waiting for specified

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network, waiting for home network, waiting for time of day, and waiting for network background state.

74. The method of claim 53, wherein the background service usage activity data that needs to be communicated via the device is cached until the condition is modified, reduced or removed.

75. The method of claim 74, wherein the cached data is prioritized so that most important data is communicated first when the condition is modified, reduced or removed.

76. The method of claim 53, wherein the restricting occurs on the device, and the app is unaware that it might be subjected to background service restrictions.

77. The method of claim 53, further comprising modifying or repressing app notification messages about lack of network connectivity.

77. The method of claim 53, wherein an app is provided with network state indications that are differential for different apps according to app background class or priority.

78. The method of claim 53, wherein an app is made aware that it might be subjected to background service restrictions.

79. The method of claim 78, wherein the awareness is provided via a background service API.

80. The method of claim 53, wherein an app has rules defining in which background states it should transmit.

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81. The method of claim 53, wherein an app has a capability to override background service rules for high priority data.

82. The method of claim 53, wherein an app background service status API indicates one or more of: background transmission permission status, background class or classes allowed to transmit, NBS, QoS, apps allowed to transmit, service classes allowed to transmit, type of network, time of day, geography, and whether home or roaming.

82. The method of claim 53, wherein the restricting allows a minimum connectivity for background services.

83. The method of claim 53, wherein the user is charged less for background services that are implemented with background service policy controls.

84. The method of claim 53, wherein the user can override background service policy enforcement for high priority communication.

85. The method of claim 53, wherein the user pays a higher price when background service policy enforcement is overridden.

86. The method of claim 53, wherein a sponsored service partner is charged less for background services that are implemented with background service policy controls.

87. The method of claim 53, wherein a sponsor can override background service policy enforcement for high priority communication.

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88. The method of claim 53, wherein a sponsor programs override decision conditions into an app.

89. The method of claim 53, wherein a sponsor programs override decision conditions into a network element.

90. The method of claim 53, wherein a sponsor app or network element can override background service policy.

91. The method of claim 53, wherein a sponsor pays a higher price when background service policy enforcement is overridden.

92. The method of claim 53, wherein a restriction occurs in the network.

93. The method of claim 92, wherein an app is not aware that it might be subjected to background service restrictions.

94. The method of claim 92, further comprising modifying or repressing app notification messages about lack of network connectivity.

95. The method of claim 92, further comprising providing an app with network state indications that are differential for different apps according to app background class or priority.

96. The method of claim 92, further comprising informing an app that it might be subjected to background service restrictions.

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97. The method of claim 96, wherein a background service API performs the informing.

98. The method of claim 92, wherein an app has rules for which background states it should transmit.

99. The method of claim 92, wherein an app has a capability to override background service rules for high priority data.

100. The method of claim 92, wherein an app background service status API indicates one or more of: background transmission permission status, background class or classes allowed to transmit, NBS, QoS, apps allowed to transmit, service classes allowed to transmit, type of network, time of day, geography, and whether home or roaming.

101. The method of claim 92, wherein the price for a sponsored service for background service usage activities is reduced when background service policies are followed.

102. The method of claim 92, wherein a sponsor device app determines background classification state and determines whether or not to restrict communication.

103. The method of claim 92, wherein an app determines background state from a device API.

104. The method of claim 92, wherein an app determines background state from a network API.

105. The method of claim 92, wherein an app determines background state from an NBS monitor.

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106. The method of claim 92, wherein a sponsor price is increased if background policies are overridden by a sponsor app.

107. The method of claim 92, wherein a sponsor server determines background classification state and determines whether to restrict communication.

108. The method of claim 92, wherein a network element determines background state from a device API.

109. The method of claim 92, wherein a network element determines background state from a network API.

110. The method of claim 92, wherein a network element determines background state from an NBS monitor.

111. The method of claim 92, wherein a sponsor price is increased if background policies are overridden by a sponsor network element.

112. The method of claim 92, wherein a background service state indication API on the device makes background service state available to apps or network elements so they can decide when to communicate.

113. The method of claim 92, wherein a background service state indication API on a network element provides API background service state information to device apps or partner servers so they can decide when to communicate.

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DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY

Abstract of the Disclosure

Device Assisted Services (DAS) for protecting network capacity is provided. In some embodiments, DAS for protecting network capacity includes monitoring a network service usage activity of the communications device in network communication; classifying the network service usage activity for differential network access control for protecting network capacity; and associating the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity.

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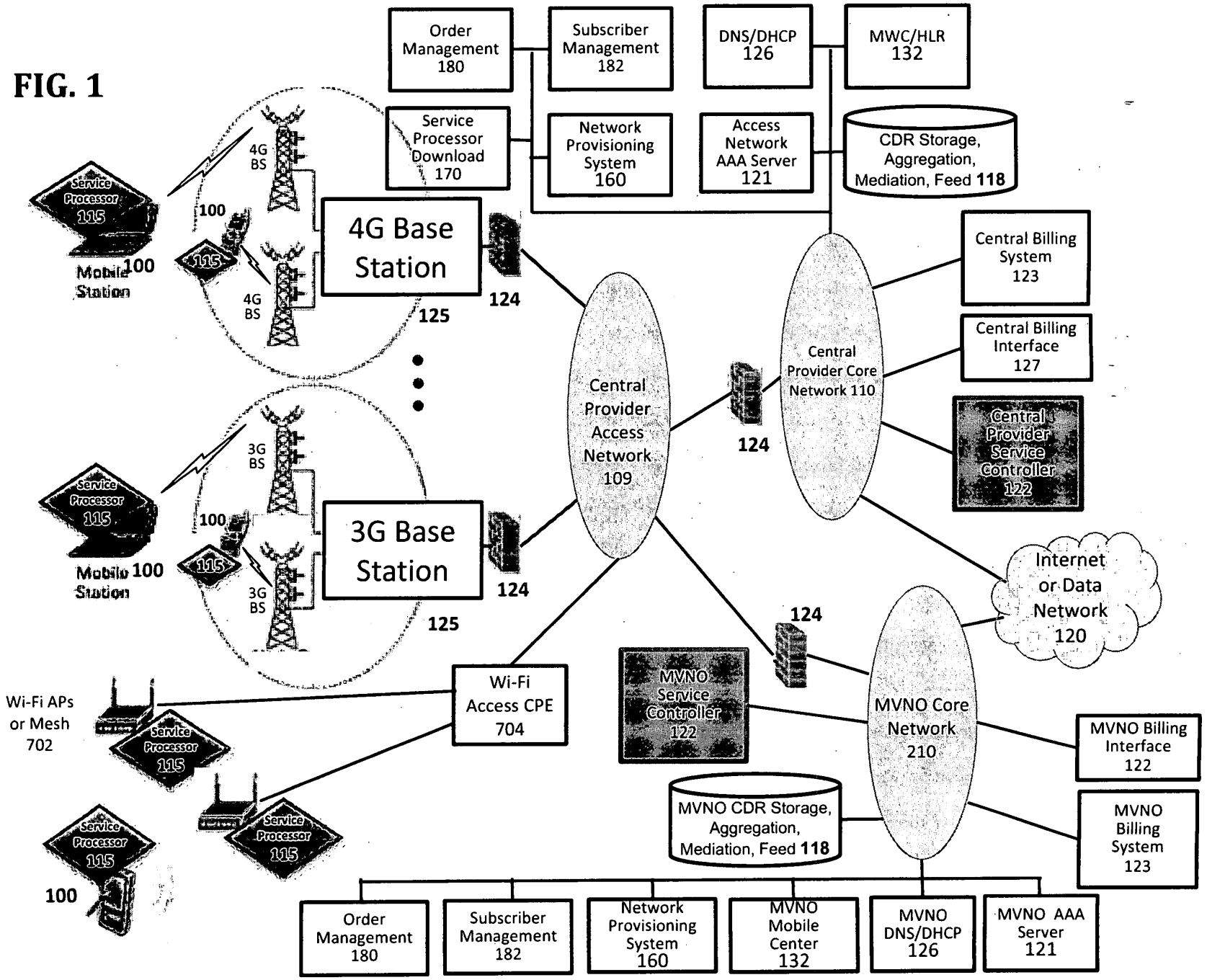
FIG. 1



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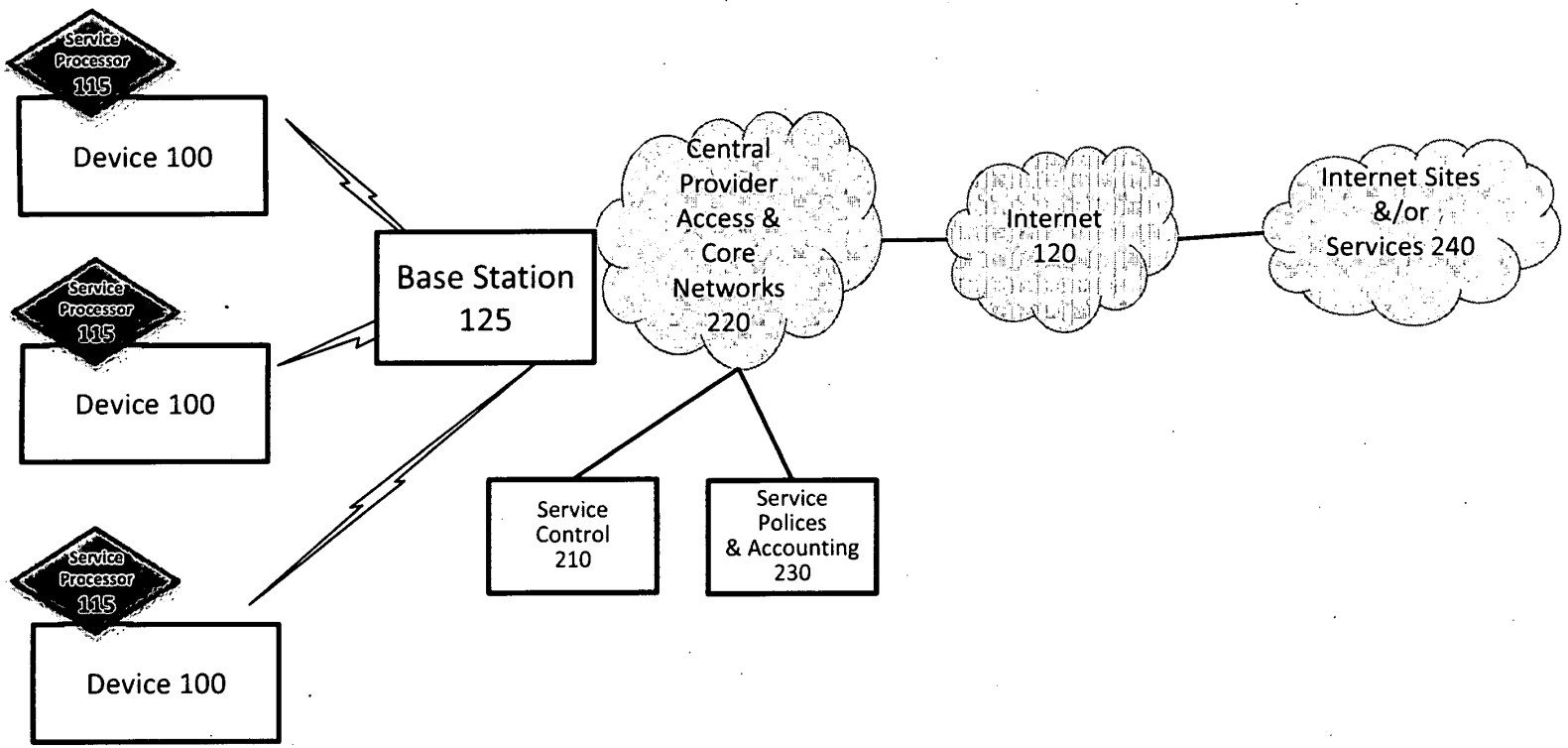

FIG. 2

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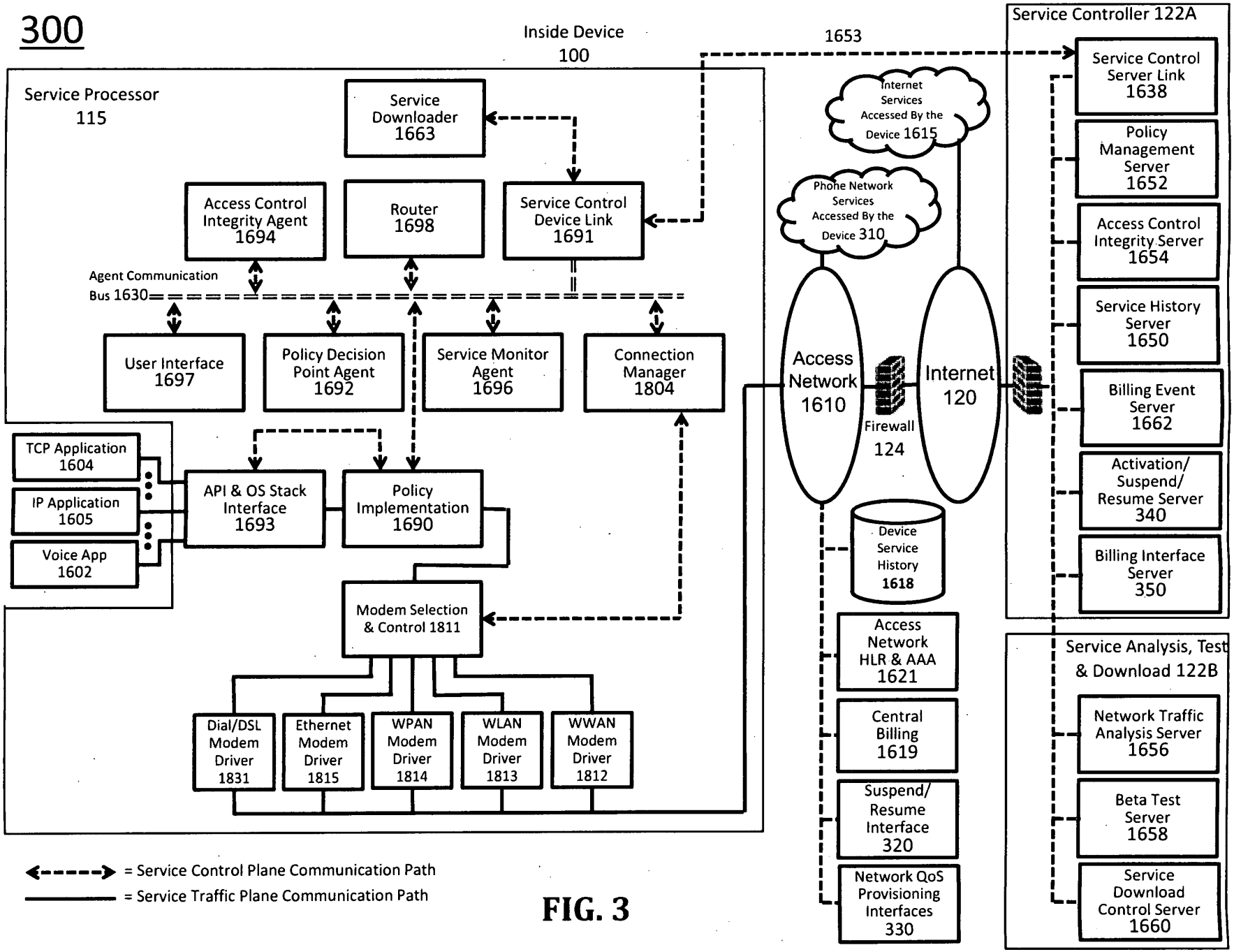

FIG. 3

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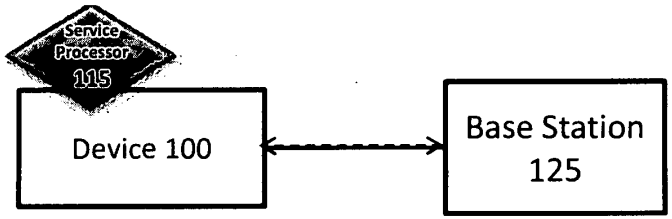

FIG. 4A

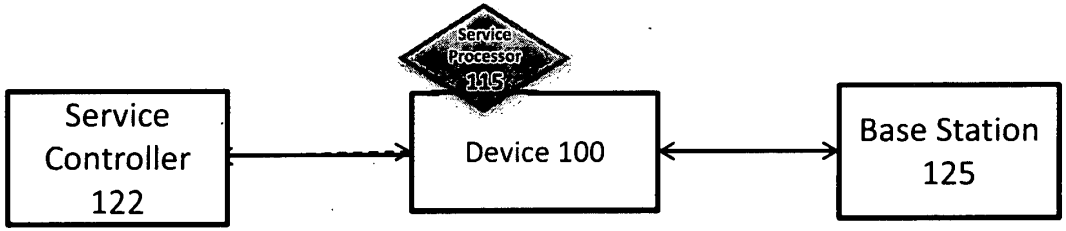

FIG. 4B

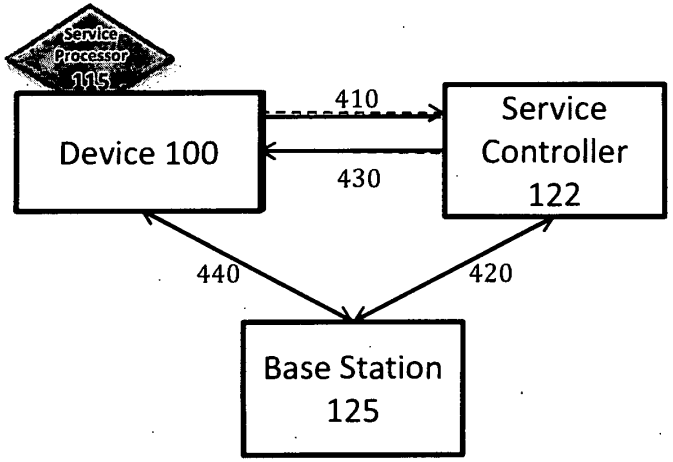

FIG. 4C

FIGs. 4A-4C

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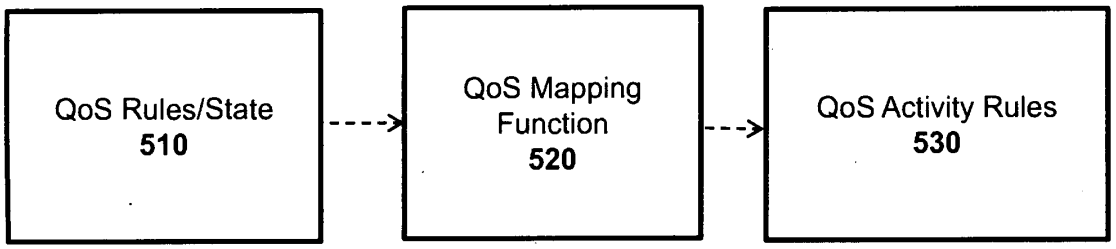

FIG. 5

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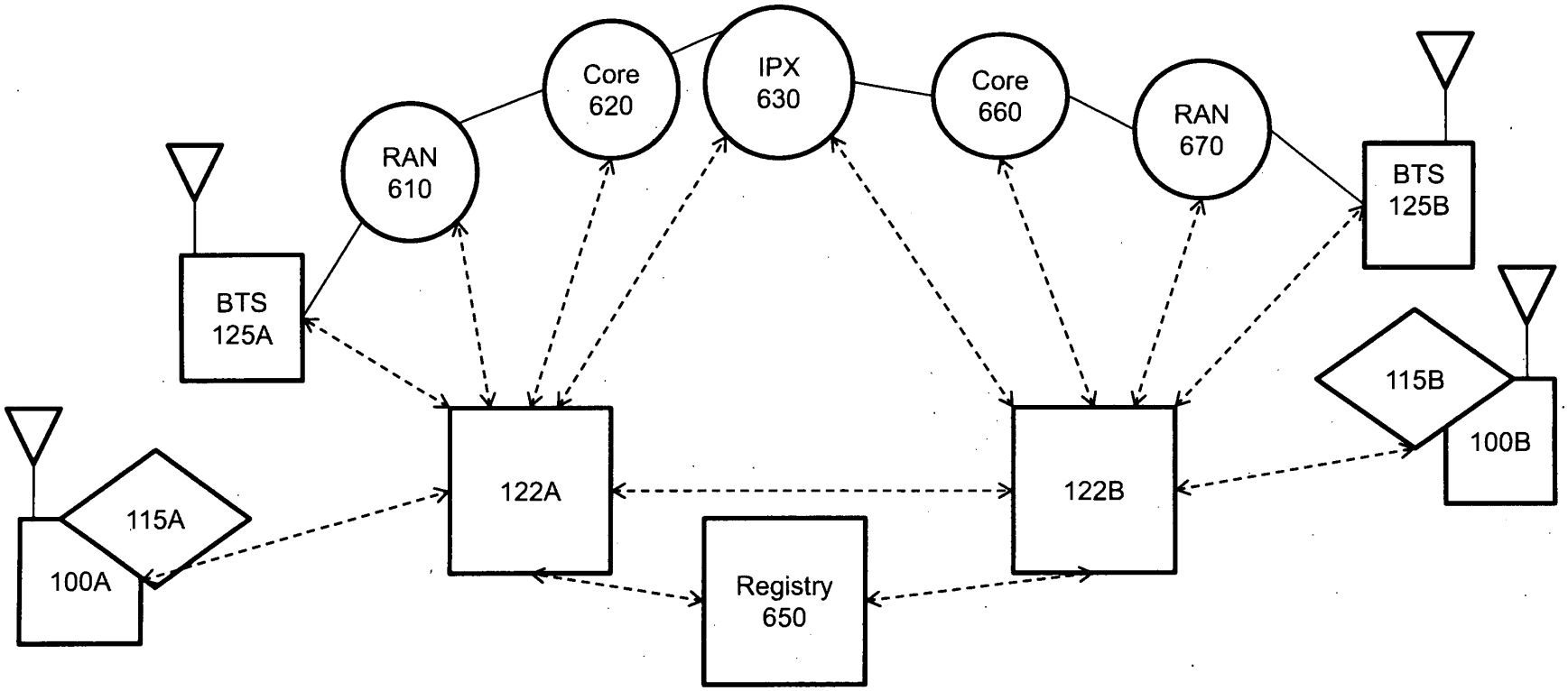

FIG. 6

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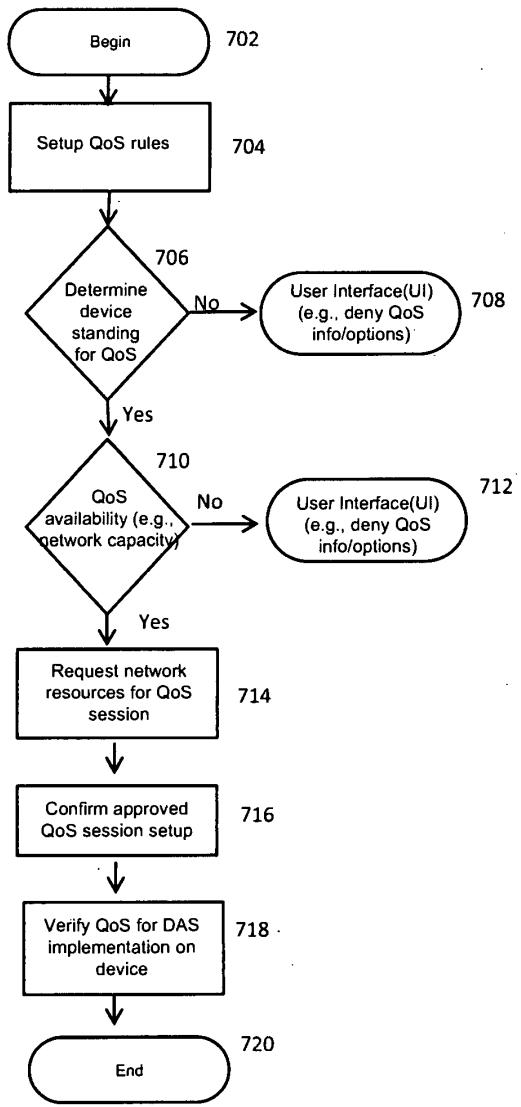

FIG. 7

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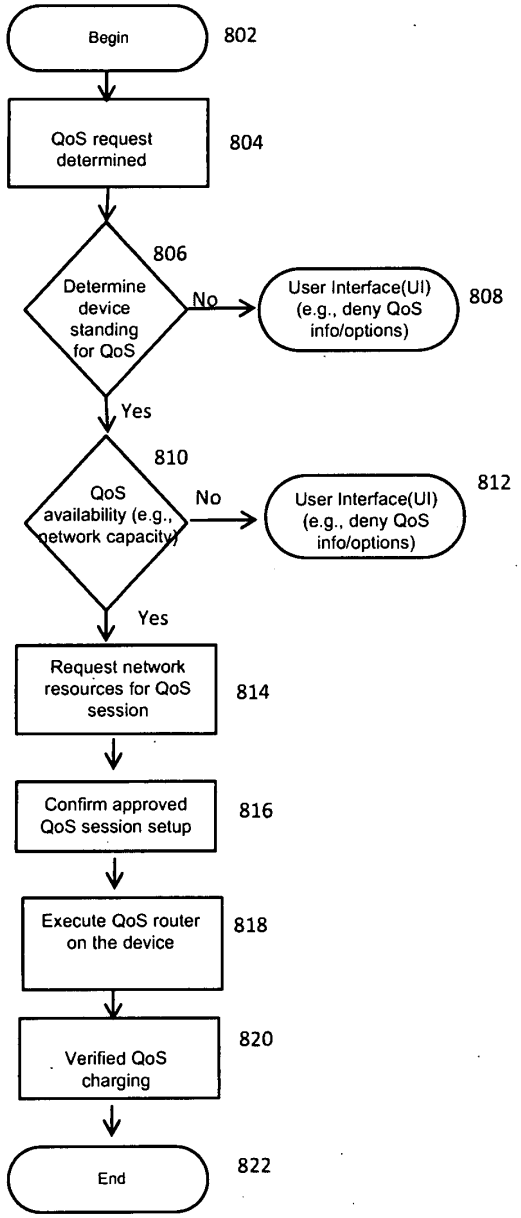

FIG. 8A

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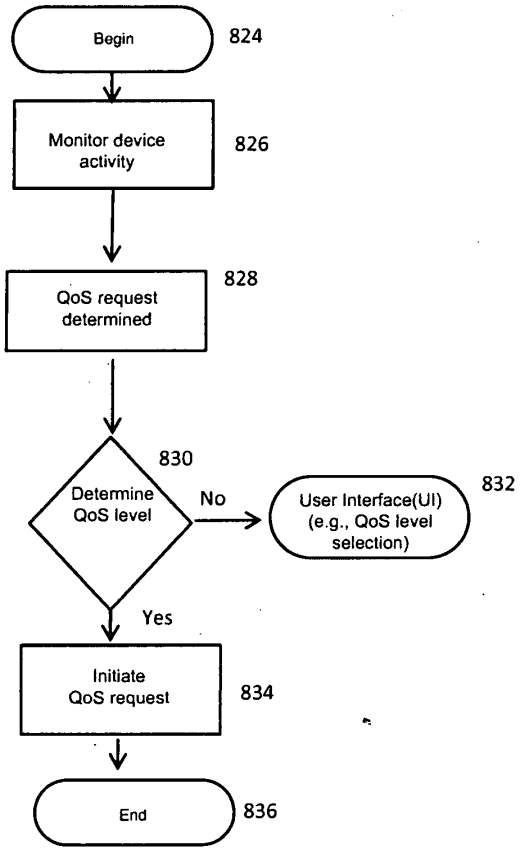

FIG. 8B

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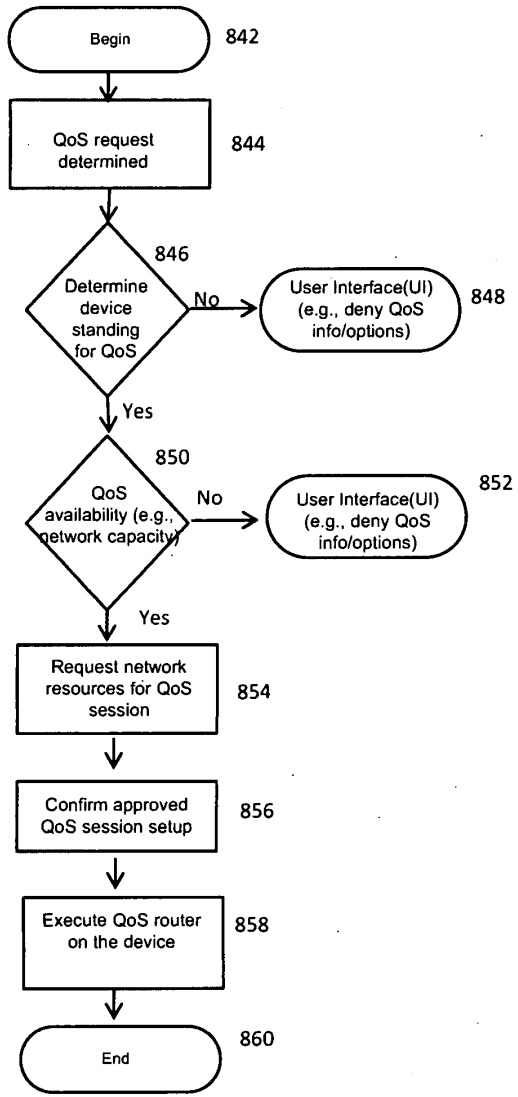

FIG. 8C

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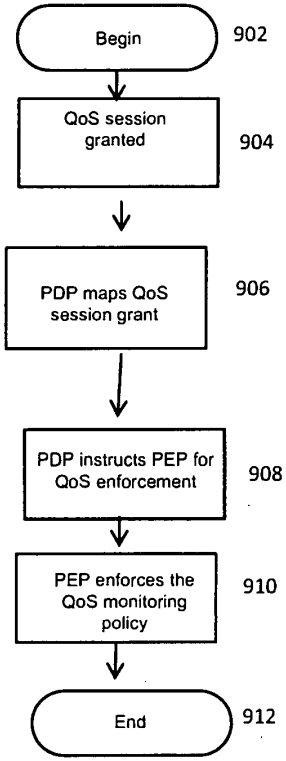

FIG. 9

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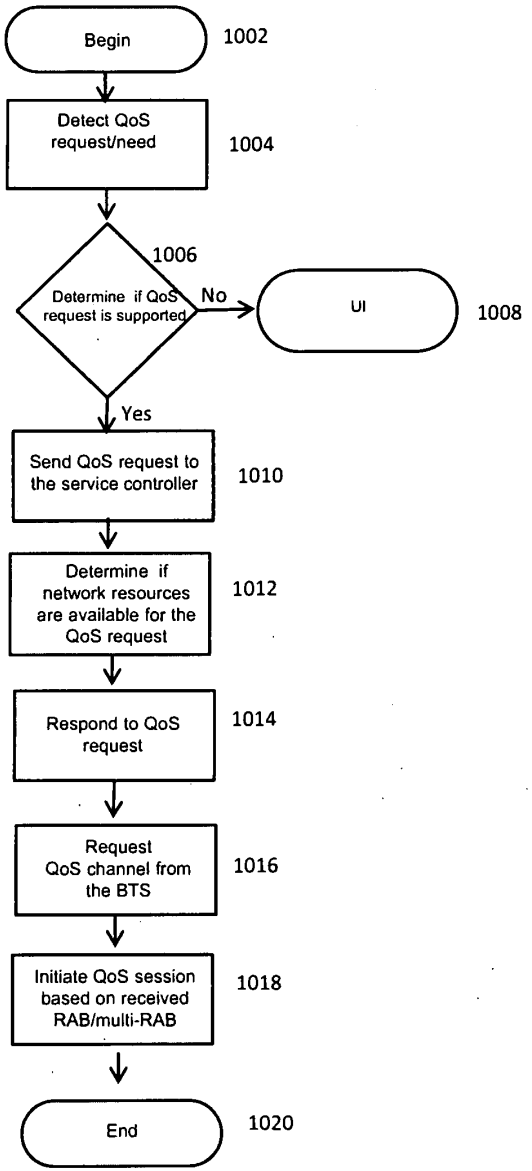

FIG. 10

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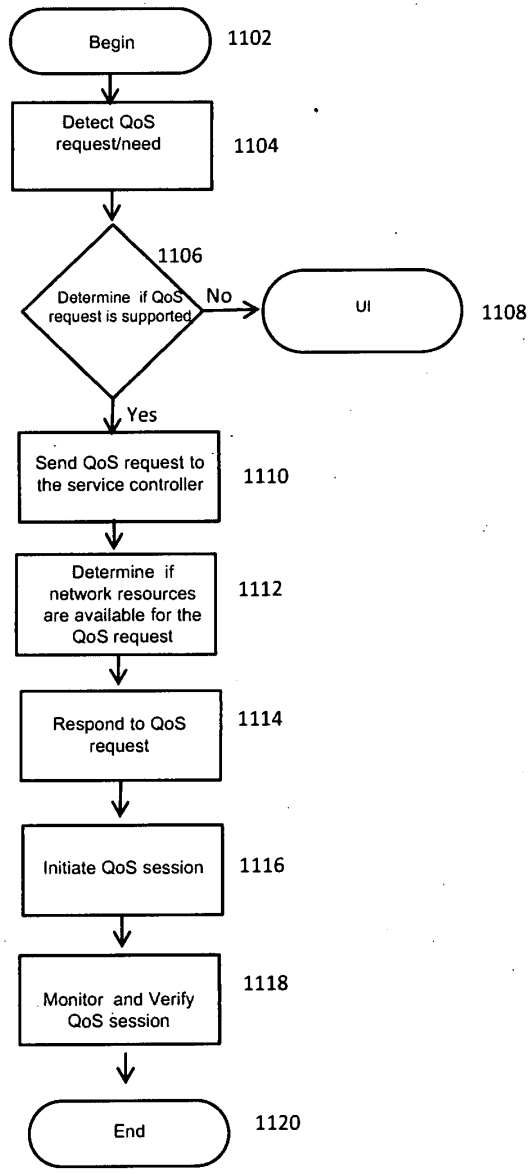

FIG. 11

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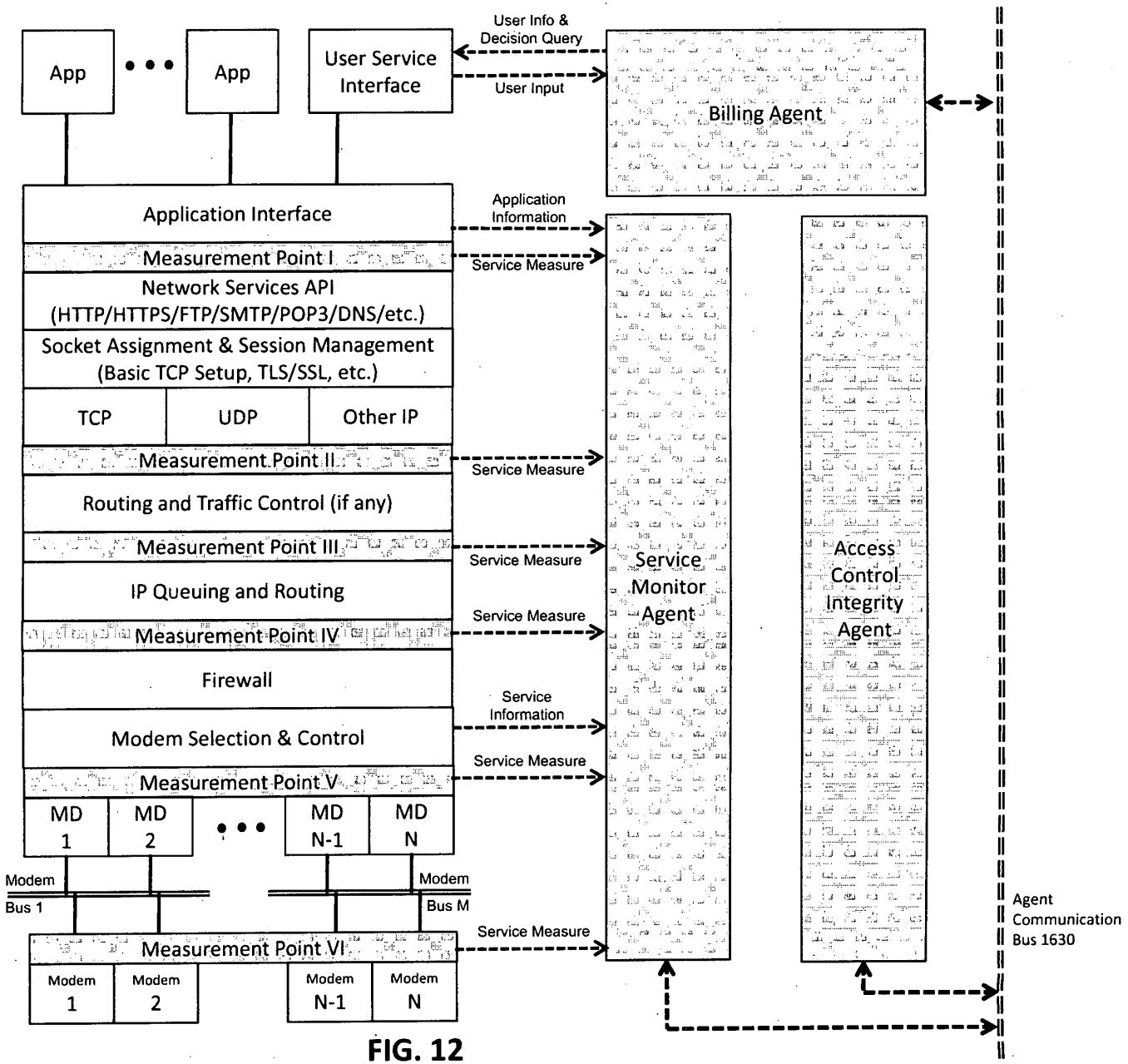

FIG. 12

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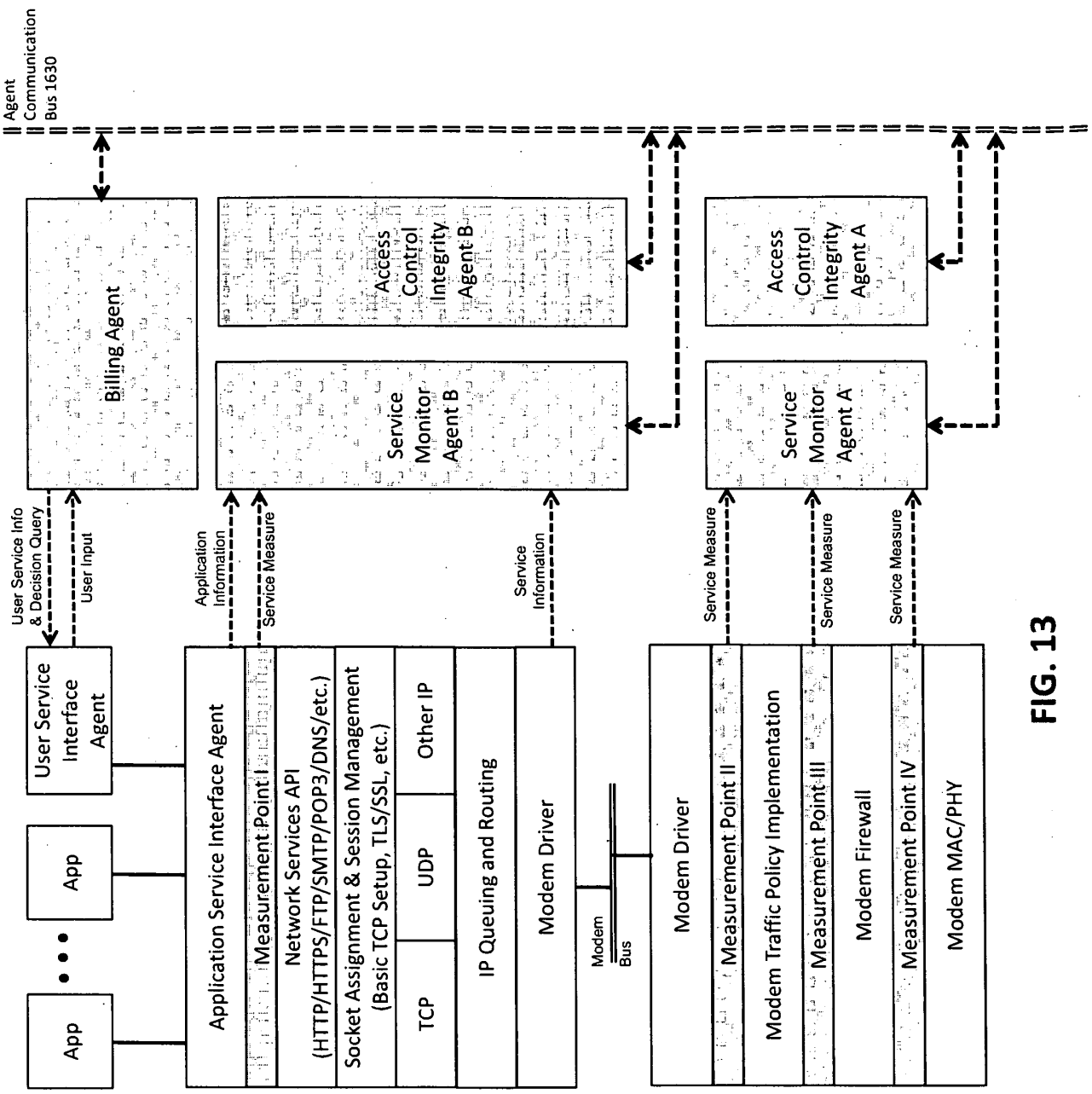
Agent Communication Bus 1630
Billing Agent
Access Control Integrity Agent B
Service Monitor Agent B
Access Control Integrity Agent A
Service Monitor Agent A
User Service Info & Decision Query
User Input
Application Information
Service Measure
Service Information
Service Measure
Service Measure
Service Measure
User Service Interface Agent
App
App
Application Service Interface Agent
Measurement Point I
Network Services API (HTTP/HTTPS/FTP/SMTP/POP3/DNS/etc.)
Socket Assignment & Session Management (Basic TCP Setup, TLS/SSL, etc.)
TCP
UDP
Other IP
IP Queuing and Routing
Modem Driver
Modem Bus
Modem Driver
Measurement Point II
Modem Traffic Policy Implementation
Measurement Point III
Modem Firewall
Measurement Point IV
Modem MAC/PHY

FIG. 13

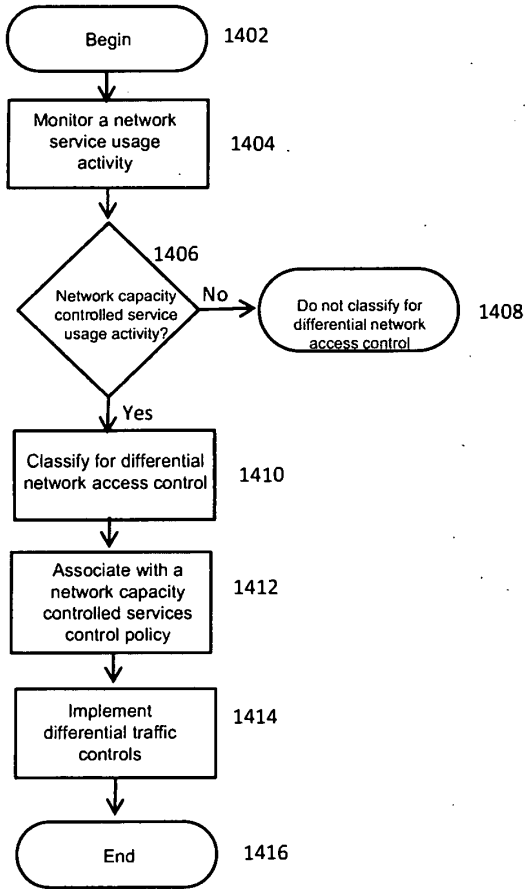

FIG. 14

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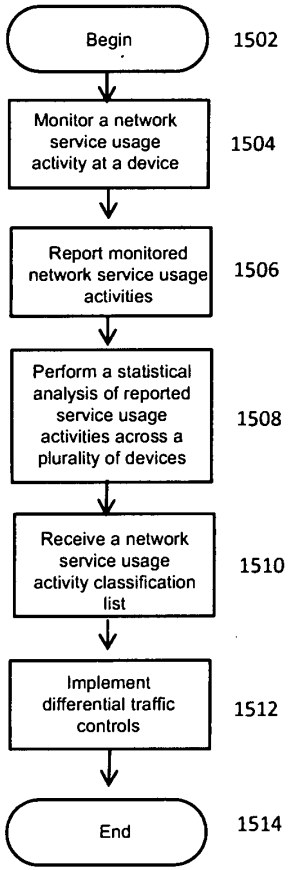

FIG. 15

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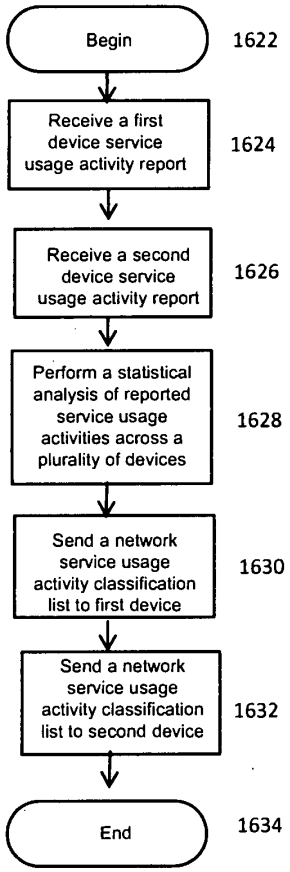

FIG. 16

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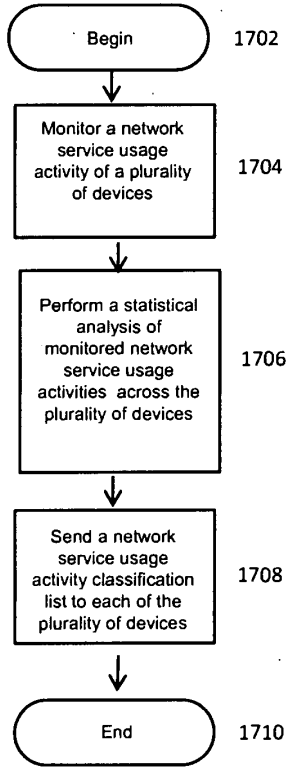

FIG. 17

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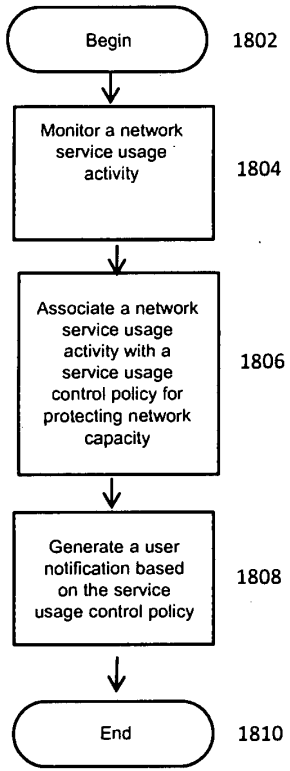

FIG. 18

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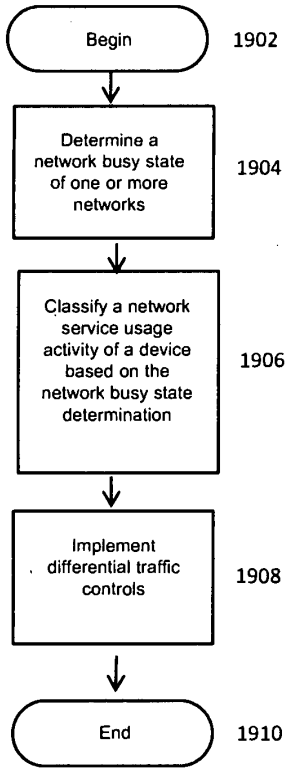

FIG. 19

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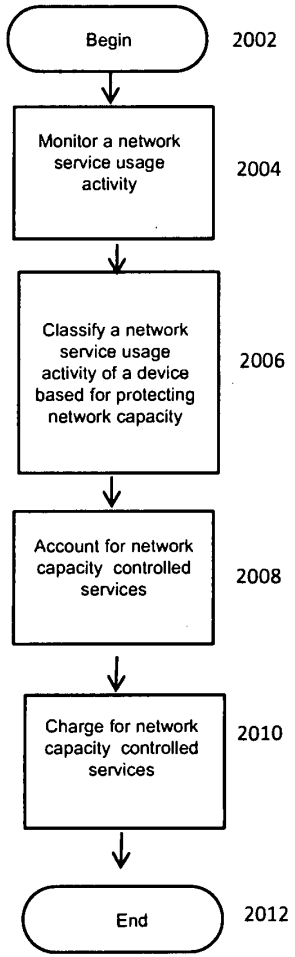

FIG. 20

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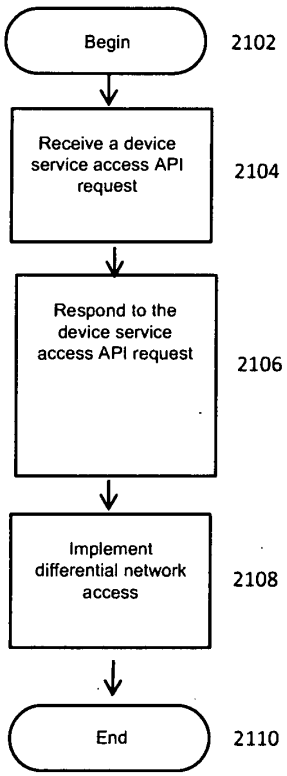

FIG. 21

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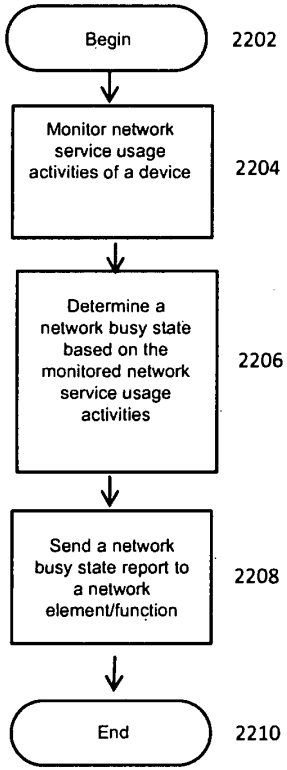

FIG. 22

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	NBS 10%	NBS 25%	NBS 50%	NBS 75%	NBS 90%
Outlook	6	5	4	3	2
Skype	7	6	2	1	0
Safari	5	4	3	2	1
Pandora	5	4	3	2	1
FaceBook	4	3	2	1	0
iTunes	7	6	3	1	0
QuickTime	8	6	4	1	0
AV Software	9	7	5	3	1
Online Backup	3	2	1	1	0
OS Update	2	1	0	0	0

FIG. 23

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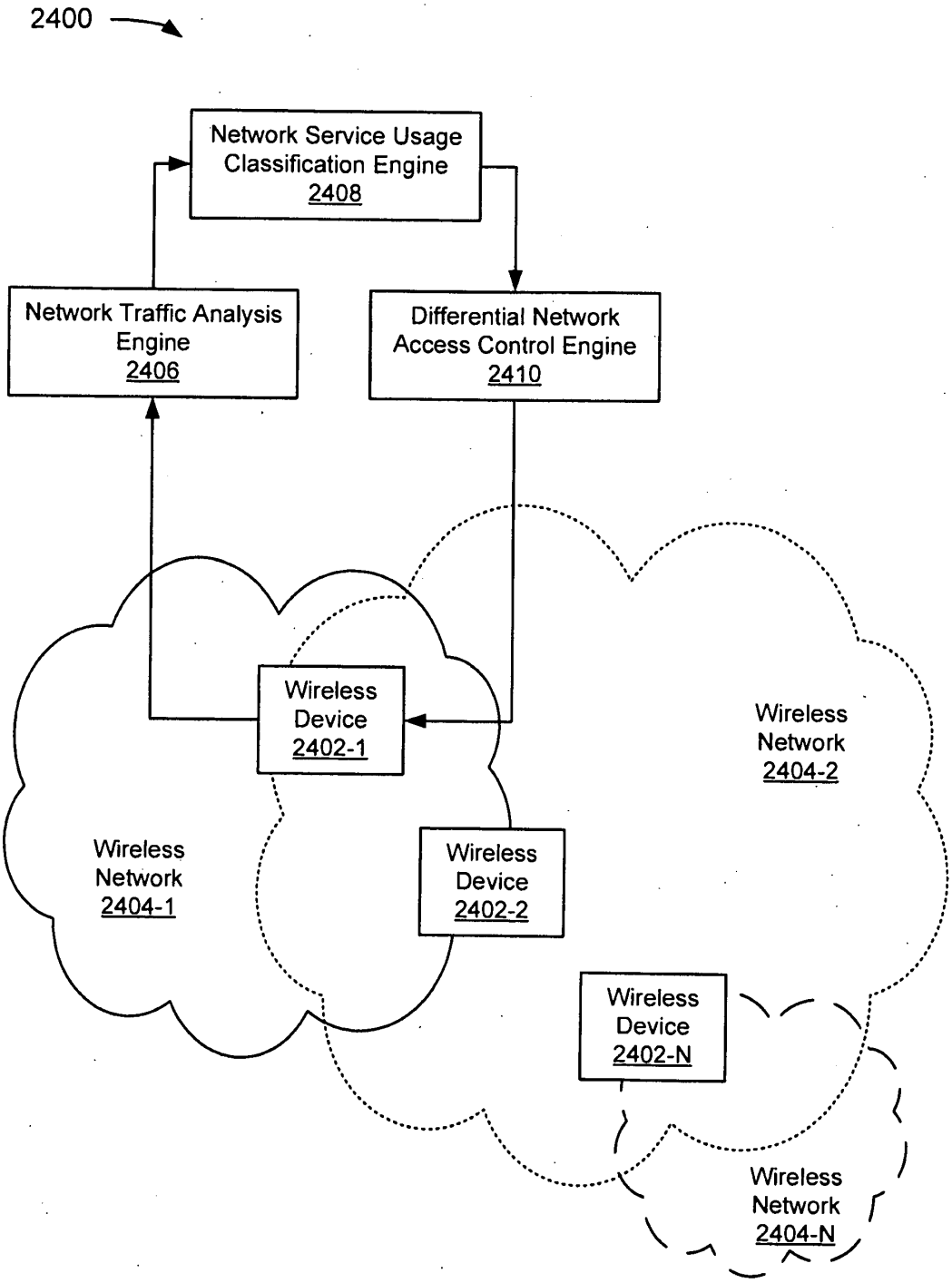
2400
Network Service Usage Classification Engine 2408
Network Traffic Analysis Engine 2406
Differential Network Access Control Engine 2410
Wireless Device 2402-1
Wireless Network 2404-1
Wireless Device 2402-2
Wireless Network 2404-2
Wireless Device 2402-N
Wireless Network 2404-N

FIG. 24

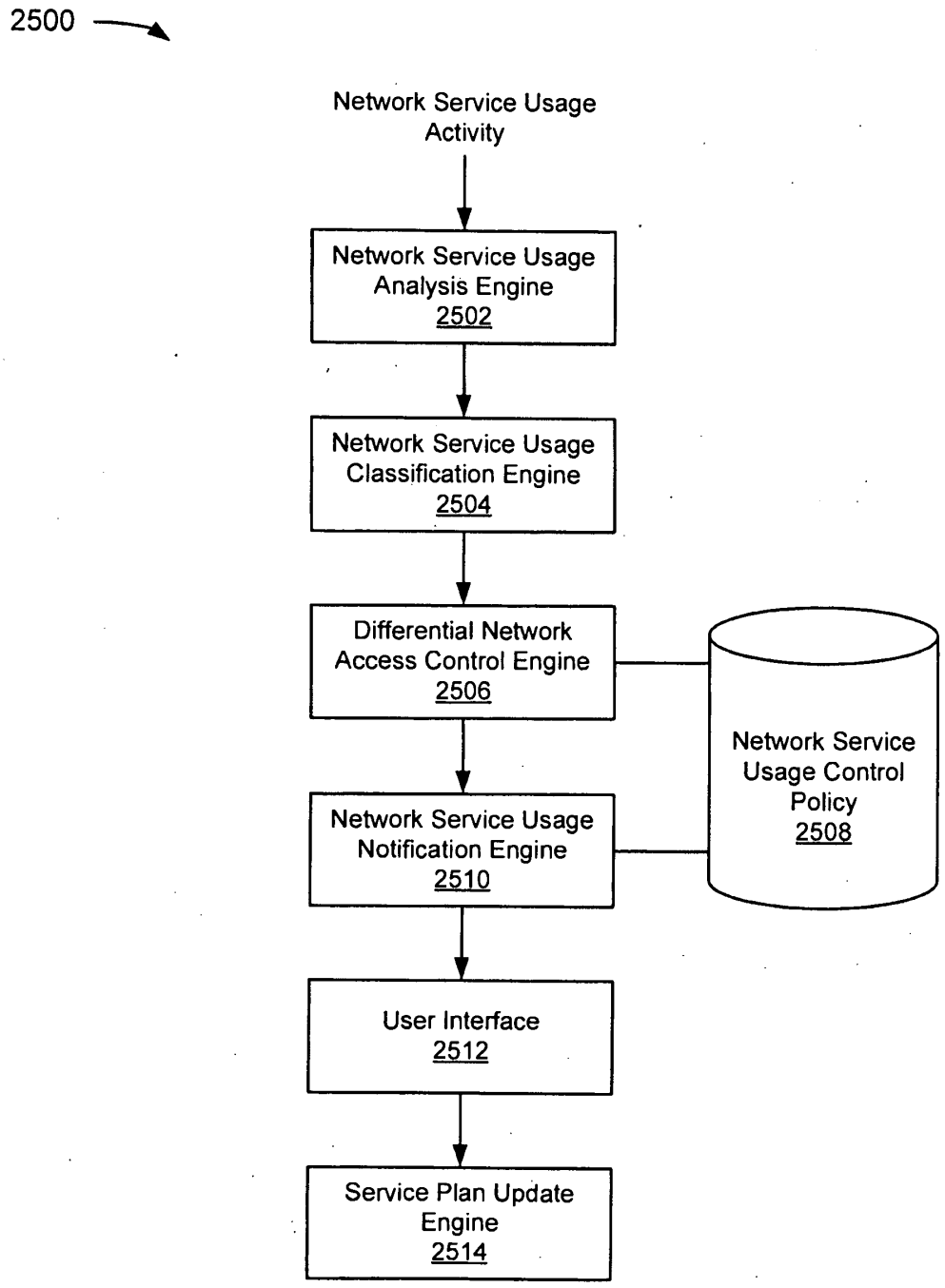
2500
Network Service Usage Activity
Network Service Usage Analysis Engine 2502
Network Service Usage Classification Engine 2504
Differential Network Access Control Engine 2506
Network Service Usage Control Policy 2508
Network Service Usage Notification Engine 2510
User Interface 2512
Service Plan Update Engine 2514

FIG. 25

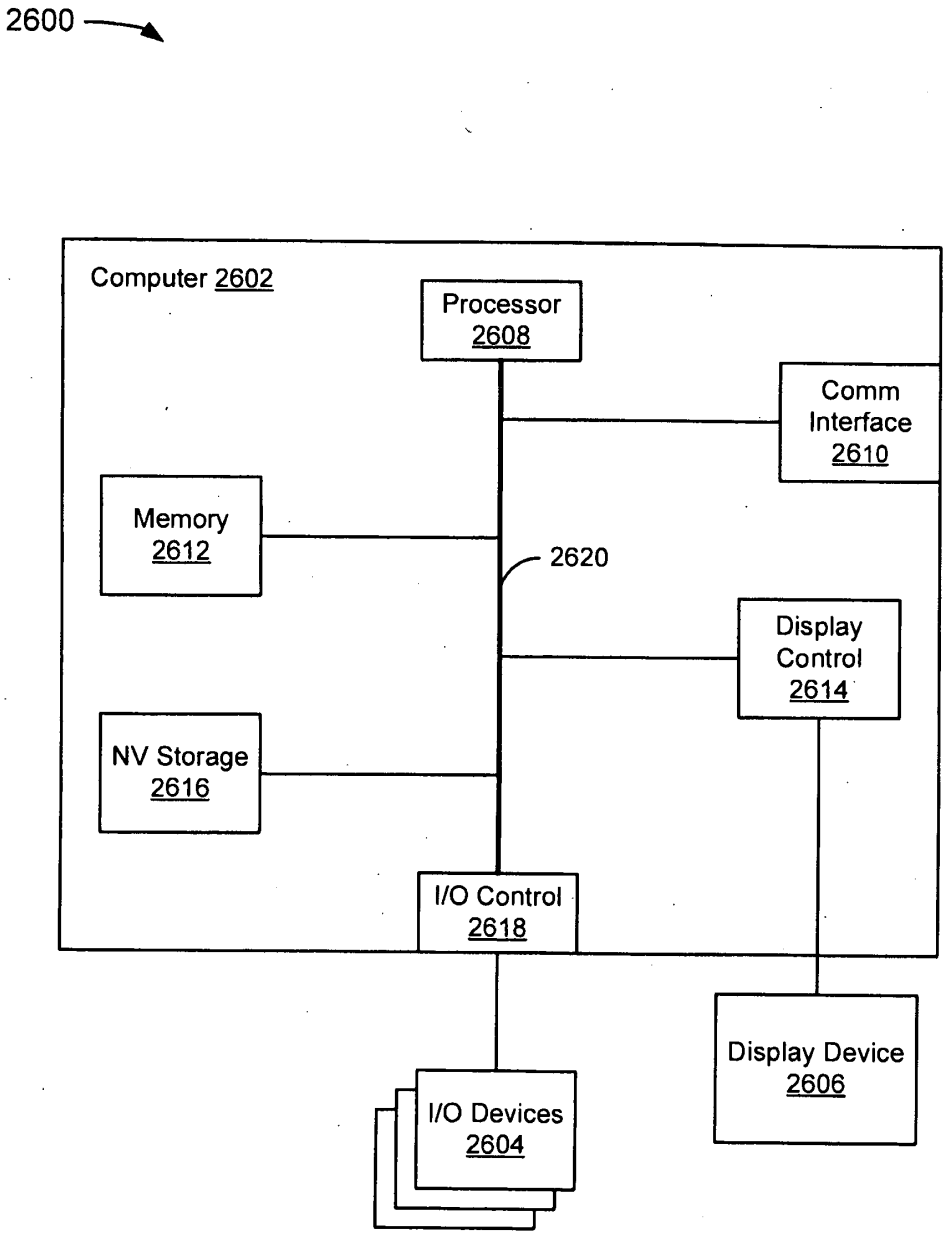
2600
Computer 2602
Processor 2608
Comm Interface 2610
Memory 2612
2620
Display Control 2614
NV Storage 2616
I/O Control 2618
Display Device 2606
I/O Devices 2604

FIG. 26

SCORE Placeholder Sheet for IFW Content

Application Number: **13134028** Document Date: **05/25/2011**

The presence of this form in the IFW record indicates that the following document type was received in paper and is scanned and stored in the SCORE database.

- Drawings

Images of the original documents are scanned in gray scale or color and stored in SCORE. Bi-tonal images are also stored in IFW. Defects visible in both IFW and SCORE are indicative of defects in the original paper documents.

To access the documents in the SCORE database, refer to instructions developed by SIRA.

At the time of document entry (noted above):

- Examiners may access SCORE content via the eDAN interface.
- Other USPTO employees can bookmark the current SCORE URL (http://es/ScoreAccessWeb/).
- External customers may access SCORE content via the Public and Private PAIR interfaces.

Form Revision Date: December 8, 2006

PATENT APPLICATION SERIAL NO._____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

05/31/2011 EEKUBAY1 00000013 504561 13134028

01 FC:2011	165.00	DA
02 FC:2111	270.00	DA
03 FC:2311	110.00	DA
04 FC:2202	2418.00	DA
05 FC:2201	1210.00	DA
06 FC:2081	405.00	DA

PTO-1556
(5/87)

*U.S. Government Printing Office: 2002- 489-267/69033

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

06/15/2011 VVAN11 00000007 504561 13134028
01 FC:2202 52.00 DA

PTO-1556
(5/87)

U.S. Government Printing Office: 2002-489-267/69033

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 13/134,028

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	165		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	270		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	110		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	115 minus 20 =	* 95	x 26 =	2470	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	14 minus 3 =	* 11	x 110 =	1210			
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).			405			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	4630		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)	OR	RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/134,028	05/25/2011	2447	4630	26WV-160509 [RALEP032]	115	14

CONFIRMATION NO. 3250

69849
SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
390 Lytton Avenue
Palo Alto, CA 94301

FILING RECEIPT

Date Mailed: 06/17/2011

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)

Gregory G. Raleigh, Residence Not Provided;
Ali Raissinia, Residence Not Provided;
James Lavine, Residence Not Provided;

Power of Attorney: None

Domestic Priority data as claimed by applicant

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: 06/15/2011

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/134,028**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

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

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Title

Device-assisted services for protecting network capacity

Preliminary Class

709

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).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

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set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

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NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/134,028	05/25/2011	Gregory G. Raleigh	26WV-160509 [RALEP032]

CONFIRMATION NO. 3250

69849
SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
390 Lytton Avenue
Palo Alto, CA 94301

FORMALITIES LETTER

OC000000048255079

Date Mailed: 06/17/2011

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The oath or declaration is missing.
  A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.
  Note: If a petition under 37 CFR 1.47 is being filed, an oath or declaration in compliance with 37 CFR 1.63 signed by all available joint inventors, or if no inventor is available by a party with sufficient proprietary interest, is required.

The application is informal since it does not comply with the regulations for the reason(s) indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
  - The drawings must be reasonably free from erasures and must be free from alterations, overwriting, interlineations, folds, and copy marks. See Figure(s) 1, 2, 4A-4C 12 & 13.
  - The drawings submitted to the Office are not electronically reproducible because portions of figures 1, 2 & 4A-4C are missing and/or blurry.

The following item(s) appear to have been **omitted** from the application:

- Figure(s) **27** described in the specification.

Applicant must reply to this notice within the time period set forth in this notice to avoid abandonment of this application. Applicant must select one of the three following options and the reply must comply with the requirements set forth in the selected option and any other requirements set forth in this notice. The reply should also indicate which option applicant has selected.

Google Exhibit 1006, Page 251 of 901

I. Petition for date of deposit: Should applicant contend that the above-noted omitted item(s) was in fact deposited in the U.S. Patent and Trademark Office (USPTO) with the nonprovisional application papers, a copy of this Notice and a petition (and $400.00 petition fee *(37 CFR 1.17(f))*) with evidence of such deposit **must** be filed within **TWO MONTHS** of the date of this Notice. The petition fee will be refunded if it is determined that the item(s) was received by the USPTO. **THIS TWO MONTH PERIOD IS EXTENDABLE UNDER 37 CFR 1.136(a) or (b).**

II. Petition for later filing date: Should applicant desire to supply the omitted item(s) and accept the date that such omitted item(s) was filed in the USPTO as the filing date of the above-identified application, a copy of this Notice, the omitted item(s) (with a supplemental oath or declaration in compliance with 37 CFR 1.63 and 1.64 referring to such items), and a petition under 37 CFR 1.182 (with the $400.00 petition fee *(37 CFR 1.17(f))* requesting the later filing date **must** be filed within **TWO MONTHS** of the date of this Notice. **THIS TWO MONTH PERIOD IS EXTENDABLE UNDER 37 CFR 1.136(a) or (b).**
Applicant is advised that generally the filing fee required for an application is the filing fee in effect on the filing date accorded the application and that payment of the requisite basic filing fee on a date later than the filing date of the application requires payment of a surcharge (37 CFR 1.16(f)). To avoid processing delays and payment of a surcharge, applicant should submit any balance due for the requisite filing fee based on the later filing date being requested when submitting the omitted item(s) and the petition (and petition fee) requesting the later filing date.

III. Acceptance of application as deposited: Applicant may accept the application as deposited in the USPTO by filing an appropriate amendment as set forth in either (A) or (B) below within **TWO MONTHS** of the date of this Notice. **THIS TWO MONTH PERIOD IS EXTENDABLE UNDER 37 CFR 1.136(a) or (b)** . The application will maintain a filing date as of the date of deposit of the application papers in the USPTO, and original application papers (i.e., the original disclosure of the invention) will include only those application papers present in the USPTO on the date of deposit. A petition is not required for this option.
(A) If applicant wants to accept the application as deposited without adding the subject matter that was in the omitted item (e.g., a missing page or figure), applicant is required to submit one or more of the following items without adding any new matter (see 35 U.S.C. 132(a)):

1. For a missing page of the specification,
   a) a substitute specification including claims that amends the specification to renumber the pages consecutively and cancels any incomplete sentences, and
   b) a statement that the substitute specification includes no new matter, in compliance with 37 CFR 1.121(b)(3) and 1.125;
2. For a missing figure of the drawings,
   a) replacement drawing sheets in compliance with 37 CFR 1.121(d) to renumber the drawing figures consecutively (if necessary),
   b) a substitute specification excluding claims that amends the specification to cancel any references to any omitted drawing(s) and corrects the references in the specification to the drawing figures to correspond with any relabeled drawing figures, and
   c) a statement that the substitute specification includes no new matter, in compliance with 37 CFR 1.121(b)(3) and 1.125;
3. For a missing page of the claim listing only, a replacement claim listing with the claims renumbered consecutively or, if amendment to the claims is also necessary, then a complete claim listing in compliance with 37 CFR 1.121(c);
4. For a missing or unreadable compact disc,
   a) a substitute specification (excluding the claims) deleting the reference to the compact disc and the files contained on the compact disc, and
   b) a statement that the substitute specification includes no new matter, in compliance with 37 CFR 1.121(b)(3) and 1.125; and
5. For a missing or unreadable file submitted on a compact disc,

Google Exhibit 1006, Page 252 of 901

a) a substitute specification (excluding the claims) deleting the reference to the missing or unreadable file, and a statement that the substitute specification includes no new matter, in compliance with 37 CFR 1.121(b)(3) and 1.125; and
b) a replacement transmittal letter listing all of the files except the missing or unreadable file in compliance with 37 CFR 1.52(e)(3)(ii).

(B) Alternatively, if applicant wants to accept the application as deposited but wishes to add the subject matter in the omitted item (e.g., a missing page or figure) by relying on an incorporation by reference under 37 CFR 1.57 or other portions of the original disclosure, applicant is required to submit one or more of the following items without adding any new matter (see 35 U.S.C. 132(a)):

1. To add the subject matter in a missing page of specification,
   a) a substitute specification excluding claims and
   b) a statement that the substitute specification includes no new matter, in compliance with 37 CFR 1.121(b)(3) and 1.125;
2. To add a missing figure of the drawings, new and replacement drawing sheets in compliance with 37 CFR 1.121(d);
3. To add the subject matter in a missing page of the claim listing, a complete claim listing in compliance with 37 CFR 1.121(c) (e.g., a claim in the missing page should be submitted as a new claim);
4. To add the subject matter in a missing or unreadable compact disc,
   a) a replacement compact disc and a duplicate copy of the compact disc, in compliance with 37 CFR 1.52(e); and
   b) a statement that the replacement compact disc contains no new matter in compliance with 37 CFR 1.52(e)(4); and,
5. To add the subject matter in a missing or unreadable file submitted on a compact disc,
   a) a replacement compact disc that contains all of the files listed in the specification including the missing or unreadable file and a duplicate copy of the compact disc, in compliance with 37 CFR 1.52(e); and
   b) a statement that the replacement compact disc contains no new matter in compliance with 37 CFR 1.52(e)(4).

If applicant is relying on an incorporation by reference under 37 CFR 1.57 to add the omitted subject matter, then applicant must also comply with the requirements of 37 CFR 1.57.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- A surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.16(f) of $**65** for a small entity in compliance with 37 CFR 1.27, must be submitted.

SUMMARY OF FEES DUE:

Total fee(s) required within **TWO MONTHS** from the date of this Notice is $**65** for a small entity

- $**65** Surcharge.

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Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web.
https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

/eggolla/

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

Google Exhibit 1006, Page 254 of 901

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

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

Application Number	13134028
Filing Date	2011-05-25
First Named Inventor	RALEIGH, Gregory G.
Art Unit	2447
Examiner Name	Not Yet Assigned
Attorney Docket Number	26WV-160509 [RALEP032]

U.S.PATENTS

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	7747240		2010-06-29	BRISCOE et al	
	2	6952428		2005-10-04	NECKA et al	
	3	6684244		2004-01-27	GOLDMAN et al	
	4	5577100		1996-11-19	McGREGOR et al	
	5	6198915		2001-03-06	McGREGOR et al	
	6	6650887		2003-11-18	McGREGOR et al	
	7	7245901		2007-07-17	McGREGOR et al	
	8	7373136		2008-05-13	WATLER et al	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Art Unit	2447
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	26WV-160509 [RALEP032]

	9	6725031		2004-04-20	WATLER et al	
	10	6532579		2003-03-11	SATO et al	
	11	6651101		2003-11-18	GAI et al	
	12	7290283		2007-10-30	COPELAND III, John A.	
	13	7401338		2008-07-15	BOWEN et al	
	14	7197321		2007-03-27	ERSKINE et al	
	15	7516219		2009-04-07	MOGHADDAM et al	
	16	7647047		2010-01-12	MOGHADDAM et al	
	17	7929960		2011-04-19	MARTIN et al	
	18	7937069		2011-05-03	RASSAM, Frederic	
	19	6563806		2003-05-13	YANO et al	

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	Examiner Name	Not Yet Assigned
	Attorney Docket Number	26WV-160509 [RALEP032]

	20	6532235		2003-03-11	BENSON et al	
	21	7280816		2007-10-09	FRATTI et al	

If you wish to add additional U.S. Patent citation information please click the Add button.

U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20030088671		2003-05-08	KLINKER et al	
	2	20070248100		2007-10-25	ZUBERI et al	
	3	20080130534		2005-06-28	TOMIOKA, Tazuko	
	4	20060236095		2006-10-19	SMITH et al	
	5	20090054030		2009-02-26	GOLDS	
	6	20100043068		2010-02-18	VARADHAN et al	
	7	20100071053		2010-03-18	ANSARI et al	

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	Art Unit	2447
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	26WV-160509 [RALEP032]

	8	20030005112		2003-01-03	KRAUTKREMER	
	9	20060045245		2006-03-02	AARON et al	
	10	20070076616		2007-04-05	NGO et al	
	11	20060190314		2006-08-24	HERNANDEZ	
	12	20090271514		2009-10-29	THOMAS et al	
	13	20050055291		2005-03-10	BEVENTE et al	
	14	20060019632		2006-01-26	CUNNINGHAM et al	
	15	20050238046		2005-10-27	HASSAN et al	
	16	20020022472		2002-02-21	WATLER et al	
	17	20090125619		2009-05-14	ANTANI, Snehal S.	
	18	20080212470		2008-09-04	CASTANEDA et al	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	26WV-160509 [RALEP032]

	19	20080183812		2008-07-31	PAUL, et al	
	20	20060178918		2006-08-10	MIKURAK	
	21	20040103193		2004-05-27	PANDYA et al	
	22	20050183143		2005-08-18	ANDERHOLM et al	
	23	20070294395		2007-12-20	STRUB et al	
	24	20090287921		2009-11-19	ZHU et al	
	25	20060085543		2006-04-01	HRASTAR et al	
	26	20080059474		2008-03-01	LIM, Keng	
	27	20080066149		2008-03-01	LIM, Keng	
	28	20080066150		2008-03-01	LIM, Keng	
	29	20080167033		2008-07-10	BECKERS, Michel	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	26WV-160509 [RALEP032]

	30	20070298764		2007-12-27	CLAYTON	

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	WO1999/065185	WO		1999-12-16	British Telecommunications Public Limited Company		☐
	2	WO2007/018363	WO		2006-08-02	Upresto, Inc.		☐

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS

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]
	1	Author Unknown, "Data Roaming Tariffs - Transparency Measures." EUROPA - Europe's Information Society Thematic Portal website, date unknown.	☐

If you wish to add additional non-patent literature document citation information please click the Add button

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.

[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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	26WV-160509 [RALEP032]

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		Date (YYYY-MM-DD)	2011-07-18
Name/Print	Marc A. Sockol	Registration Number	40,823

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 record s.

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 Acknowledgement Receipt	
EFS ID:	10545776
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	69849
Filer:	Marc A. Sockol/Linda Brost
Filer Authorized By:	Marc A. Sockol
Attorney Docket Number:	26WV-160509 [RALEP032]
Receipt Date:	18-JUL-2011
Filing Date:	25-MAY-2011
Time Stamp:	21:21:54
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		160509-RALEP032-IDS-A-071811.pdf	470542 93efe3861a5f51f0a3741e01da79b99d3c2a088b	yes	16

	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Information Disclosure Statement (IDS) Form (SB08)		1	8	
	Non Patent Literature		9	16	
Warnings:					
Information:					
2	Foreign Reference	WO1999-065185A2A3.pdf	1952852 b4b22a6a3b435dba71663391f5ac019eb0e4ba7f	no	56
Warnings:					
Information:					
3	Foreign Reference	WO2007-018363A1.pdf	1334141 9cafcccc441271e5e512f90966955e5bc126b32d	no	37
Warnings:					
Information:					
		Total Files Size (in bytes):	3757535		

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.

Substitute for form 1449/PTO	Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*	Application No.:	13/134,028
	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
Sheet 1 of 4	Atty Docket No.	26WV-160509 [RALEP032]

U.S. Patent Documents					
Examiner Initials	CiteNo.	Document Number Number-Kind Code [1]	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	A.	US 2006/0048223	03-02-2006	LEE et al.	
	B.	US 6,965,667	11-15-2005	TRABANDT et al.	
	C.	US 2008/0268813	10-13-2008	Stephane H. Maes	
	D.	US 2007/0255848	11-01-2007	SEWALL et al.	
	E.	US 2008/0039102	02-14-2008	SEWALL et al.	
	F.	US 2006/0233108	10-19-2006	Murali R. Krishnan	
	G.	US 5,892,900	04-06-1999	GINTER et al.	
	H.	US 7,403,763	07-22-2008	Stephane H. Maes	
	I.	US 7,317,699	01-08-2008	GODFREY et al.	
	J.	US 7,353,533	04-1-2008	WRIGHT et al.	
	K.	US 7,322,044	01-22-2008	Scott E. Hrastar	
	L.	US 7,058,968	06-06-2006	ROWLAND et al.	
	M.	US 7,042,988	05-09-2006	JUITT et al.	
	N.	US 7,418,253	08-26-2008	Alan Kavanah	
	O.	US 7,242,920	04-10-2007	Robert P. Morris	
	P.	US 6,148,336	11-14-2000	THOMAS et al.	
	Q.	US 7,317,699	01-08-2008	GODFREY et al.	
	R.	US 7,325,037	01-29-2008	Karen L. Lawson	
	S.	US 6,141,686	10-31-2000	JACKOWSKI et al.	
	T.	US 2004/0044623	03-04-2004	WAKE et al.	
	U.	US 2006/0040642	02-23-2006	BORIS et al.	
	V.	US 2008/0229388	09-18-2008	Stephane H. Maes	
	W.	US 2008/0120688	05-22-2008	QIU et al.	
	X.	US 2003/0236745	12-25-2003	HARTSELL et al.	
	Y.	US 2008/0052387	02-28-2008	HEINZ et al.	
	Z.	US 2004/0019539	01-29-2004	RAMAN et al.	
	AA.	US 2004/0236547	11-25-2004	RAPPAPORT et al.	
	BB.	US 2002/0199001	12-26-2002	WENOCUR et al.	
	CC.	US 2004/0073672	04-15-2004	Fascenda	
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Substitute for form 1449/PTO	Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*	Application No.:	13/134,028
	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
Sheet 2 of 4	Atty Docket No.	26WV-160509 [RALEP032]

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Google Exhibit 1006, Page 266 of 901

Substitute for form 1449/PTO	Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*	Application No.:	13/134,028
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	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
Sheet 3 of 4	Atty Docket No.	26WV-160509 [RALEP032]

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Google Exhibit 1006, Page 267 of 901

Substitute for form 1449/PTO	Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*	Application No.:	13/134,028
	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
Sheet 4 of 4	Atty Docket No.	26WV-160509 [RALEP032]

FOREIGN PATENT DOCUMENTS					
Examiner Initials	Cite No.	Foreign Patent Document Country Code–Number–Kind Code	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1A	WO 2006/130960	12-14-2006	Mobidia, Inc.	
	1B	EP 1772988A1	04-11-2007	Huawei Technologies, Co., LTD.	
	1C	EP 1978772A1	10-08-2008	British Telecommunications	
	1D	WO 2007/053848	05-10-2007	Mobile Armor, LLC	
	1E	WO 2006/073837	07-13-2006	Symbol Technologies, Inc.	
	1F	WO 2004/028070	04-01-2004	Credant Technologies, Inc.	
	1G	WO 2004/095753	11-04-2004	Motorola Inc.	
	1H	WO 2003/014891	02-20-2003	The Boeing Company	
	1I	WO 2007/107701	09-27-2007	British Telecommunications	
	1J	EP 1463238	09-29-2004	Alcatel	
	1K	WO 2008/080430	07-10-2008	Telecom Italia S.P.A	
	1L	WO 2008/017837	02-14-2008	Symbian Software	
	1M	WO 2008/099802	08-21-2008	NEC Corporation	
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	1P	WO 2007/069245	06-21-2007	Yoggie Security	
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Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[2] = Applicant is to place a check mark here if English language Translation is attached

Google Exhibit 1006, Page 268 of 901

Electronic Acknowledgement Receipt	
EFS ID:	10545943
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	69849
Filer:	Marc A. Sockol/Linda Brost
Filer Authorized By:	Marc A. Sockol
Attorney Docket Number:	26WV-160509 [RALEP032]
Receipt Date:	18-JUL-2011
Filing Date:	25-MAY-2011
Time Stamp:	21:32:40
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

Substitute for form 1449/PTO	Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*	Application No.:	13/134,028
	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
Sheet 1 of 1	Atty Docket No.	26WV-160509 [RALEP032]

U.S. Patent Documents					
Examiner Initials	CiteNo.	Document Number Number-Kind Code (if	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS					
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	2A	WO 2006/077481	07-27-2006	True Context Corporation	
	2B	WO 2008/051379	05-02-2008	Verizon Services	
	2C	WO 2008/080139	07-03-2008	Integrated Mobile	
	2D	WO 2004/077797	09-10-2004	Boston Communications	
	2E	WO 2003/058880	04-17-2003	Telia AB	

NON PATENT LITERATURE DOCUMENTS

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	2F	HARTMANN et al., Agent-Based Banking Transactions & Information Retrieval-What about Performance Issues? 1999	
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	2M	Author Unknown, 3GPP TS 23.203, V8.4.0, 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Policy and Charging Control Architecture (Release 8), December 2008	
	2N	Author Unknown, 3GPP TS 23.401, V8.4.0, 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; General Packer Radio Service (GPRS) Enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) Access (Release 8), December 2008	
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Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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Google Exhibit 1006, Page 273 of 901

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Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	69849
Filer:	Marc A. Sockol/Linda Brost
Filer Authorized By:	Marc A. Sockol
Attorney Docket Number:	26WV-160509 [RALEP032]
Receipt Date:	18-JUL-2011
Filing Date:	25-MAY-2011
Time Stamp:	21:43:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

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Total Files Size (in bytes):	70204401

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.

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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.

Substitute for form 1449/PTO	Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*	Application No.:	13134028
	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
Sheet 1 of 1	Atty Docket No.	26WV-160509 [RALEP032]

U.S. Patent Documents					
Examiner Initials	CiteNo.	Document Number Number-Kind Code	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS					
Examiner Initials	Cite No.	Foreign Patent Document Country Code–Number–Kind Code	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	3A	WO 2007/014630	02-08-2007	Telefonaktiebolaget LM Ericsson	WO 2007/014630
	3B	WO 2006/004467	01-12-2006	Telefonaktiebolaget LM Ericsson	WO 2006/004467

NON PATENT LITERATURE DOCUMENTS

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.	T2
	3C	KNIGHT et al., Layer 2 and 3 Virtual Private Networks: Taxonomy, Technology, and Standardization Efforts, IEEE Communications Magazine, June 2004	
	3D	KOUTSOPOULOU et al., Middleware Platform for the Support of Charging Reconfiguration Actions, 2005	
	3E	NILSSON et al., A Novel MAC Scheme for Solving the QoS Parameter Adjustment Problem in IEEE802.11 e EDCA, February 2006	
	3F	Author Unknown, Overview of GSM, GPRS, and UMTS, Chapter 2, November 4, 2008	
	3G	CHAOUCHI et al., Policy Based Networking in the Integration Effort Of 4G Networks and Services, 2004 IEEE	
	3H	ZHU et al., A Survey of Quality of Service in IEEE 802.11 Networks, IEEE Wireless Communications, August 2004	
	3I	KYRIAKAKOS et al., Ubiquitous Service Provision in Next Generation Mobile Networks, Proceedings of the 13th IST Mobile and Wireless Communications Summit, Lyon, France, June 2004	
	3J	FAROOQ et al., An IEEE 802.16 WiMax Module for the NS-3 Simulator, March 2-6, 2009	
	3K	Author Unknown, HP, IP Multimedia Services Charging, A White Paper from HP, January 2006	
	3L	Author Unknown, Kindle™ User's Guide 3rd Edition, Copyright 2004-2009	

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

T2 = Applicant is to place a check mark here if English language Translation is attached

Google Exhibit 1006, Page 278 of 901

Electronic Acknowledgement Receipt

EFS ID:	10546031
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	69849
Filer:	Marc A. Sockol/Linda Brost
Filer Authorized By:	Marc A. Sockol
Attorney Docket Number:	26WV-160509 [RALEP032]
Receipt Date:	18-JUL-2011
Filing Date:	25-MAY-2011
Time Stamp:	21:53:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	160509-RALEP032-IDS-D-071811.pdf	55879 137f3019ec8cff89e2fd7899067149f9baa7d2a6	no	1

Warnings:	
Information:	

This is not an USPTO supplied IDS fillable form					
2	Foreign Reference	RALE_Foreign_Ref_3A.pdf	7292666 bda2da57ab175aa54d24e9cd7699784789063e0a	no	55
Warnings:					
Information:					
3	Foreign Reference	RALE_Foreign_Ref_3B.pdf	4238695 2b1ac857c7db7ca12f5a92190a59fb4eac5e537a	no	29
Warnings:					
Information:					
4	Non Patent Literature	RALE_NPL_Ref_3C.pdf	117093 adaccc6f7b2b7c7891095a31e01c2a5c2182ad86	no	8
Warnings:					
Information:					
5	Non Patent Literature	RALE_NPL_Ref_3D.pdf	1817585 1b0cb7a0b41b1340ba9e48fa0ea77e27f1632f33	no	10
Warnings:					
Information:					
6	Non Patent Literature	RALE_NPL_Ref_3E.pdf	184255 2e2daf80298dda3e93323c4a7f91f1ec3e478c42	no	9
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Information:					
7	Non Patent Literature	RALE_NPL_Ref_3F.pdf	5141787 6ecd30cfa00263c87082d7274ae16e8caa198bf1	no	35
Warnings:					
Information:					
8	Non Patent Literature	RALE_NPL_Ref_3G.pdf	1451509 e95282786ba86e4a05ee8c793a9ec634aa5a654c	no	6
Warnings:					
Information:					
9	Non Patent Literature	RALE_NPL_Ref_3H.pdf	128010 8d35d15d27cc8636c1526980a75aa6a4a97a745d	no	9
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Information:					
10	Non Patent Literature	RALE_NPL_Ref_3I.pdf	112089 24c595d8153db4b6ba795d5be64c6f98b0373749	no	5

Warnings:					
Information:					
11	Non Patent Literature	RALE_NPL_Ref_3J.pdf	338617 74671591bbc19ab5364956f70d29b176cce30b1f	no	11
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Information:					
12	Non Patent Literature	RALE_NPL_Ref_3K.pdf	2587996 1049307556 50d3cb8fbbb63837dc7338fbc2bd3c	no	16
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Information:					
13	Non Patent Literature	RALE_NPL_Ref_3L.pdf	1050612 c5435588dd68fcddc7835e4dce1e6489894a398b	no	124
Warnings:					
Information:					
		Total Files Size (in bytes):	24516793		

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Gregory G. Raleigh, et al.	Not Yet Assigned
Serial No. 13/134,028	Art Unit: 2447
Filed: May 25, 2011	Conf. No.: 3250

Title: Device-Assisted Services for Protecting Network Capacity

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

PETITION FOR DATE OF DEPOSIT UNDER 37 CFR 1.53(E)

Dear Sir:

In response to the Notice to File Missing Parts dated June 17, 2011, noting that Figure 27 appeared to have been missing from the application, Applicants respectfully contend that Figure 27 was indeed deposited in the U.S. Patent and Trademark Office with the nonprovisional application papers, and state as follows:

1. Figures 1-27 constitute Drawing Sheets 1-29 for the above-referenced application;

2. The return receipt postcard for this application (copy enclosed) stamped by the receiving office of the USPTO notes that 29 sheets of drawings were submitted and received with the application as filed via USPS Express Mail on May 25, 2011;

3. The new application transmittal form included with the application notes that 29 sheets of drawings were submitted with the application as filed via USPS Express Mail on May 25, 2011;

4. The Fee Transmittal included with the application notes that 29 sheets of drawings were submitted with the application and were included in the application excess size fee (copy enclosed); and

5. The file of the attorney of record for this application contains two sets of drawings as filed, each a duplicate of the set that was submitted by mail to the USPTO with the application, and each set contains 29 sheets, with the original version of Figure 27 (copy enclosed herewith);

Google Exhibit 1006, Page 282 of 901

6. It is the practice of Applicants' attorneys of record to double-check each application before it is filed, to ensure that all pertinent documentation is enclosed with the application, and the attorney of record believes that Figure 27 was included with the original application documentation as filed.

I declare that the foregoing is true and correct to the best of my knowledge.

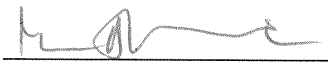
Replacement drawings for this application are being submitted in the accompanying response to the Notice to File Missing Parts and include replacement sheet 29 with Figure 27 (copy of sheet 29 of 29 enclosed herewith).

Applicants hereby authorize the Commissioner to charge the applicable petition fee of $400 under 37 CFR 1.17(f) to Deposit Account 50-4561. Applicants request that, subsequent to review of this petition, confirmation of receipt of Figure 27, and affirmation of the date of deposit of May 25, 2011 for all elements of this application, the Commissioner refund the petition fee of $400 to Deposit Account 50-4561.

If for any reason an insufficient fee has been paid, please charge the insufficiency or credit any applicable refund to Deposit Account No. 50-4561.

Respectfully submitted,

Date: August 17, 2011

By: 

Marc A. Sockol
Reg. No. 40,823
Customer Number 69849
Sheppard Mullin Richter & Hampton LLP
390 Lytton Avenue
Palo Alto, CA 94301

Google Exhibit 1006, Page 283 of 901

Date Mailed: May 25, 2011	By: MAS/lkb	PTO DATE STAMP: 13/134,028
Application No.: Not Yet Assigned		Filing Date: Herewith
Applicant: Gregory G. Raleigh, et al.		Docket No.: 26WV-160509 [RALEP032]
Title: Device-Assisted Services for Protecting Network Capacity		

The following has been received in the U.S. Patent Office on the date stamped hereon:

- ☒ Patent Application: 210 Pages 113 Claims
- ☒ Drawings: 29 Sheets
- ☒ Gen. Authorization for Extensions of Time (1 pg.)
- ☐ Oath/Declaration
- ☐ Assignment & Recordation Cover Sheet
- ☐ Power of Attorney
- ☒ Transmittal Form (2 pgs.)
- ☒ Fee Transmittal (2 pgs.)
- ☐ Provisional Application _ Pages
- ☐ Design Application __ Pages __ Drawings
- ☐ Status Request
- ☐ IDS, PTO Form SB/08a/b, and __ Cited References
- ☒ Express Mail Label No. EM 551710665 US
- ☐ Response/Amendment
- ☐ Preliminary Amendment
- ☐ Request for Continued Examination
- ☐ Petition for Extension of Time
- ☐ Certificate(s) of First-Class Mailing
- ☐ Copy of PTO-1533, Notice to File Missing Parts
- ☐ Copy of Notice of Missing Requirements
- ☐ Replacement Drawings __ Sheets
- ☐ Issue Fee Transmittal (PTO-85b)
- ☐ Request to Correct Filing Receipt
- ☐ National Phase Entry Form
- ☒ Authorization to Charge Deposit Account
- ☒ Return Receipt Postcard

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UNITED STATES POSTAGE
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SHEPPARD, MULLIN, RICHTER
& HAMPTON LLP
390 LYTTON AVENUE
PALO ALTO, CALIFORNIA 94301-1432

141432

[As-filed]

PTO/SB/05 (08-08)
Approved for use through 09/30/2010. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	26WV-160509 [RALEP032]
First Inventor	Gregory G. Raleigh, et al.
Title	Device-Assisted Services for Protecting Network Capacity
Express Mail Label No.	EM 551710665 US

APPLICATION ELEMENTS

See *MPEP chapter 600 concerning utility patent application contents.*

1. ☒ **Fee Transmittal Form** (e.g., PTO/SB/17)
2. ☒ **Applicant claims small entity status.** See 37 CFR 1.27.
3. ☒ **Specification** [*Total Pages* 210]
   Both the claims and abstract must start on a new page
   (For information on the preferred arrangement, see MPEP 608.01(a))
4. ☒ **Drawing(s)** (35 U.S. C. *113*) [*Total Sheets* 29]
5. **Oath or Declaration** [*Total Sheets*]
   a. ☐ Newly executed (original or copy)
   b. ☐ A copy from a prior application (37 CFR 1.63(d))
   (for continuation/divisional with Box 18 completed)
   i. ☐ DELETION OF INVENTOR(s)
   Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☐ **Application Data Sheet.** See 37 CFR 1.76
7. ☐ **CD-ROM or CD-R** in duplicate, large table or Computer Program *(Appendix)*
   ☐ Landscape Table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission**
   (if applicable, items a. - c. are required)
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ Paper
   c. ☐ Statements verifying identity of above copies

ADDRESS TO: **Commissioner for Patents**
P.O. Box 1450
Alexandria VA 22313-1450

ACCOMPANYING APPLICATION PARTS

9. ☐ **Assignment Papers** (cover sheet & document(s))
   Name of Assignee _____
10. ☐ **37 CFR 3.73(b) Statement** *(when there is an assignee)* ☐ **Power of Attorney**
11. ☐ **English Translation Document** *(if applicable)*
12. ☐ **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
    ☐ Copies of citations attached
13. ☐ **Preliminary Amendment**
14. ☒ **Return Receipt Postcard** (MPEP 503)
    (Should be specifically itemized)
15. ☐ **Certified Copy of Priority Document(s)**
    (if foreign priority is claimed)
16. ☐ **Nonpublication Request** under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
17. ☒ Other: General Authorization to Petition for Extensions of Time (1 pg.)

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:*

☐ Continuation ☐ Divisional ☒ Continuation-in-part (CIP) of prior application No.: See application

Prior application information: Examiner _____ *Art Unit:* _____

19. CORRESPONDENCE ADDRESS

☒ The address associated with Customer Number 69849 *OR* ☐ Correspondence address below

Name					
Address					
City		State		Zip Code	
Country		Telephone		Email	

Signature		Date	May 25, 2011
Name (Print/Type)	Marc A. Sockol	Registration No. (Attorney/Agent)	40,823

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

American LegalNet, Inc.
www.FormsWorkflow.com

Google Exhibit 1006, Page 285 of 901

PTO/SB/17 (10-08)
Approved for use through 09/30/2010. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2009

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	($)4,578.00

Complete If Known	
Application Number	Not Yet Assigned
Filing Date	Herewith
First Named Inventor	Gregory G. Raleigh, et al.
Examiner Name	Not Yet Assigned
Art Unit	Not Yet Assigned
Attorney Docket No.	26WV-160509 [RALEP032]

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: 50-4561 Deposit Account Name: Sheppard, Mullin, Richter & Hampton LLP

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☒ Charge fee(s) indicated below
☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17
☐ Charge fee(s) indicated below, **except for the filing fee**
☒ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
		Small Entity		Small Entity		Small Entity	
Application Type	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fees Paid ($)
Utility	330	165	540	270	220	110	545.00
Design	220	110	100	50	140	70	
Plant	220	110	330	165	170	85	
Reissue	330	165	540	270	650	325	
Provisional	220	110	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Small Entity Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	52	26
Each independent claim over 3 (including Reissues)	220	110
Multiple dependent claims	390	195

Total Claims		Extra Claims	Fee ($)	Fees Paid ($)
113	- 20 or HP =	93	x 26	= 2,418

HP = highest number of total claims paid for, if greater than 20

Indep. Claims		Extra Claims	Fee ($)	Fees Paid ($)
14	- 3 or HP =	11	x 110	= 1,210

HP = highest number of independent claims paid for, if greater than 3

Multiple Dependent Claims Fee ($)	Multiple Dependent Claims Fee Paid ($)

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $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).

Total Sheets		Extra Sheets		Number of each additional 50 or fraction thereof		Fee ($)		Fee Paid ($)
239	- 100 =	139	/50=	3	(round up to a whole number) x	135	=	405

4. OTHER FEE(S) 210 + 29

	Fee Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
Other (e.g., late filing surcharge): _____	

SUBMITTED BY

Signature		Registration No.: 40,823 (Attorney/Agent)	Telephone: (650) 815-2600
Name (Print/Type)	Marc A. Sockol		Date: May 25, 2011

This collection of information is required by 37 CFR 1.138. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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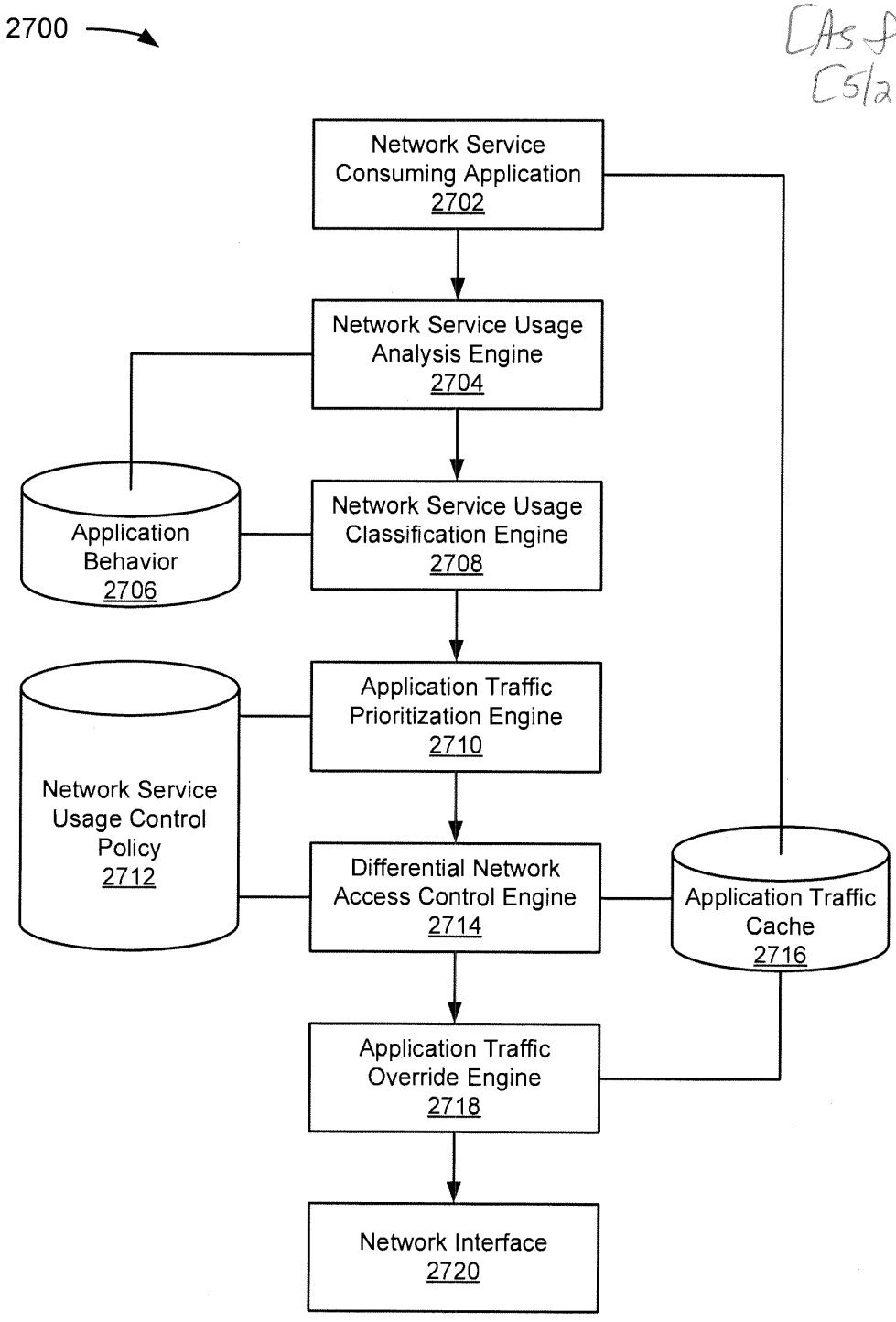
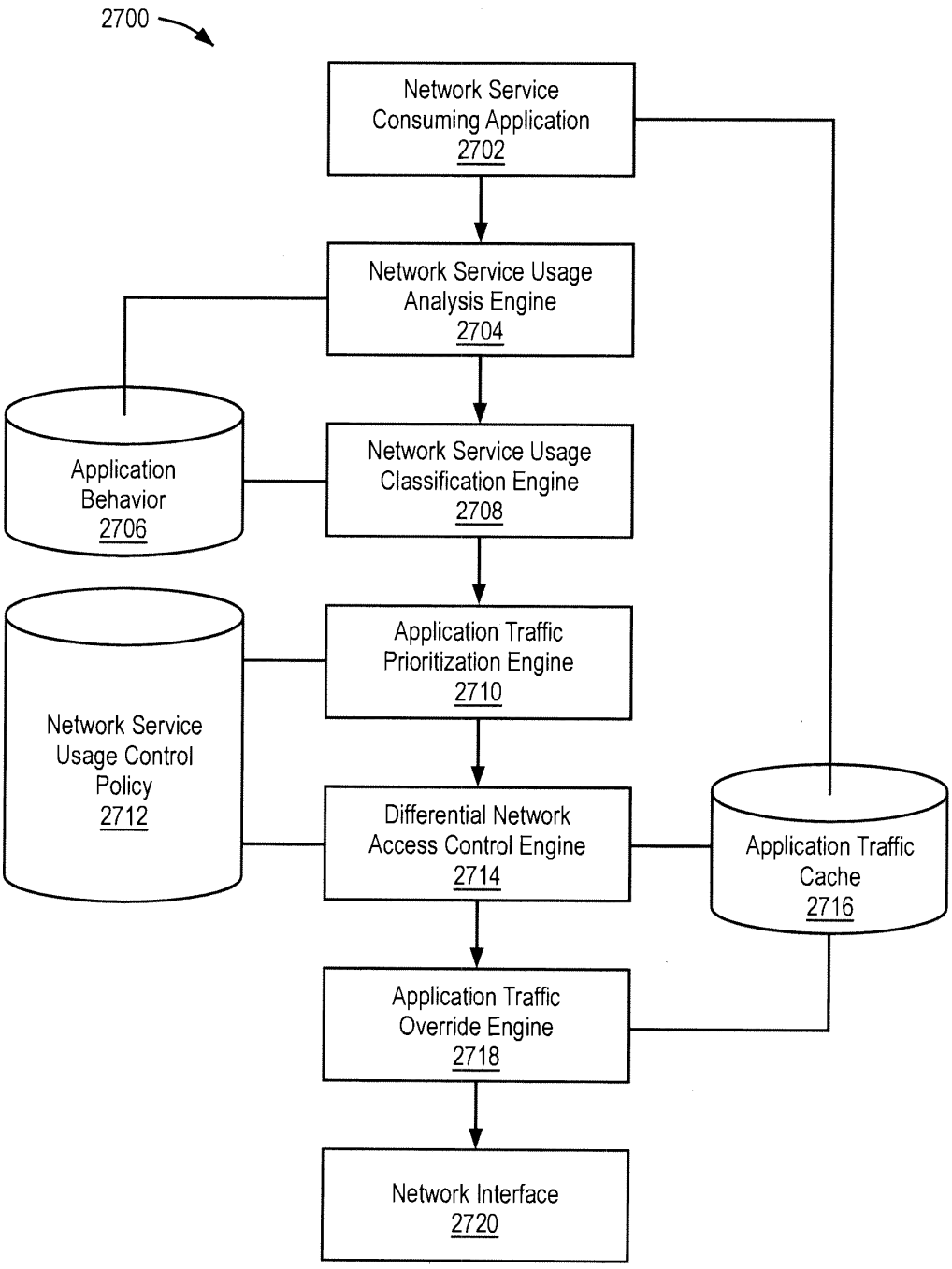

2700
[As filed]
[5/25/11]
Network Service Consuming Application 2702
Network Service Usage Analysis Engine 2704
Application Behavior 2706
Network Service Usage Classification Engine 2708
Application Traffic Prioritization Engine 2710
Network Service Usage Control Policy 2712
Differential Network Access Control Engine 2714
Application Traffic Cache 2716
Application Traffic Override Engine 2718
Network Interface 2720

FIG. 27


2700
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Network Service Usage Analysis Engine 2704
Application Behavior 2706
Network Service Usage Classification Engine 2708
Application Traffic Prioritization Engine 2710
Network Service Usage Control Policy 2712
Differential Network Access Control Engine 2714
Application Traffic Cache 2716
Application Traffic Override Engine 2718
Network Interface 2720

FIG. 27

Electronic Patent Application Fee Transmittal	
Application Number:	13134028
Filing Date:	25-May-2011
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Marc A. Sockol/Linda Brost
Attorney Docket Number:	26WV-160509 [RALEP032]
Filed as Small Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Late filing fee for oath or declaration	2051	1	65	65
Petition:				
Petition fee- 37 CFR 1.17(f) (Group I)	1462	1	400	400
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**465**

Electronic Acknowledgement Receipt	
EFS ID:	10761209
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	69849
Filer:	Marc A. Sockol/Linda Brost
Filer Authorized By:	Marc A. Sockol
Attorney Docket Number:	26WV-160509 [RALEP032]
Receipt Date:	17-AUG-2011
Filing Date:	25-MAY-2011
Time Stamp:	21:08:39
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$465
RAM confirmation Number	5847
Deposit Account	504561
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees) 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 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	**Document Description**	**File Name**	**File Size(Bytes)/ Message Digest**	**Multi Part /.zip**	**Pages (if appl.)**
1		160509-RALEP032-MPRespReplDrwgsPrelAmPetforDateofDepReqforCorrFR-A-081711.pdf	999366 38980b266dff6fffc5a55365252ebe84e2e038ff	yes	45
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Transmittal Letter		1	1	
	Applicant Response to Pre-Exam Formalities Notice		2	3	
	Oath or Declaration filed		4	7	
	Drawings-only black and white line drawings		8	36	
	Request for Corrected Filing Receipt		37	45	
Warnings:					
Information:					
2		160509-RALEP032-MPRespReplDrwgsPrelAmPetforDateofDepReqforCorrFR-B-081711.pdf	617433 ca71c381b5dd2ba4c353a3fa0d33b91db98acf1b	yes	38
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Preliminary Amendment		1	31	
	Petition for review by the Office of Petitions.		32	38	
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32196 8d9b500e05bfebf83f6e57ce8de348d84a03578a	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1648995		

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

PTO/SB/21 (07-09)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	83

Application Number	13/134,028
Filing Date	May 25, 2011
First Named Inventor	Gregory G. Raleigh
Art Unit	2447 Conf. No. 3250
Examiner Name	Not Yet Assigned
Attorney Docket Number	26WV-160509 [RALEP032]

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
- ☐ Fee Attached
- ☒ Preliminary Amendment (31 pgs.)
- ☐ After Final
- ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement with PTO/SB/08a/b
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
- ☒ Reply to Missing Parts under 37 CFR 1.52 or 1.53 (2 pgs.)
- ☒ Replacement Drawings (29 sheets)
- ☐ Licensing-related Papers
- ☒ Petition for Date of Deposit Under 37 CFR 1.53(e) with copies of return receipt postcard, transmittals, and drawings (7 pgs.)
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation, Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
- ☐ Proprietary Information
- ☐ Status Letter
- ☒ Other Enclosure(s) (please Identify below):

  Declaration for Utility Application (4 pgs.); Request for Corrected Filing Receipt (2 pgs.); copy of Filing Receipt (3 pgs.); copy of first 4 pages of Specification

Remarks

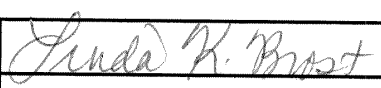
You are hereby authorized to charge any additional fee required or credit any overpayment to Deposit Account No. 50-4561.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Sheppard, Mullin, Richter & Hampton LLP Customer No. 69849		
Signature			
Printed name	Marc A. Sockol		
Date	August 17, 2011	Reg. No.	40,823

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this correspondence is being filed electronically via EFS-Web addressed to the Commissioner for Patents on the date shown below:

Signature			
Typed or printed name	Linda K. Brost	Date	August 17, 2011

This collection of information is required by 37 CFR 1.5. 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 2 hours 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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Google Exhibit 1006, Page 294 of 901

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Gregory G. Raleigh, et al.	Not Yet Assigned
Serial No. 13/134,028	Art Unit: 2447
Filed: May 25, 2011	Conf. No.: 3250
Title: Device-Assisted Services for Protecting Network Capacity	

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

RESPONSE TO NOTICE TO FILE MISSING PARTS UNDER 37 C.F.R. 1.53(b)

Dear Sir:

In response to the Notice to File Missing Parts of Application mailed on June 17, 2011 in the above-identified application, enclosed herewith are the missing parts needed to complete filing of the above-identified patent application. The signed declaration for patent application is enclosed herewith under 37 C.F.R. §§1.27 and 1.16(e). Replacement drawings are also enclosed herewith under 37 C.F.R. §§1.84 and 1.121(d).

In addition, enclosed is a Petition for Date of Deposit with respect to Figure 27.

☒ Small entity status is proper for the assignee under 37 C.F.R. §§1.9 and 1.27.

The fees associated with the filing of this response are shown below:

	Fees
Missing Parts Surcharge (small entity)	$ 65.00
TOTAL FEE ENCLOSED =	**$ 65.00**

Google Exhibit 1006, Page 295 of 901

☐ No additional fee is required for this _____.
☒ Please charge Deposit Account No. 50-4561 in the amount of $65.00.
☒ The Commissioner is hereby authorized to charge any additional fees and credit any overpayments to Deposit Account No. 50-4561.
☒ Charge any patent application processing fees under 37 C.F.R. 1.17.

Respectfully submitted,

Date: August 17, 2011

By: _____

Marc A. Sockol
Reg. No. 40,823
Customer Number 69849
Sheppard Mullin Richter & Hampton LLP
390 Lytton Avenue
Palo Alto, CA 94301-1432

PTO/SB/01 (04-09)
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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

☐ Declaration Submitted With Initial Filing OR ☒ Declaration Submitted after Initial Filing (surcharge (37 CFR1.16 (f)) required)

Attorney Docket Number	26WV-160509 [RALEP032]
First Named Inventor	Gregory G. Raleigh, et al.
COMPLETE IF KNOWN	
Application Number	13/134,028
Filing Date	May 25, 2011
Art Unit	2447
Examiner Name	Not Yet Assigned

I hereby declare that: (1) Each inventor's residence, mailing address, and citizenship are as stated below next to their name; and (2) I believe the inventor(s) named below to be the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Device-Assisted Services for Protecting Network Capacity

(Title of the Invention)

the application of which

☐ is attached hereto

OR

☒ was filed on (MM/DD/YYYY) 05/25/2011 as United States Application Number or PCT International

Application Number 13/134,028 and was amended on (MM/DD/YYYY) _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified application, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

Authorization To Permit Access To Application by Participating Offices

☒ If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the above-identified patent application is filed access to the above-identified patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the above-identified patent application is filed to have access to the above-identified patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the above-identified patent application with respect to: 1) the above-identified patent application-as-filed; 2) any foreign application to which the above-identified patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the above-identified patent application; and 3) any U.S. application-as-filed from which benefit is sought in the above-identified patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing the Authorization to Permit Access to Application by Participating Offices.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 21 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 completing the form, call 1-800-PTO-9199 and select option 2.

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DECLARATION — Utility or Design Patent Application

Claim of Foreign Priority Benefits

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES	NO
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

Google Exhibit 1006, Page 298 of 901

PTO/SB/01 (04-09)
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DECLARATION — Utility or Design Patent Application

Direct all correspondence to:	☒ The address associated with Customer Number:	69849	OR	☐ Correspondence address below

Name		
Address		
City	State	Zip
Country	Telephone	Email

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available. Petitioner/applicant is advised that documents which form the record of a patent application (such as the PTO/SB/01) are placed into the Privacy Act system of records DEPARTMENT OF COMMERCE, COMMERCE-PAT-7, System name: *Patent Application Files*. Documents not retained in an application file (such as the PTO-2038) are placed into the Privacy Act system of COMMERCE/PAT-TM-10, System name: *Deposit Accounts and Electronic Funds Transfer Profiles*.

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 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

NAME OF SOLE OR FIRST INVENTOR:	☐ A petition has been filed for this unsigned inventor
Given Name (first and middle [if any]) Gregory G.	Family Name or Surname Raleigh
Inventor's Signature	Date 8-16-11

Residence: City	State	Country	Citizenship
Woodside	California	U.S.	U.S.

Mailing Address 131 Fox Hollow Road			
City Woodside	State California	Zip 94062	Country U.S.

☒ Additional inventors or a legal representative are being named on the 1 supplemental sheet(s) PTO/SB/02A or 02LR attached hereto

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PTO/SB/02A (07-07)
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DECLARATION

ADDITIONAL INVENTOR(S)
Supplemental Sheet

Name of Additional Joint Inventor, if any: ☐ A petition has been filed for this unsigned inventor

Given Name (first and middle (if any))	Family Name or Surname
Alireza	Raissinia

Inventor's Signature _____ Date 8-16-11

Residence: City	State	Country	Citizenship
Monte Sereno	California	U.S.	U.S.

Mailing Address: 15147 Elm Park

City	State	Zip	Country
Monte Sereno	California	95030-2120	U.S.

Name of Additional Joint Inventor, if any: ☐ A petition has been filed for this unsigned inventor

Given Name (first and middle (if any))	Family Name or Surname
James	Lavine

Inventor's Signature _____ Date 8/11/11

Residence: City	State	Country	Citizenship
Mill Valley	California	U.S.	U.S.

Mailing Address: 8 Heavenly Way

City	State	Zip	Country
Mill Valley	California	94941	U.S.

Name of Additional Joint Inventor, if any: ☐ A petition has been filed for this unsigned inventor

Given Name (first and middle (if any))	Family Name or Surname

Inventor's Signature _____ Date

Residence: City	State	Country	Citizenship

Mailing Address

City	State	Zip	Country

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 21 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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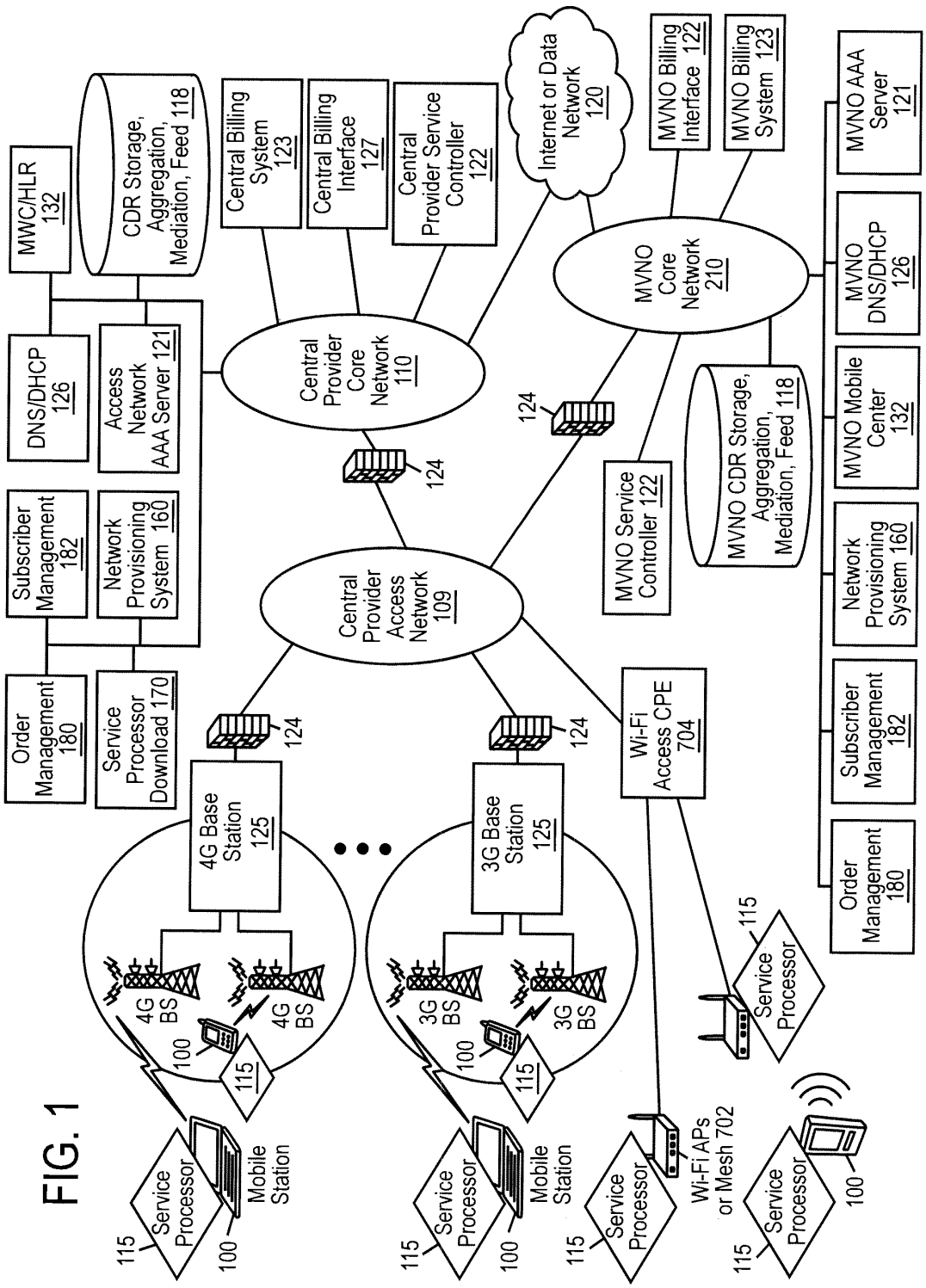
MWC/HLR 132
CDR Storage, Aggregation, Mediation, Feed 118
Central Billing System 123
Central Billing Interface 127
Central Provider Service Controller 122
Internet or Data Network 120
MVNO Billing Interface 122
MVNO Billing System 123
MVNO AAA Server 121
DNS/DHCP 126
Access Network AAA Server 121
Central Provider Core Network 110
MVNO Core Network 210
MVNO DNS/DHCP 126
Subscriber Management 182
Network Provisioning System 160
MVNO Mobile Center 132
Order Management 180
Service Processor Download 170
Central Provider Access Network 109
MVNO Service Controller 122
MVNO CDR Storage, Aggregation, Mediation, Feed 118
Network Provisioning System 160
Subscriber Management 182
Order Management 180
124
4G Base Station 125
3G Base Station 125
Wi-Fi Access CPE 704
4G BS
3G BS
100
115
Service Processor
Mobile Station
Wi-Fi APs or Mesh 702

FIG. 1

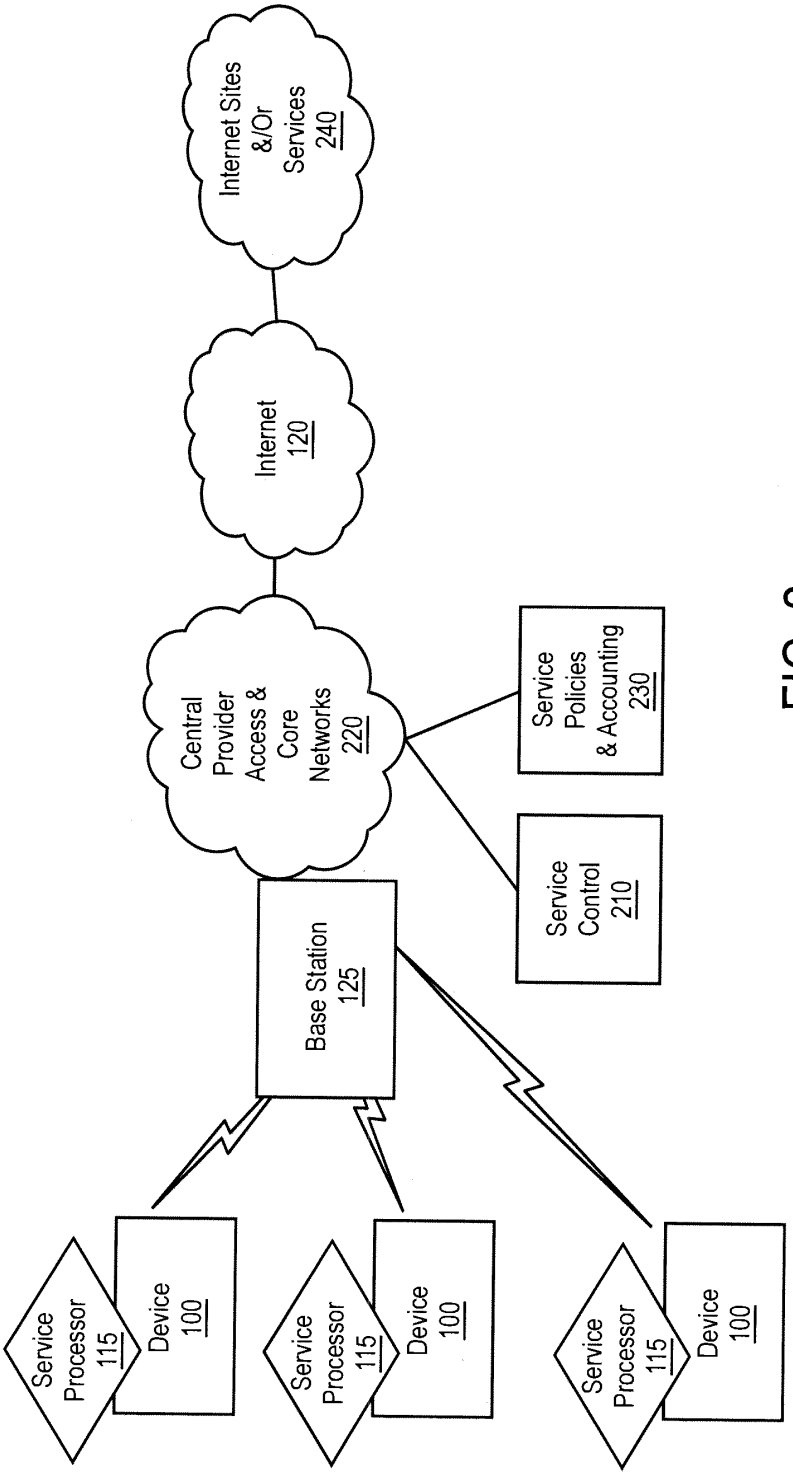
Internet Sites &/Or Services 240
Internet 120
Central Provider Access & Core Networks 220
Service Policies & Accounting 230
Service Control 210
Base Station 125
Service Processor 115
Device 100
Service Processor 115
Device 100
Service Processor 115
Device 100

FIG. 2

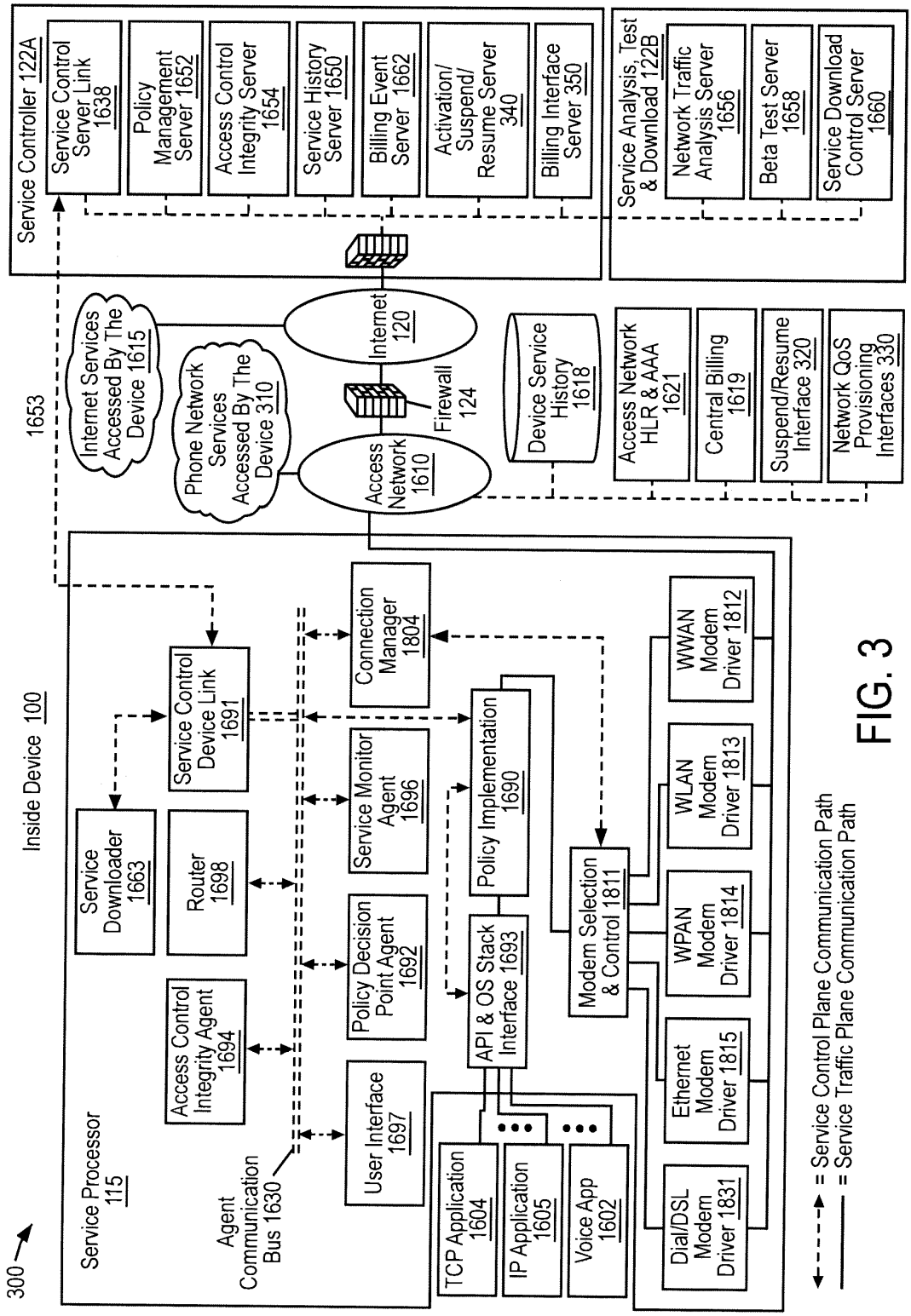
300
Inside Device 100
Service Processor 115
Agent Communication Bus 1630
TCP Application 1604
IP Application 1605
Voice App 1602
User Interface 1697
Access Control Integrity Agent 1694
Service Downloader 1663
Router 1698
Service Control Device Link 1691
Policy Decision Point Agent 1692
Service Monitor Agent 1696
Connection Manager 1804
API & OS Stack Interface 1693
Policy Implementation 1690
Modem Selection & Control 1811
Dial/DSL Modem Driver 1831
Ethernet Modem Driver 1815
WPAN Modem Driver 1814
WLAN Modem Driver 1813
WWAN Modem Driver 1812
1653
Internet Services Accessed By The Device 1615
Phone Network Services Accessed By The Device 310
Access Network 1610
Firewall 124
Internet 120
Device Service History 1618
Access Network HLR & AAA 1621
Central Billing 1619
Suspend/Resume Interface 320
Network QoS Provisioning Interfaces 330
Service Controller 122A
Service Control Server Link 1638
Policy Management Server 1652
Access Control Integrity Server 1654
Service History Server 1650
Billing Event Server 1662
Activation/ Suspend/ Resume Server 340
Billing Interface Server 350
Service Analysis, Test & Download 122B
Network Traffic Analysis Server 1656
Beta Test Server 1658
Service Download Control Server 1660
= Service Control Plane Communication Path
= Service Traffic Plane Communication Path

FIG. 3

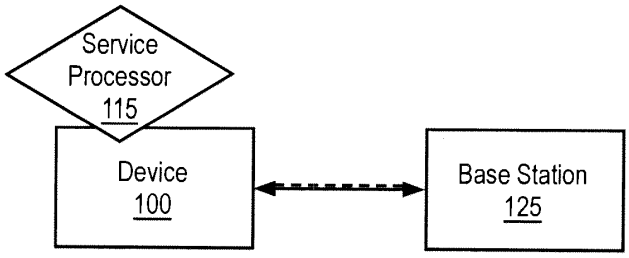

FIG. 4A

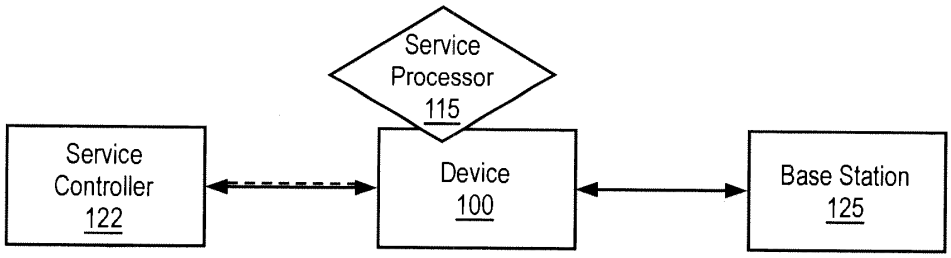

FIG. 4B

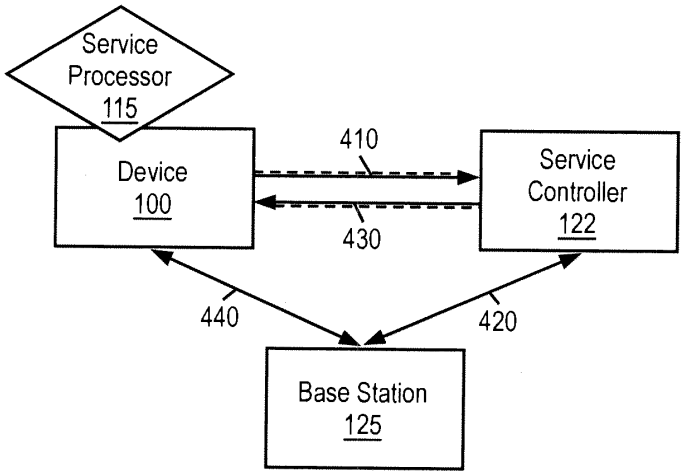

FIG. 4C

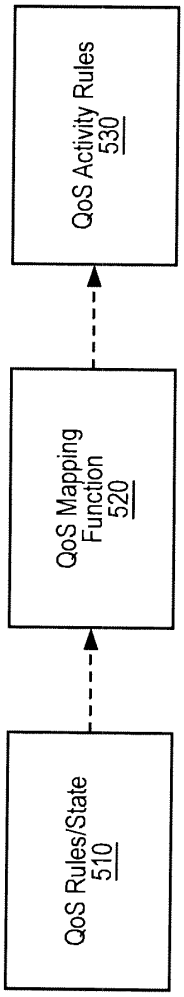
QoS Activity Rules
530
QoS Mapping Function
520
QoS Rules/State
510

FIG. 5

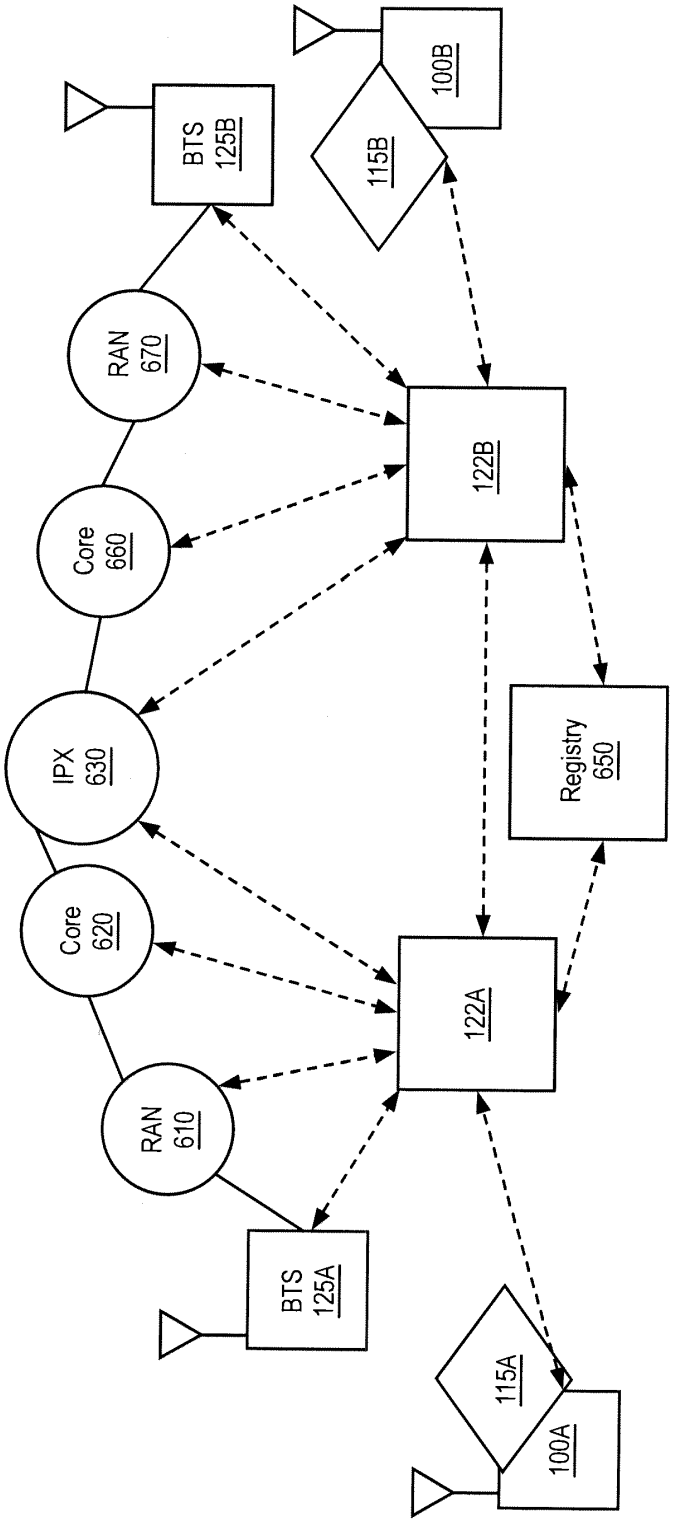
100B
115B
BTS 125B
RAN 670
Core 660
122B
IPX 630
Registry 650
Core 620
122A
RAN 610
BTS 125A
115A
100A

FIG. 6

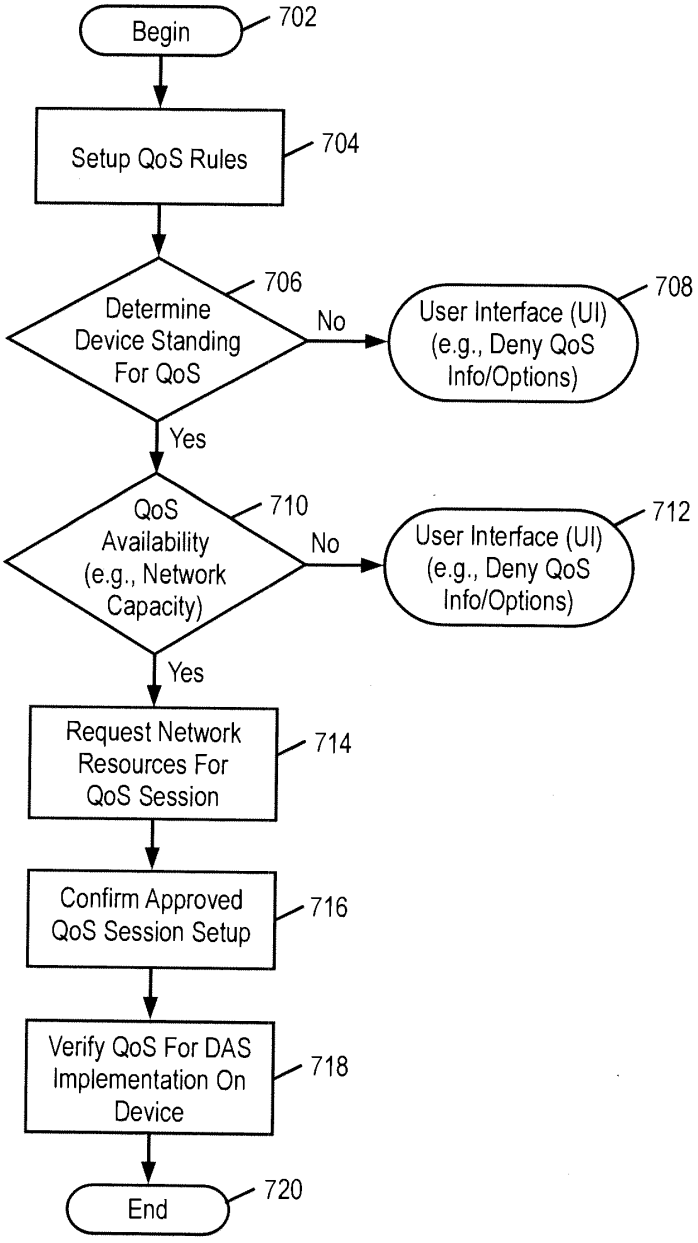
Begin
702
Setup QoS Rules
704
Determine Device Standing For QoS
706
No
User Interface (UI) (e.g., Deny QoS Info/Options)
708
Yes
QoS Availability (e.g., Network Capacity)
710
No
User Interface (UI) (e.g., Deny QoS Info/Options)
712
Yes
Request Network Resources For QoS Session
714
Confirm Approved QoS Session Setup
716
Verify QoS For DAS Implementation On Device
718
End
720

FIG. 7

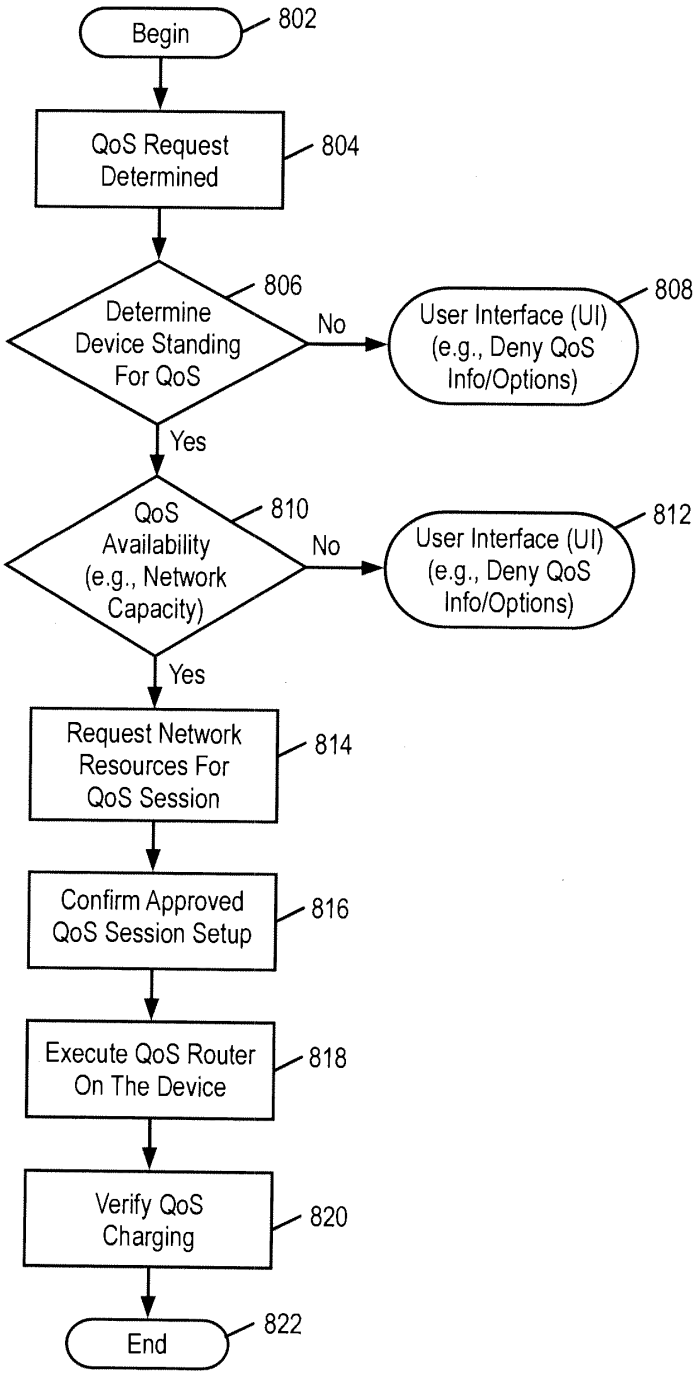
Begin
802
QoS Request Determined
804
Determine Device Standing For QoS
806
No
User Interface (UI) (e.g., Deny QoS Info/Options)
808
Yes
QoS Availability (e.g., Network Capacity)
810
No
User Interface (UI) (e.g., Deny QoS Info/Options)
812
Yes
Request Network Resources For QoS Session
814
Confirm Approved QoS Session Setup
816
Execute QoS Router On The Device
818
Verify QoS Charging
820
End
822

FIG. 8A

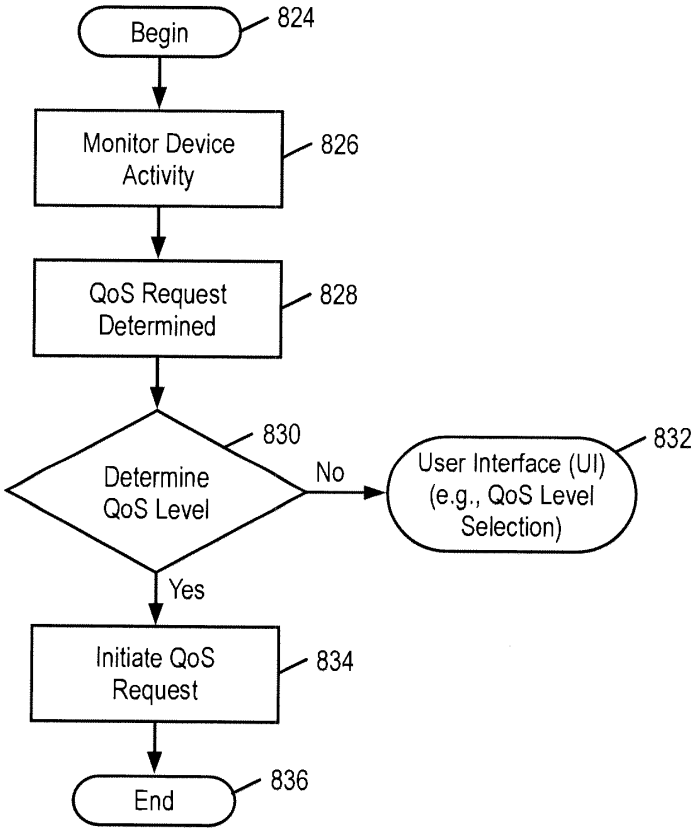
Begin
824
Monitor Device Activity
826
QoS Request Determined
828
Determine QoS Level
830
No
User Interface (UI) (e.g., QoS Level Selection)
832
Yes
Initiate QoS Request
834
End
836

FIG. 8B

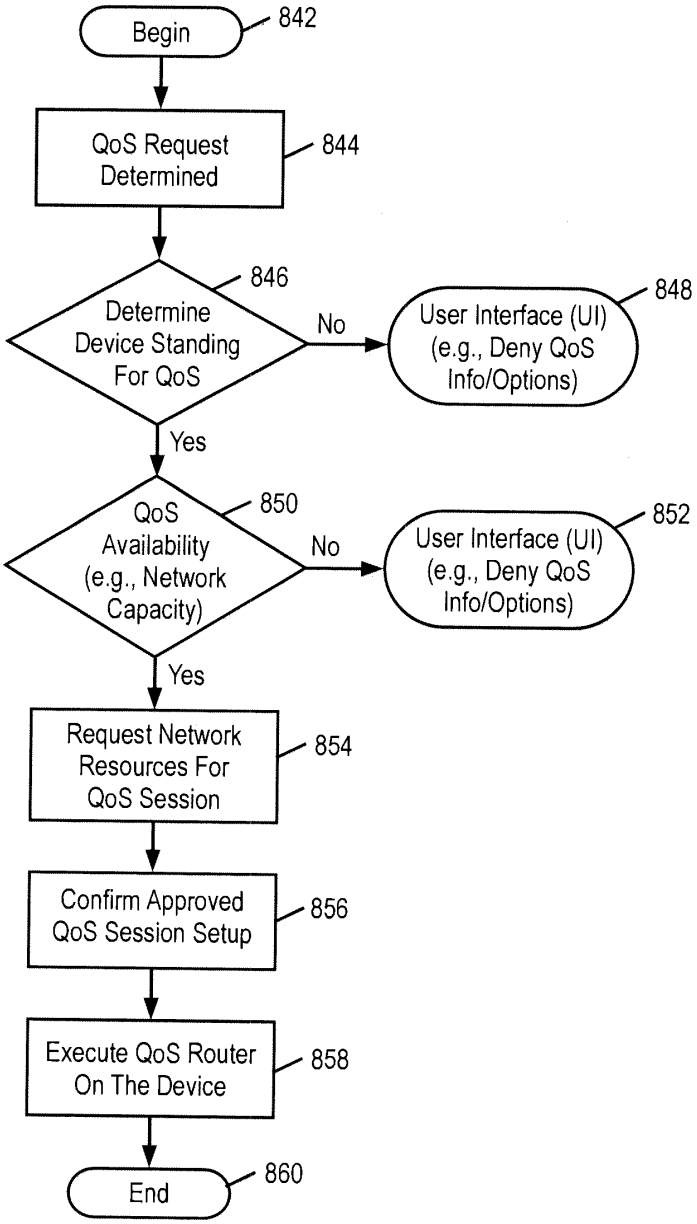
Begin
842
QoS Request Determined
844
Determine Device Standing For QoS
846
No
User Interface (UI) (e.g., Deny QoS Info/Options)
848
Yes
QoS Availability (e.g., Network Capacity)
850
No
User Interface (UI) (e.g., Deny QoS Info/Options)
852
Yes
Request Network Resources For QoS Session
854
Confirm Approved QoS Session Setup
856
Execute QoS Router On The Device
858
End
860

FIG. 8C

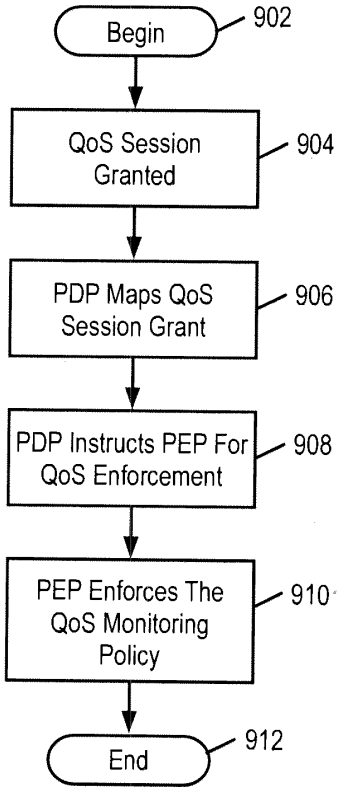
Begin
902
QoS Session Granted
904
PDP Maps QoS Session Grant
906
PDP Instructs PEP For QoS Enforcement
908
PEP Enforces The QoS Monitoring Policy
910
End
912

FIG. 9

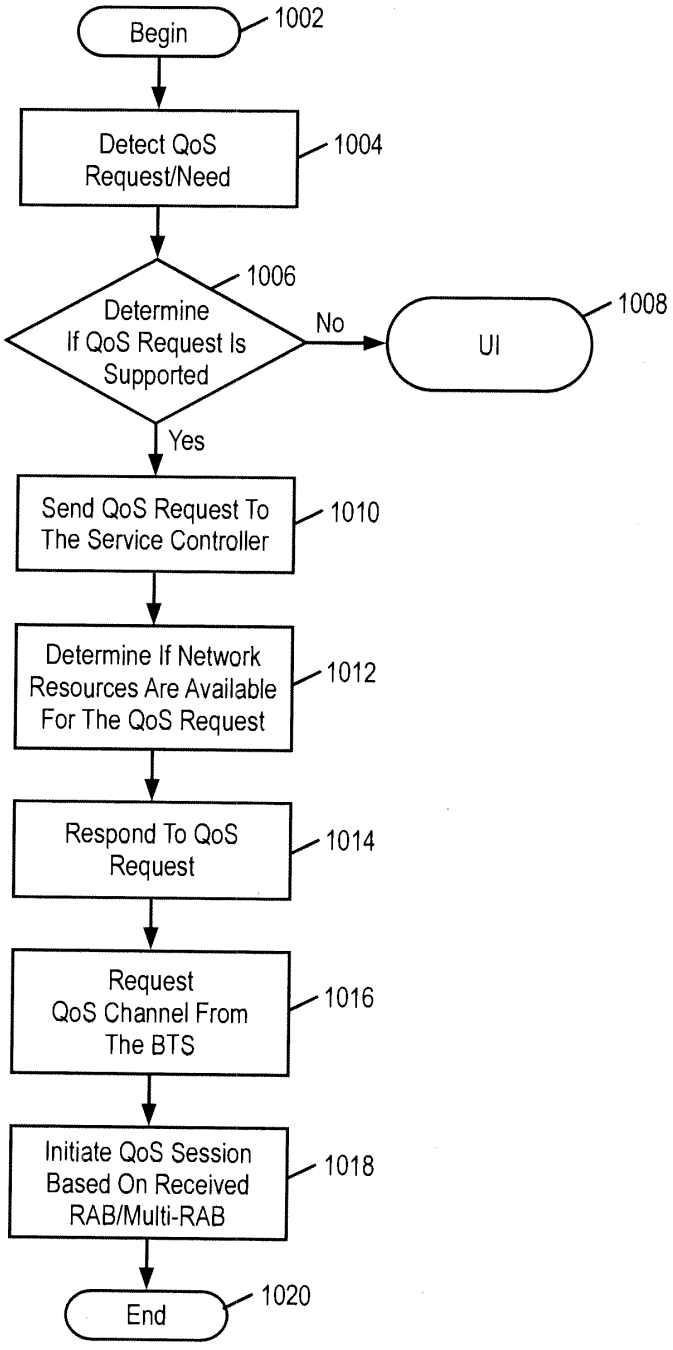
Begin
1002
Detect QoS Request/Need
1004
Determine If QoS Request Is Supported
1006
No
UI
1008
Yes
Send QoS Request To The Service Controller
1010
Determine If Network Resources Are Available For The QoS Request
1012
Respond To QoS Request
1014
Request QoS Channel From The BTS
1016
Initiate QoS Session Based On Received RAB/Multi-RAB
1018
End
1020

FIG. 10

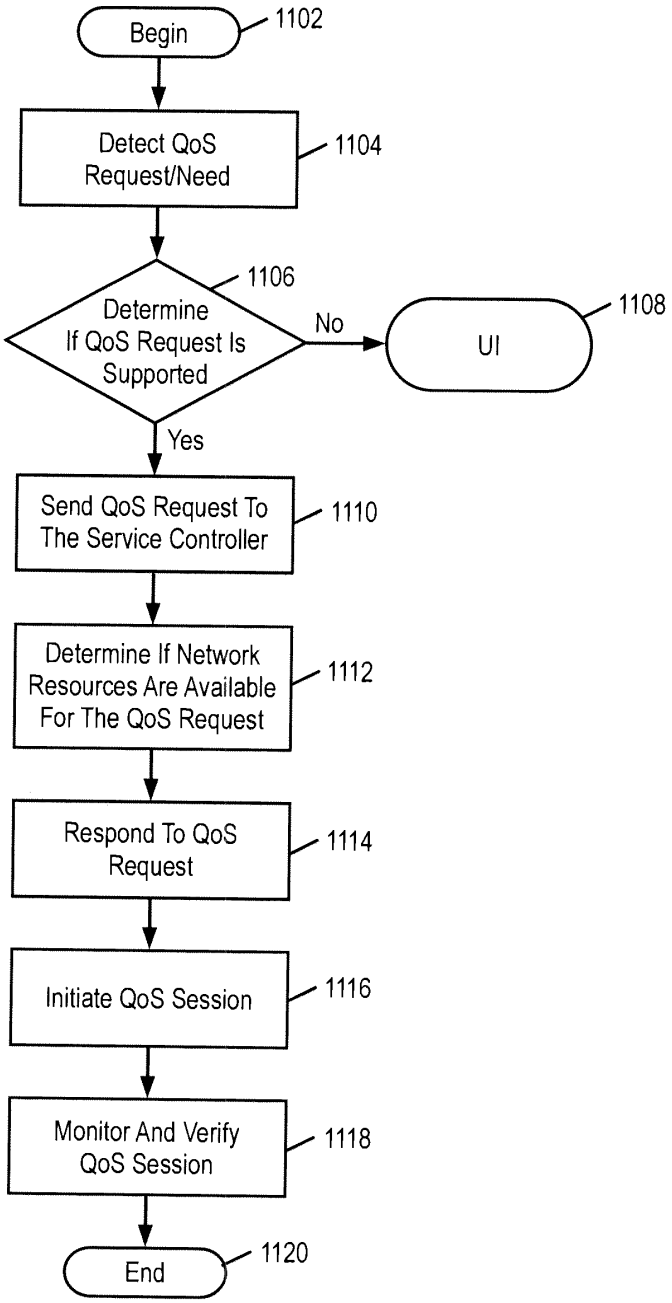
Begin
1102
Detect QoS Request/Need
1104
Determine If QoS Request Is Supported
1106
No
UI
1108
Yes
Send QoS Request To The Service Controller
1110
Determine If Network Resources Are Available For The QoS Request
1112
Respond To QoS Request
1114
Initiate QoS Session
1116
Monitor And Verify QoS Session
1118
End
1120

FIG. 11

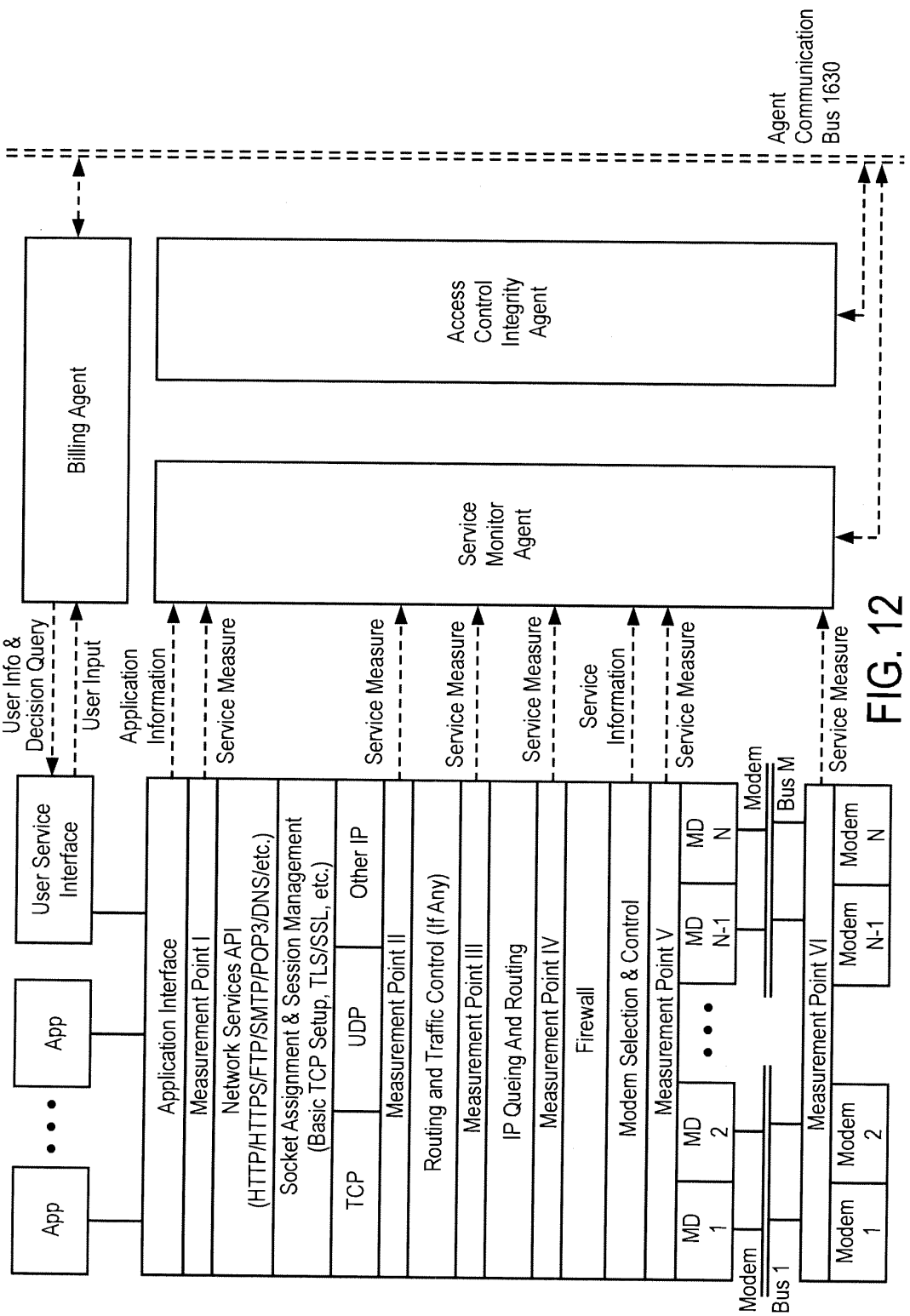
Agent Communication Bus 1630
Billing Agent
Access Control Integrity Agent
Service Monitor Agent
User Info & Decision Query
User Input
Application Information
Service Measure
User Service Interface
App
App
Application Interface
Measurement Point I
Network Services API (HTTP/HTTPS/FTP/SMTP/POP3/DNS/etc.)
Socket Assignment & Session Management (Basic TCP Setup, TLS/SSL, etc.)
TCP
UDP
Other IP
Measurement Point II
Routing and Traffic Control (If Any)
Measurement Point III
IP Queing And Routing
Measurement Point IV
Firewall
Modem Selection & Control
Measurement Point V
MD 1
MD 2
MD N-1
MD N
Modem Bus M
Modem Bus 1
Measurement Point VI
Modem 1
Modem 2
Modem N-1
Modem N

FIG. 12

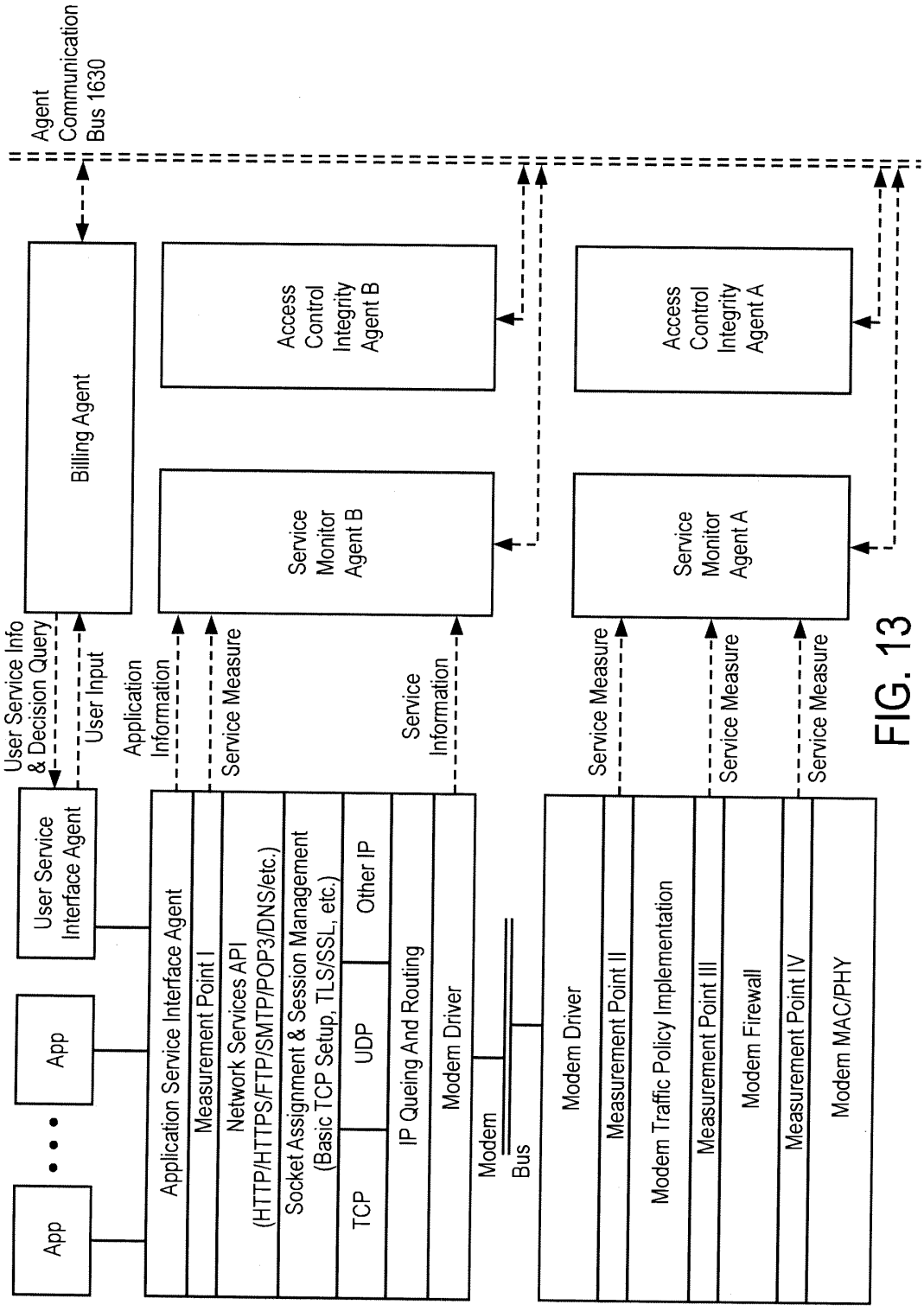
Agent Communication Bus 1630
Billing Agent
Access Control Integrity Agent B
Access Control Integrity Agent A
Service Monitor Agent B
Service Monitor Agent A
User Service Info & Decision Query
User Input
Application Information
Service Measure
Service Information
Service Measure
Service Measure
Service Measure
User Service Interface Agent
App
App
Application Service Interface Agent
Measurement Point I
Network Services API (HTTP/HTTPS/FTP/SMTP/POP3/DNS/etc.)
Socket Assignment & Session Management (Basic TCP Setup, TLS/SSL, etc.)
TCP
UDP
Other IP
IP Queing And Routing
Modem Driver
Modem Bus
Modem Driver
Measurement Point II
Modem Traffic Policy Implementation
Measurement Point III
Modem Firewall
Measurement Point IV
Modem MAC/PHY

FIG. 13

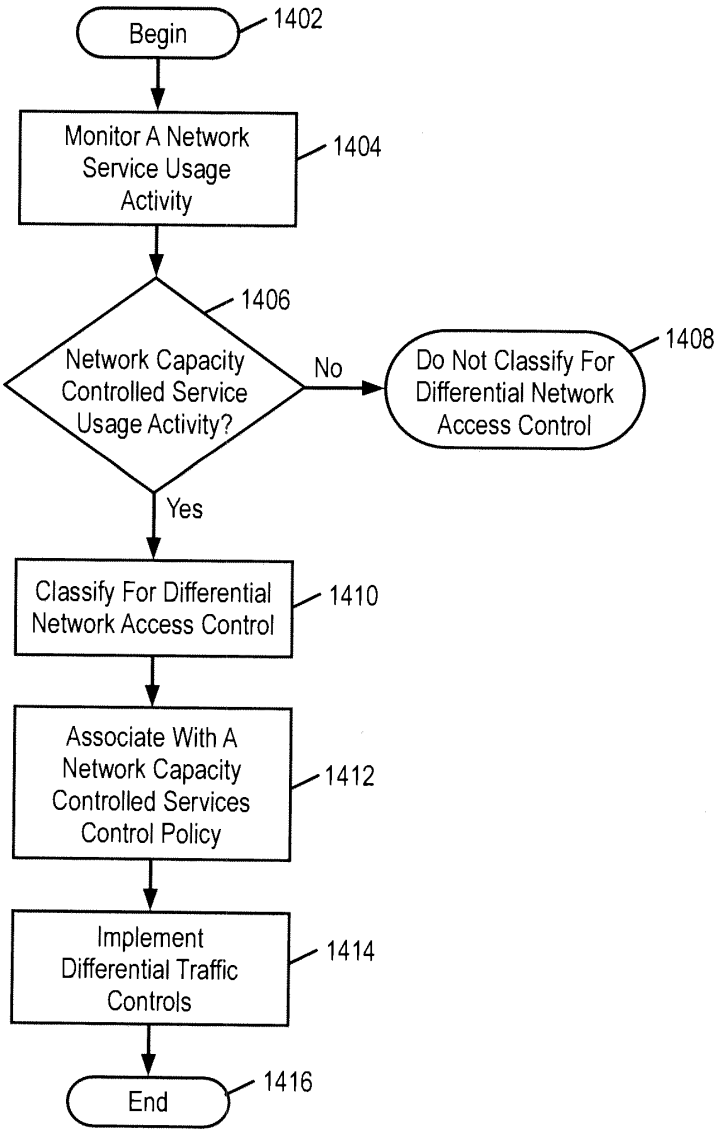
Begin
1402
Monitor A Network Service Usage Activity
1404
1406
Network Capacity Controlled Service Usage Activity?
No
Do Not Classify For Differential Network Access Control
1408
Yes
Classify For Differential Network Access Control
1410
Associate With A Network Capacity Controlled Services Control Policy
1412
Implement Differential Traffic Controls
1414
End
1416

FIG. 14

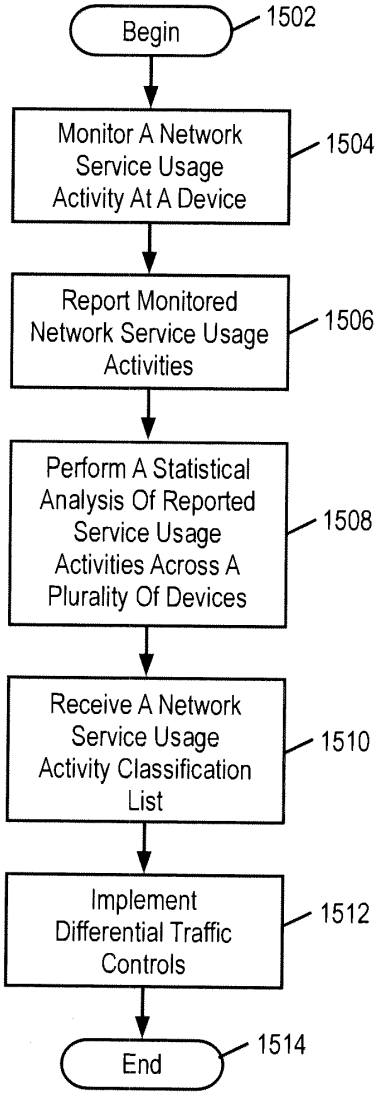
Begin
1502
Monitor A Network Service Usage Activity At A Device
1504
Report Monitored Network Service Usage Activities
1506
Perform A Statistical Analysis Of Reported Service Usage Activities Across A Plurality Of Devices
1508
Receive A Network Service Usage Activity Classification List
1510
Implement Differential Traffic Controls
1512
End
1514

FIG. 15

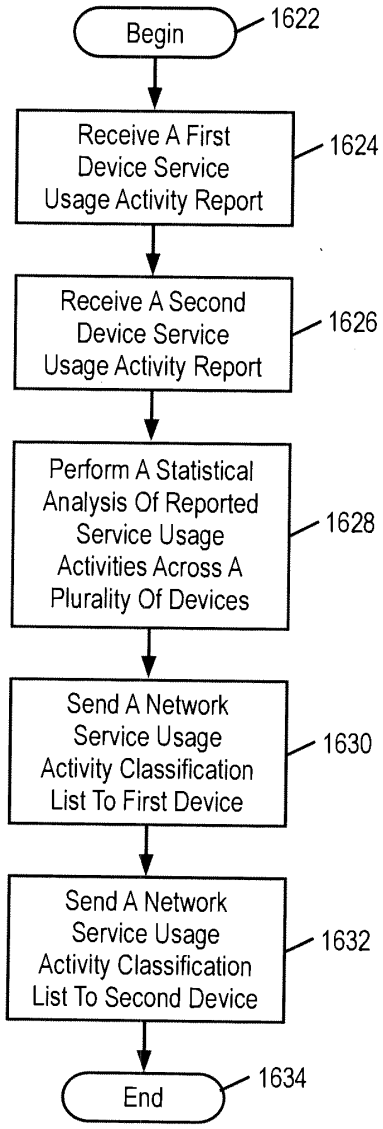
Begin
1622
Receive A First Device Service Usage Activity Report
1624
Receive A Second Device Service Usage Activity Report
1626
Perform A Statistical Analysis Of Reported Service Usage Activities Across A Plurality Of Devices
1628
Send A Network Service Usage Activity Classification List To First Device
1630
Send A Network Service Usage Activity Classification List To Second Device
1632
End
1634

FIG. 16

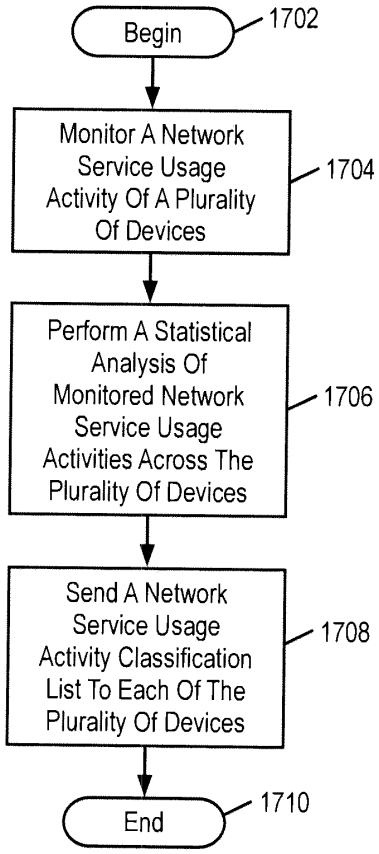
Begin
1702
Monitor A Network Service Usage Activity Of A Plurality Of Devices
1704
Perform A Statistical Analysis Of Monitored Network Service Usage Activities Across The Plurality Of Devices
1706
Send A Network Service Usage Activity Classification List To Each Of The Plurality Of Devices
1708
End
1710

FIG. 17

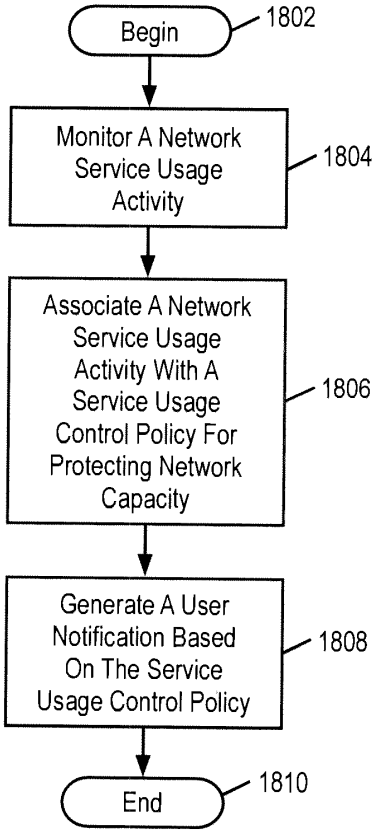
Begin
1802
Monitor A Network Service Usage Activity
1804
Associate A Network Service Usage Activity With A Service Usage Control Policy For Protecting Network Capacity
1806
Generate A User Notification Based On The Service Usage Control Policy
1808
End
1810

FIG. 18

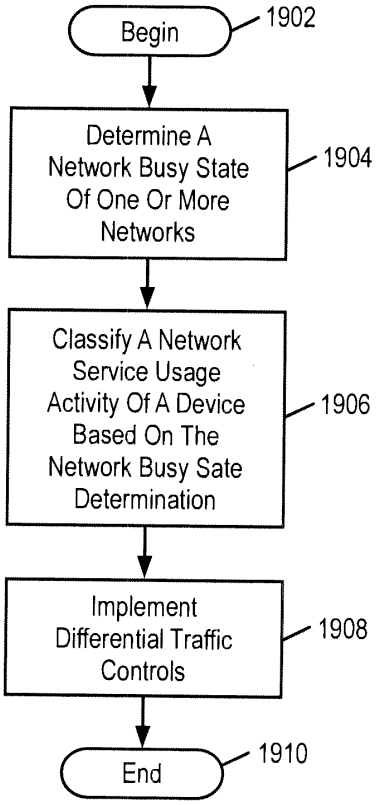
Begin
1902
Determine A Network Busy State Of One Or More Networks
1904
Classify A Network Service Usage Activity Of A Device Based On The Network Busy Sate Determination
1906
Implement Differential Traffic Controls
1908
End
1910

FIG. 19

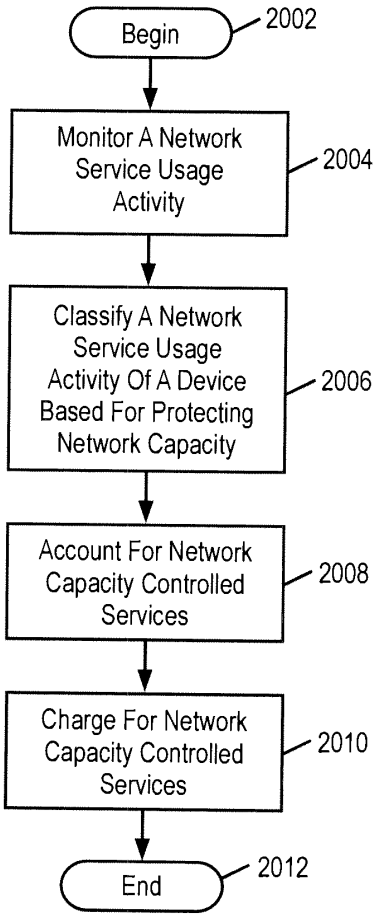
Begin
2002
Monitor A Network Service Usage Activity
2004
Classify A Network Service Usage Activity Of A Device Based For Protecting Network Capacity
2006
Account For Network Capacity Controlled Services
2008
Charge For Network Capacity Controlled Services
2010
End
2012

FIG. 20

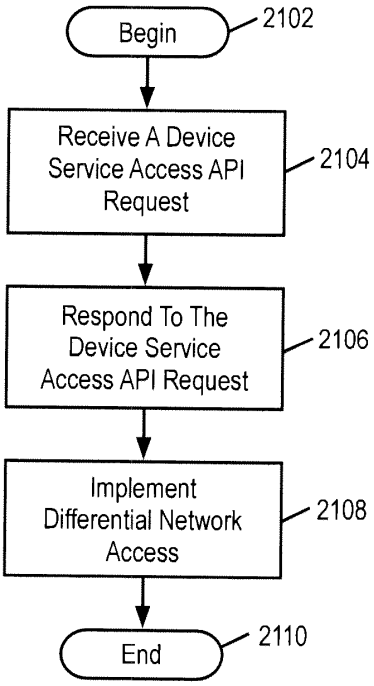
Begin
2102
Receive A Device Service Access API Request
2104
Respond To The Device Service Access API Request
2106
Implement Differential Network Access
2108
End
2110

FIG. 21

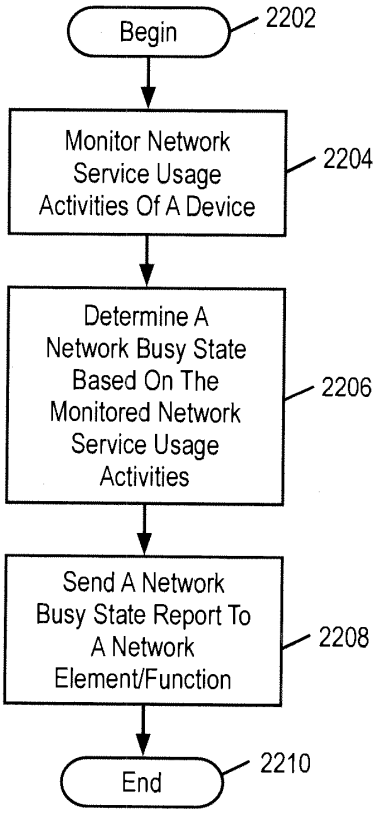
Begin
2202
Monitor Network Service Usage Activities Of A Device
2204
Determine A Network Busy State Based On The Monitored Network Service Usage Activities
2206
Send A Network Busy State Report To A Network Element/Function
2208
End
2210

FIG. 22

	NBS 10%	NBS 25%	NBS 50%	NBS 75%	NBS 90%
Outlook	6	5	4	3	2
Skype	7	6	2	1	0
Safari	5	4	3	2	1
Pandora	5	4	3	2	1
FaceBook	4	3	2	1	0
iTunes	7	6	3	1	0
QuickTime	8	6	4	1	0
AV Software	9	7	5	3	1
Online Backup	3	2	1	1	0
OS Update	2	1	0	0	0

FIG. 23

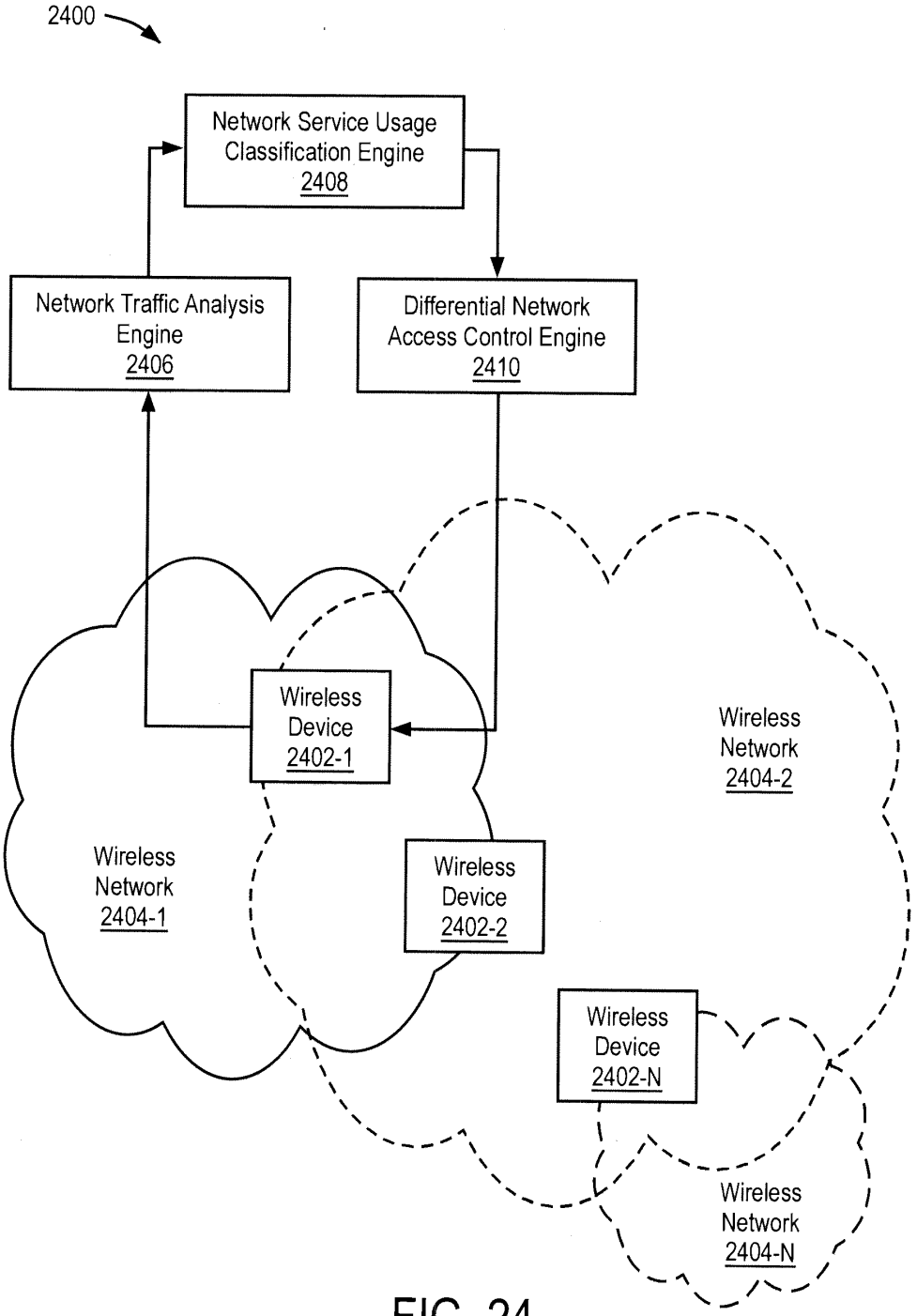
2400
Network Service Usage Classification Engine 2408
Network Traffic Analysis Engine 2406
Differential Network Access Control Engine 2410
Wireless Device 2402-1
Wireless Network 2404-2
Wireless Network 2404-1
Wireless Device 2402-2
Wireless Device 2402-N
Wireless Network 2404-N

FIG. 24

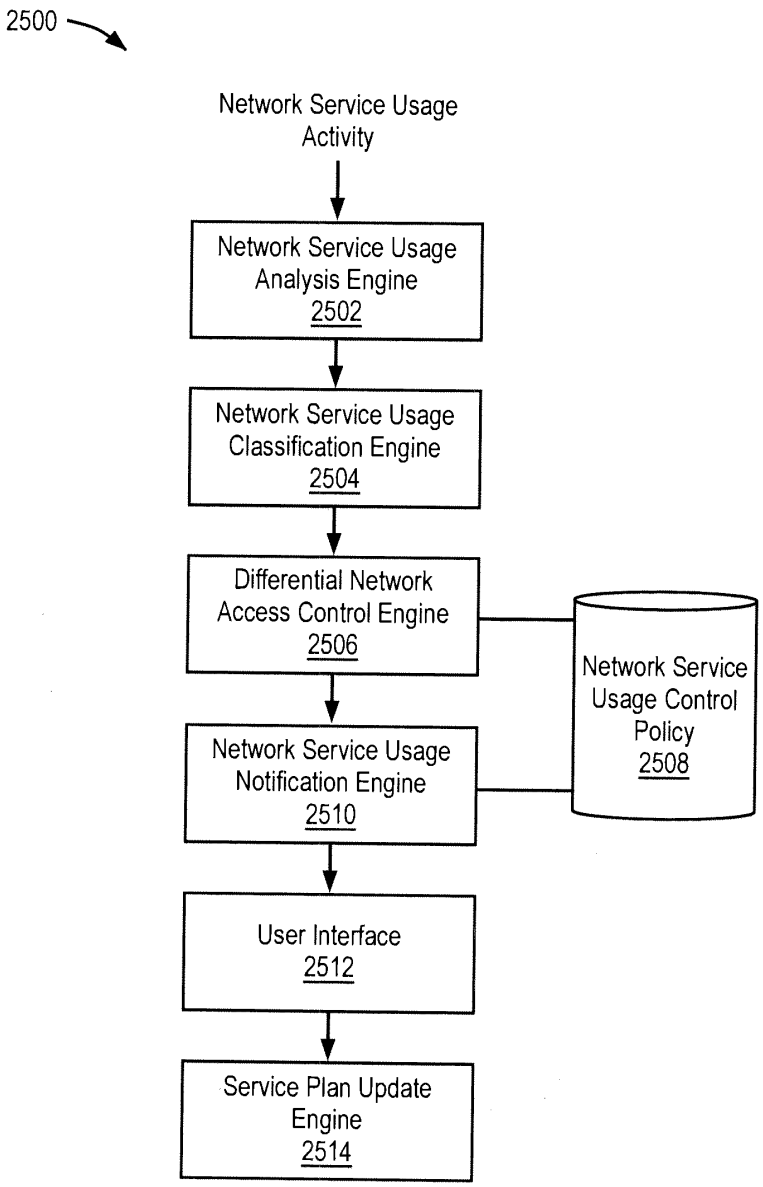
2500
Network Service Usage Activity
Network Service Usage Analysis Engine 2502
Network Service Usage Classification Engine 2504
Differential Network Access Control Engine 2506
Network Service Usage Control Policy 2508
Network Service Usage Notification Engine 2510
User Interface 2512
Service Plan Update Engine 2514

FIG. 25

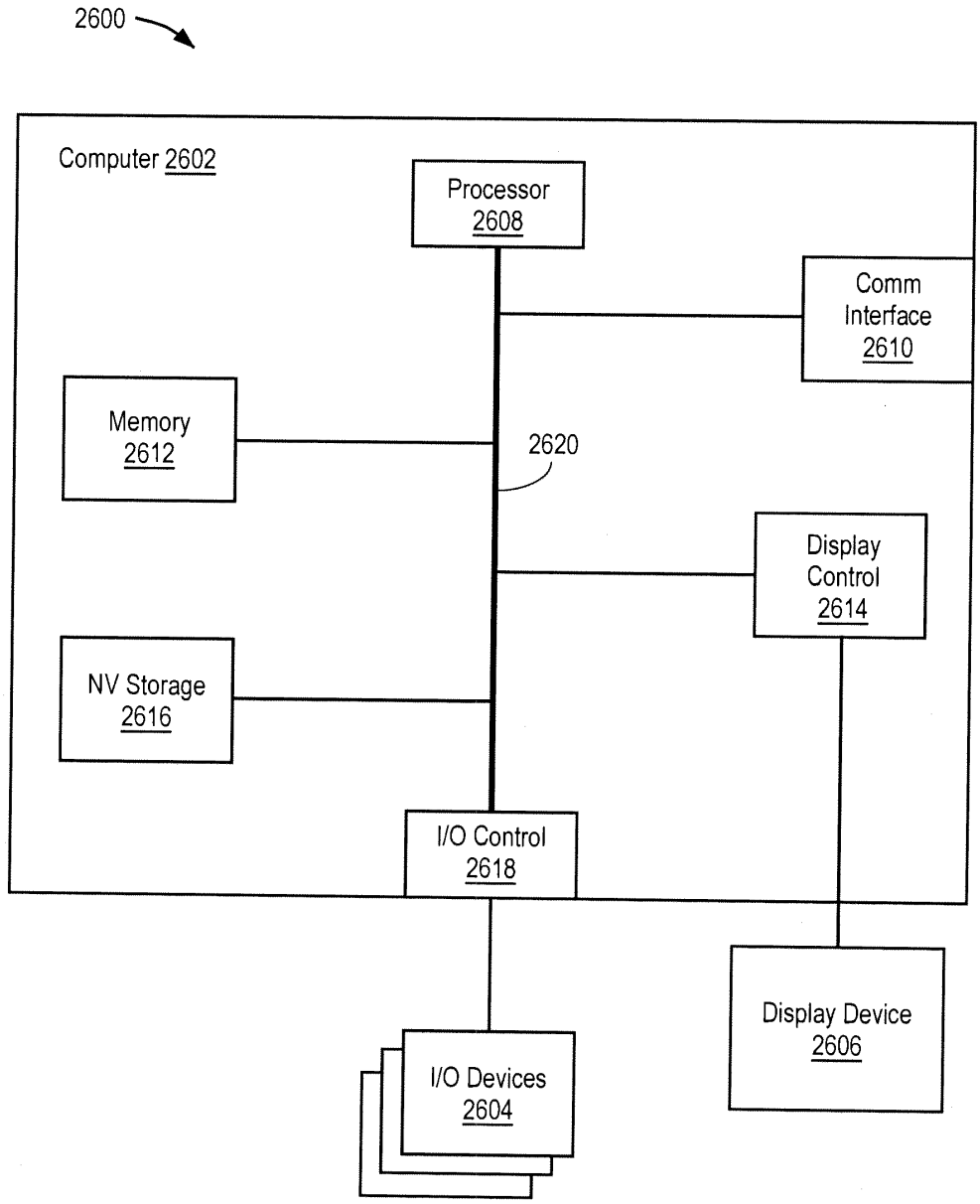
2600
Computer 2602
Processor 2608
Comm Interface 2610
Memory 2612
2620
Display Control 2614
NV Storage 2616
I/O Control 2618
Display Device 2606
I/O Devices 2604

FIG. 26

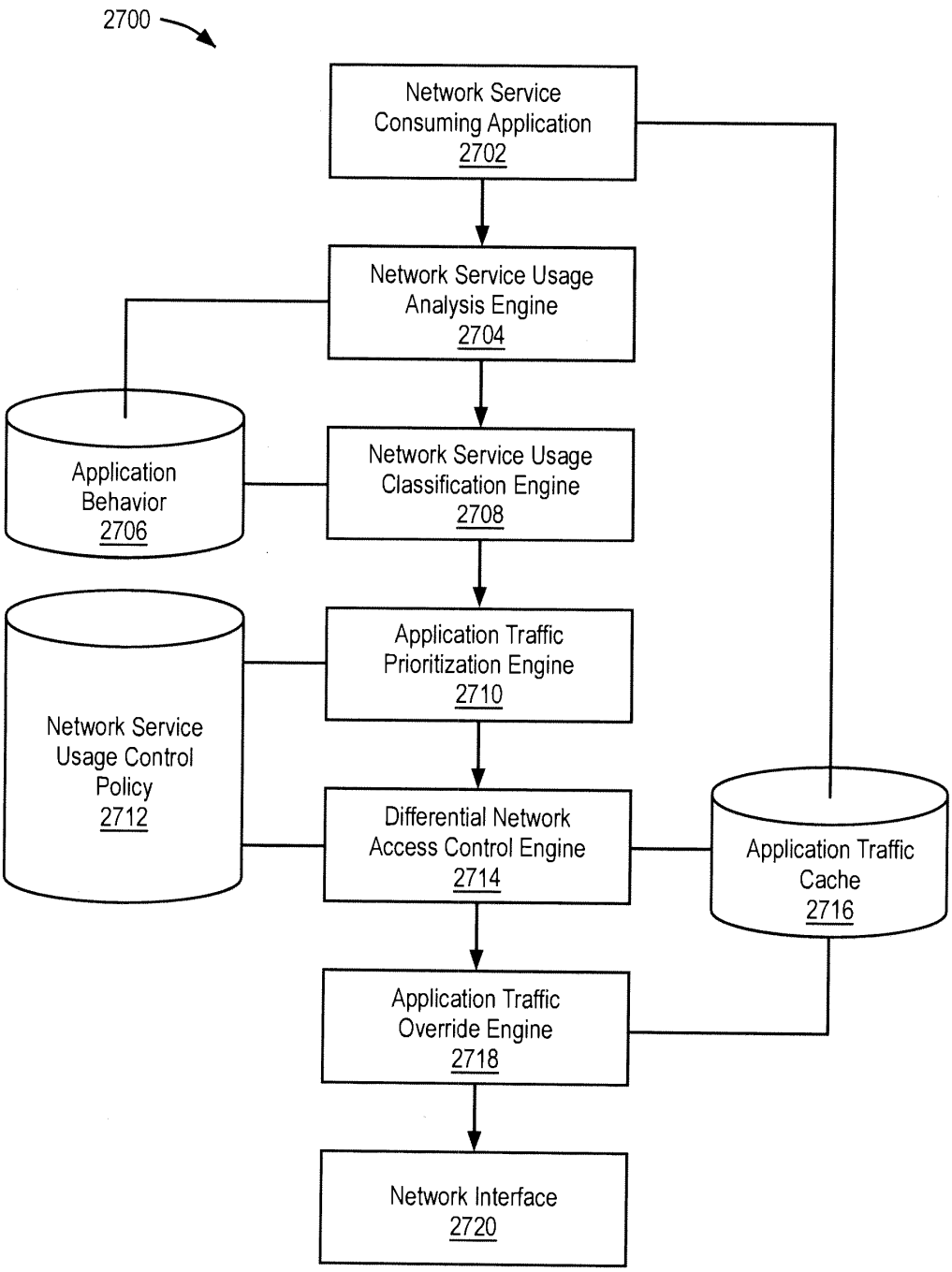
2700
Network Service Consuming Application 2702
Network Service Usage Analysis Engine 2704
Application Behavior 2706
Network Service Usage Classification Engine 2708
Application Traffic Prioritization Engine 2710
Network Service Usage Control Policy 2712
Differential Network Access Control Engine 2714
Application Traffic Cache 2716
Application Traffic Override Engine 2718
Network Interface 2720

FIG. 27

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Gregory G. Raleigh, et al.	Not Yet Assigned
Serial No. 13/134,028	Art Unit: 2447
Filed: May 25, 2011	Conf. No.: 3250

Title: Device-Assisted Services for Protecting Network Capacity

Office of Patent Application Processing
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR CORRECTED FILING RECEIPT

Dear Sir:

Applicant respectfully requests correction of the Official Filing Receipt for the above-identified patent application. The errors are shown on the enclosed copy of the Filing Receipt as well as described below.

The error occurred in the following data:

- ☐ Omitted Applicant
- ☐ Applicant's name
- ☐ Applicant's residence city/state/country
- ☐ Attorney Docket No.
- ☐ Title
- ☐ Filing Date
- ☐ Application Number
- ☒ Domestic Priority Data Claimed by Applicant
- ☐ Foreign Applications
- ☐ Other

Enclosed are copies of Pages 1-4 of the specification for this application. Please note that none of the priority published applications or provisional applications are shown on the initial

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Filing Receipt mailed on June 17, 2011, and these have been indicated on the pages of the specification provided. Please add this missing priority information after the Preliminary Amendment has been processed and prior to issuance of the updated Filing Receipt.

The correction is not due to any error by Applicant, and therefore no fee is due. If for any reason an insufficient fee has been paid, please charge the insufficiency to Deposit Account No. **50-4561**.

Respectfully submitted,

Date: August 17, 2011

By: _____

Marc A. Sockol
Reg. No. 40,823
Customer Number 69849
Sheppard Mullin Richter & Hampton LLP
390 Lytton Avenue
Palo Alto, CA 94301-1432

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being filed electronically via EFS-Web addressed to the Commissioner for Patents on:

Date: August 17, 2011 By: Linda K. Brost

Linda K. Brost

Google Exhibit 1006, Page 331 of 901

UNITED STATES PATENT AND TRADEMARK OFFICE

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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/134,028	05/25/2011	2447	4630	26WV-160509 [RALEP032]	115	14

CONFIRMATION NO. 3250

69849
SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
390 Lytton Avenue
Palo Alto, CA 94301

FILING RECEIPT

OC00000004825507

Date Mailed: 06/17/2011

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)

Gregory G. Raleigh, Residence Not Provided;
Ali Raissinia, Residence Not Provided;
James Lavine, Residence Not Provided;

Power of Attorney: None

Domestic Priority data as claimed by applicant [All missing]

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: 06/15/2011

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/134,028**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

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

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Title

Device-assisted services for protecting network capacity

Preliminary Class

709

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).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

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NOT GRANTED

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Priority

DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation-in-part of and incorporates by reference the following published U.S. pending nonprovisional patent applications: U.S. publication No. 2010/0188975, filed March 2, 2009, entitled "Verifiable Device Assisted Service Policy Implementation," U.S. publication No. 2010/0192170, filed March 2, 2009, entitled "Device Assisted Service Profile Management with User Preference, Adaptive Policy, Network Neutrality, and User Privacy," U.S. publication No. 2010/0191612, filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Monitoring with Reporting, Synchronization, and Notification," U.S. publication No. 2010/0191576, filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Billing with Integrated Accounting, Mediation Accounting, and Multi-Account," U.S. publication No. 2010/0188991, filed March 2, 2009, entitled "Network Based Service Policy Implementation with Network Neutrality and User Privacy," U.S. publication No. 2010/0188990, filed March 2, 2009, entitled "Network Based Service Profile Management with User Preference, Adaptive Policy, Network Neutrality and User Privacy," U.S. publication No. 2010/0192212, filed March 2, 2009, entitled "Automated Device Provisioning and Activation," U.S. publication No. 2010/0191604, filed March 2, 2009, entitled "Device Assisted Ambient Services," U.S. publication No. 2010/0191575, filed March 2, 2009, entitled "Network Based Ambient Services," U.S. publication No. 2010/0188993, filed March 2, 2009, entitled "Network Tools for Analysis, Design, Testing, and Production of Services," U.S. publication No. 2010/0190470, filed March 2, 2009, entitled "Roaming Services Network and Overlay Networks," U.S. publication No. 2010/0192120, filed March 2, 2009, entitled "Open Development System for Access Service Providers," U.S. publication No. 2010/0192207, filed March 2, 2009, entitled "Virtual Service Provider Systems," U.S. application serial No. 12/380,757, filed March 2, 2009, and entitled

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"Service Activation Tracking System," U.S. publication No. 2010/0191613, filed March 2, 2009, entitled "Open Transaction Central Billing System," U.S. publication No. 2010/0188995, filed March 2, 2009, entitled "Verifiable and Accurate Service Usage Monitoring for Intermediate Networking Devices," U.S. publication No. 2010/0188994, filed March 2, 2009, entitled "Verifiable Service Billing for Intermediate Networking Devices," U.S. publication No. 2010/0191846, filed March 2, 2009, entitled "Verifiable Service Policy Implementation for Intermediate Networking Devices," U.S. publication No. 2010/0188992, filed March 2, 2009, entitled "Service Profile Management with User Preference, Adaptive Policy, Network Neutrality and User Privacy for Intermediate Networking Devices," U.S. publication No. 2010/0191847, filed March 2, 2009, entitled "Simplified Service Network Architecture," U.S. publication No. 2010/0197266, filed January 27, 2010, entitled "Device Assisted CDR Creation, Aggregation, Mediation, and Billing," U.S. publication No. 2010/0198698, filed January 27, 2010, entitled "Adaptive Ambient Services," U.S. publication No. 2010/0199325, filed January 27, 2010, entitled "Security Techniques for Device Assisted Services," U.S. publication No. 2010/0197267, filed January 27, 2010, entitled "Device Group Partitions and Settlement Platform," U.S. publication No. 2010/0198939, filed January 27, 2010, entitled "Device Assisted Services Install," U.S. publication No. 2010/0195503, filed January 27, 2010, entitled "Quality of Service for Device Assisted Services," U.S. publication No. 2010/0197268, filed January 28, 2010, entitled "Enhanced Roaming Services and Converged Carrier Networks with Device Assisted Services and a Proxy," and U.S. application serial No. 13/_____, filed May 25, 2011, and entitled "System and Method for Wireless Network Offloading." see accompanying Preliminary Amendment

[0002] This application seeks priority to and incorporates by reference the following U.S. pending provisional patent applications: U.S. provisional application serial No. 61/348,022, filed May 25, 2010, entitled "Device Assisted Services for Protecting Network Capacity," U.S. provisional application serial No. 61/381,159, filed September 9, 2010, entitled "Device Assisted

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Services for Protecting Network Capacity," U.S. provisional application serial No. 61/381,162, filed September 9, 2010, entitled "Service Controller Interfaces and Workflows," U.S. provisional application serial No. 61/384,456, filed September 20, 2010, entitled "Securing Service Processor with Sponsored SIMs," U.S. provisional application serial No. 61/389,547, filed October 4, 2010, entitled "User Notifications for Device Assisted Services," U.S. provisional application serial No. 61/385,020, filed September 21, 2010, entitled "Service Usage Reconciliation System Overview," U.S. provisional application serial No. 61/387,243, filed September 28, 2010, entitled "Enterprise and Consumer Billing Allocation for Wireless Communication Device Service Usage Activities," U.S. provisional application serial No. 61/387,247, filed September 28, 2010, entitled "Secured Device Data Records," U.S. provisional application serial No. 61/407,358, filed October 27, 2010, entitled "Service Controller and Service Processor Architecture," U.S. provisional application serial No. 61/418,507, filed December 1, 2010, entitled "Application Service Provider Interface System," U.S. provisional application serial No. 61/418,509, filed December 1, 2010, entitled "Service Usage Reporting Reconciliation and Fraud Detection for Device Assisted Services," U.S. provisional application serial No. 61/420,727, filed December 7, 2010, entitled "Secure Device Data Records," U.S. provisional application serial No. 61/422,565, filed December 13, 2010, entitled "Service Design Center for Device Assisted Services," U.S. provisional application serial No. 61/422,572, filed December 13, 2010, entitled "System Interfaces and Workflows for Device Assisted Services," U.S. provisional application serial No. 61/422,574, filed December 13, 2010, entitled "Security and Fraud Detection for Device Assisted Services," U.S. provisional application serial No. 61/435,564, filed January 24, 2011, entitled "Framework for Device Assisted Services," and U.S. provisional application serial No. 61/472,606, filed April 6, 2011, entitled "Managing Service User Discovery and Service Launch Object Placement on a Device."

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[0003] Further, this application incorporates by reference the following U.S. provisional patent applications: U.S. provisional application serial No. 61/206,354, filed January 28, 2009, entitled "Services Policy Communication System and Method," U.S. provisional application serial No. 61/206,944, filed February 4, 2009, entitled "Services Policy Communication System and Method," U.S. provisional application serial No. 61/207,393, filed February 10, 2009, entitled "Services Policy Communication System and Method," U.S. provisional application serial No. 61/207,739, filed February 13, 2009, entitled "Services Policy Communication System and Method," U.S. provisional application serial No. 61/270,353, filed July 6, 2009, entitled "Device Assisted CDR Creation, Aggregation, Mediation and Billing," U.S. provisional application serial No. 61/275,208, filed August 25, 2009, entitled "Adaptive Ambient Services," U.S. provisional application serial No. 61/237,753, filed August 28, 2009, entitled "Adaptive Ambient Services," U.S. provisional application serial No. 61/252,151, filed October 15, 2009, entitled "Security Techniques for Device Assisted Services," U.S. provisional application serial No. 61/252,153, filed October 15, 2009, entitled "Device Group Partitions and Settlement Platform," U.S. provisional application serial No. 61/264,120, filed November 24, 2009, entitled "Device Assisted Services Install," and U.S. provisional application serial No. 61/264,126, filed November 24, 2009, entitled "Device Assisted Services Activity Map."

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Gregory G. Raleigh, et al.	Not Yet Assigned
Serial No. 13/134,028	Art Unit: 2447
Filed: May 25, 2011	Conf. No.: 3250

Title: Device-Assisted Services for Protecting Network Capacity

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

PRELIMINARY AMENDMENT

Sir:

Prior to examination of the above-referenced application, please enter the following amendments and consider the following remarks:

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In the Specification:

Please amend Paragraph [0001] beginning on Page 1 of the specification as follows:

-- **[0001]** This application is a continuation-in-part of and incorporates by reference the following published U.S. pending nonprovisional patent applications: U.S. publication No. 2010/0188975, filed March 2, 2009, entitled "Verifiable Device Assisted Service Policy Implementation," U.S. publication No. 2010/0192170, filed March 2, 2009, entitled "Device Assisted Service Profile Management with User Preference, Adaptive Policy, Network Neutrality, and User Privacy," U.S. publication No. 2010/0191612, filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Monitoring with Reporting, Synchronization, and Notification," U.S. publication No. 2010/0191576, filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Billing with Integrated Accounting, Mediation Accounting, and Multi-Account," U.S. publication No. 2010/0188991, filed March 2, 2009, entitled "Network Based Service Policy Implementation with Network Neutrality and User Privacy," U.S. publication No. 2010/0188990, filed March 2, 2009, entitled "Network Based Service Profile Management with User Preference, Adaptive Policy, Network Neutrality and User Privacy," U.S. publication No. 2010/0192212, filed March 2, 2009, entitled "Automated Device Provisioning and Activation," U.S. publication No. 2010/0191604, filed March 2, 2009, entitled "Device Assisted Ambient Services," U.S. publication No. 2010/0191575, filed March 2, 2009, entitled "Network Based Ambient Services," U.S. publication No. 2010/0188993, filed March 2, 2009, entitled "Network Tools for Analysis, Design, Testing, and Production of Services," U.S. publication No. 2010/0190470, filed March 2, 2009, entitled "Roaming Services Network and Overlay Networks," U.S. publication No. 2010/0192120, filed March 2, 2009, entitled "Open Development System for Access Service Providers," U.S. publication No. 2010/0192207, filed March 2, 2009, entitled "Virtual Service Provider Systems," U.S. application serial No. 12/380,757, filed March 2, 2009, and entitled "Service Activation Tracking System," U.S. publication No. 2010/0191613, filed March 2, 2009, entitled "Open Transaction Central Billing System," U.S. publication No. 2010/0188995, filed March 2, 2009, entitled "Verifiable and Accurate Service Usage Monitoring for Intermediate Networking Devices," U.S. publication No. 2010/0188994, filed March 2, 2009, entitled "Verifiable Service Billing for Intermediate

Networking Devices," U.S. publication No. 2010/0191846, filed March 2, 2009, entitled "Verifiable Service Policy Implementation for Intermediate Networking Devices," U.S. publication No. 2010/0188992, filed March 2, 2009, entitled "Service Profile Management with User Preference, Adaptive Policy, Network Neutrality and User Privacy for Intermediate Networking Devices," U.S. publication No. 2010/0191847, filed March 2, 2009, entitled "Simplified Service Network Architecture," U.S. publication No. 2010/0197266, filed January 27, 2010, entitled "Device Assisted CDR Creation, Aggregation, Mediation, and Billing," U.S. publication No. 2010/0198698, filed January 27, 2010, entitled "Adaptive Ambient Services," U.S. publication No. 2010/0199325, filed January 27, 2010, entitled "Security Techniques for Device Assisted Services," U.S. publication No. 2010/0197267, filed January 27, 2010, entitled "Device Group Partitions and Settlement Platform," U.S. publication No. 2010/0198939, filed January 27, 2010, entitled "Device Assisted Services Install," U.S. publication No. 2010/0195503, filed January 27, 2010, entitled "Quality of Service for Device Assisted Services," U.S. publication No. 2010/0197268, filed January 28, 2010, entitled "Enhanced Roaming Services and Converged Carrier Networks with Device Assisted Services and a Proxy," and U.S. application serial No. ~~13/~~ 13/134,005, filed May 25, 2011, and entitled "System and Method for Wireless Network Offloading." --

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In the Claims:

Please amend the claims as follows:

1. (Original) A system, comprising:

a processor of a communications device configured to:

monitor a network service usage activity of the communications device in network communication;

classify the network service usage activity for differential network access control for protecting network capacity; and

associate the network service usage activity with a service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity; and

a memory coupled to the processor and configured to provide the processor with instructions.

2. (Original) A system, comprising:

a processor of a communications device configured to:

monitor a network service usage activity of the communications device in wireless network communication;

report the network service usage activity of the communications device to a network element, wherein the network element performs statistical analysis of a plurality of reported network service usage activities across a plurality of devices;

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receive a network service usage activity classification list from the network element; and

classify the network service usage activity based on the network service usage activity classification list for differential network access control for protecting network capacity; and

a memory coupled to the processor and configured to provide the processor with instructions.

3. (Original) The system recited in claim 2, wherein the processor of the communications device is further configured to:

associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity.

4. (Original) The system recited in claim 2, wherein the processor of the communications device is further configured to:

associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity; and

differentially control the network service usage activity based on the network service usage activity classification list, wherein the network service usage activity is a network capacity controlled service.

5. (Original) A system, comprising:

a processor of a network device configured to:

receive a first report of network service usage activities of a first device from the first device;

receive a second report of network service usage activities of a second device from the second device;

perform a statistical analysis of a plurality of reported service usage activities across a plurality of devices, including the first device and the second device; and

send a network service usage activity classification list to the first device and the second device for classifying network service usage activities based on the service usage activity classification list for differential network access control for protecting network capacity; and

a memory coupled to the processor and configured to provide the processor with instructions.

6. (Original) The system recited in claim 5, wherein the processor of the network device is further configured to:

associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity.

7. (Original) The system recited in claim 5, wherein the processor of the network device is further configured to:

associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network

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access control for protecting network capacity; and

differentially control the network service usage activity based on the service usage activity classification list for protecting network capacity.

8. (Original) A system, comprising:

a processor of a communications device configured to:

associate a network service usage activity of the communications device with a network service usage control policy based on a classification of the network service usage activity for differential network access control for protecting network capacity; and

generate a user notification based on the network service usage control policy; and

a memory coupled to the processor and configured to provide the processor with instructions.

9. (Original) The system recited in claim 8, wherein the network service usage control policy includes a network service usage notification policy.

10. (Original) The system recited in claim 8, wherein the user notification includes one or more of the following: one or more service activities classified as network capacity controlled services, type of network service policy in effect for one or more network capacity controlled services, notification that a network service activity belongs to a network capacity controlled services classification, notification that a service activity that is classified as network capacity controlled services classification can have the classification changed, notification that if the service class is changed for the network service activity that the associated network service usage

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charges will change, a service plan upgrade/downgrade offer, and an offer for a service plan that provides discounts and/or incentives for responding to one or more user notifications for protecting network capacity.

11. (Original) The system recited in claim 8, wherein the user notification includes a user preference selection, including one or more of the following: a provision to associate a network service usage control policy with the network service usage activity, an over-ride option for selecting the network service usage control policy, a modify option to select the service usage control policy, and a select option to select a new service plan.

12. (Original) The system recited in claim 8, wherein the user notification occurs after one or more of the following: an attempt to download or load an application onto the communications device, an attempt to execute the network service activity or the network service usage activity attempts to access the network, a network service usage activity meets or exceeds a network service usage threshold, a network service usage activity attempts a network service usage that satisfies a pre-condition, an update to a network capacity controlled service activity classification list, an update to a network capacity controlled services policy, and a network message is sent to the device triggering the notification.

13. (Original) The system recited in claim 8, wherein the user notification includes one or more of the following: network service usage activity information for one or more network capacity controlled services, predicted network service usage activity information for one or more network capacity controlled services, an option for obtaining more information about the

network service usage of the network service usage activity, a message that the network service usage activity may result in network service usage that exceeds a threshold for a service plan associated with the device, an option to review or select an alternative service plan, an acknowledgement request, and an option to submit the acknowledgement request.

14. (Original) A system, comprising:

a processor of a communications device configured to:

determine a network busy state of a wireless network; and

classify a network service usage activity of the communications device based on the network busy state to facilitate differential network access control for protecting network capacity of the wireless networks; and

a memory coupled to the processor and configured to provide the processor with instructions.

15. (Original) The system recited in claim 14, wherein the network busy state is based on one or more of the following: network performance, network congestion, network availability, network resource availability, network capacity, and a time based criteria.

16. (Original) The system recited in claim 14, wherein protecting network capacity of the wireless network includes protecting network capacity of a last edge segment of the wireless network, and the processor is further configured to:

send the network busy state to a network element.

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17. (Original) A system, comprising:

a processor of a communications device configured to:

monitor a network service usage activity of a device in wireless network communication;

classify the network service usage activity to facilitate differential network access control for protecting network capacity; and

account for the network service usage activity based on a classification of the network service usage activity for differential network service usage accounting; and

a memory coupled to the processor and configured to provide the processor with instructions.

18. (Original) The system recited in claim 17, wherein the processor of the communications device is further configured to:

charge for the network service usage activity based on the classification of the network service usage activity for differential network service usage charging, wherein charging for the network service usage activity includes mediating CDR/IPDR charging records for network capacity controlled services and non-capacity controlled services.

19. (Original) A system, comprising:

a processor of a communications device configured to:

receive an API request from a network service usage activity for wireless network access;

respond to the API request from the network service usage activity; and

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implement differential network access for the network service usage activity for protecting network capacity, wherein the differential network access is based on a priority level associated with the network service usage activity and a network busy state; and

a memory coupled to the processor and configured to provide the processor with instructions.

20. (Original) The system recited in claim 19, wherein a response to the API request includes providing one or more of the following to the network service usage activity: a network busy state, whether the network service usage activity is allowed to access the network, which access network to which the network service usage activity is granted network access, what traffic controls the network service usage activity is required to implement for network access, when the network is available to the network service usage activity for access, a schedule for network access for the network service usage activity, a reservation for network access for the network service usage activity with a specified performance level, an instruction to transition to a dormant or power save state, and an instruction to awake from a dormant or power save state.

21. (Original) A system, comprising:

a processor of a network device configured to:

receive an API request from a network service usage activity of a communications device for wireless network access; and

respond to the API request from the network service usage activity for implementing differential network access for protecting network capacity;

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wherein the differential network access is based on a priority level associated with the network service usage activity and a network busy state; and

a memory coupled to the processor and configured to provide the processor with instructions.

22. (Original) The system recited in claim 21, wherein a response to the API request includes providing one or more of the following to the network service usage activity: a network busy state, whether the network service usage activity is allowed to access the network, which access network to which the network service usage activity is granted network access, what traffic controls the network service usage activity is required to implement for network access, when the network is available to the network service usage activity for access, a schedule for network access for the network service usage activity, a reservation for network access for the network service usage activity with a specified performance level, an instruction to transition to a dormant or power save state, and an instruction to awake from a dormant or power save state.

23. (Original) The system recited in claim 21, wherein the API is a network element API that is in secure communication with the communications device, and wherein the communications device implements the differential network access, and the differential network access implementation is verified.

24. (Original) The system recited in claim 21, wherein the busy state information is obtained from one or more network elements.

25. (Currently amended) A system, comprising:

a processor of a communications device configured to:

monitor a plurality of network service usage activities of the communications device;

determine a network busy state based on the monitored plurality of network service usage activities; and

send a network busy state report to a network element; and

a memory coupled to the processor and configured to provide the processor with instructions.

26. (Original) The system recited in claim 25, wherein the communications device includes a verified service processor, and wherein the verified service processor monitors the plurality of network service usage activities of the communications device and determines the network busy state based on the monitored plurality of network service usage activities.

27. (Original) The system recited in claim 25, wherein determining the network busy state includes one or more of the following: data rate, latency, jitter, bit error rate, packet error rate, number of network access attempts, number of network access successes, number of network access failures, QoS level availability, QoS level performance, and variability in any of the preceding parameters.

28. (Original) A system, comprising:

a processor of a network device configured to:

collect network busy state information for one or more access networks for a plurality of communications devices; and

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implement differential network access for one or more network capacity controlled services for the plurality of communications devices based on the network busy state information associated with each of the one or more access networks for protecting network capacity; and

a memory coupled to the processor and configured to provide the processor with instructions.

29. (Original) The system recited in claim 28, wherein the network busy state information is collected from a plurality of network based measures transmitted to the network device, wherein the network based measures are received from one or more of the following: a base station, a base station monitor, an airwave monitor, and a base station controller.

30. (Original) A system, comprising:

a processor of a communications device configured to:

monitor a network service usage activity of the communications device in network communication;

classify the network service usage activity for differential network access control for protecting network capacity; and

associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity; and

a memory coupled to the processor and configured to provide the processor with instructions.

31. (Original) The system recited in claim 30, wherein the communications device is a mobile communications device, and the service includes one or more Internet based services, and wherein the mobile communications device includes one or more of the following: a mobile phone, a PDA, an eBook reader, a music device, an entertainment/gaming device, a computer, laptop, a net book, a tablet, and a home networking system.

32. (Original) The system recited in claim 30, wherein the processor of the communications device is further configured to:

implement differential network access for the network service usage activity for protecting network capacity; and

verify implementation of the differential network access for the network service usage activity.

33. (Original) The system recited in claim 30, wherein the processor of the communications device is further configured to:

implement differential network access for the network service usage activity for protecting network capacity using a verified service processor.

34. (Original) The system recited in claim 30, wherein the processor of the communications device is further configured to:

implement differential network access for the network service usage activity for protecting network capacity using an emulated network access API.

35. (Original) The system recited in claim 30, wherein the processor of the communications device is further configured to:

monitor the network service usage activity based on a service profile; and

determine that the network service usage activity is a network capacity controlled service based on the monitored use of the network service usage activity based on the service profile using a verified service processor.

36. (Original) The system recited in claim 30, wherein the processor of the communications device is further configured to:

determine if network access for the network service usage activity is authorized based on a service plan associated with the communications device, a network capacity controlled service priority level associated with the network service usage activity, and a network busy state.

37. (Original) The system recited in claim 30, wherein the processor is further configured to:

execute a router for dynamically managing one or more network capacity controlled services and/or QoS sessions for the communications device.

38. (Original) The system recited in claim 30, wherein the processor is further configured to:

execute a router for dynamically managing one or more network capacity controlled services and/or QoS sessions for the communications device; and

send network busy state information to a service controller, wherein the service controller provides a policy decision point for management for a plurality of communications devices in communication with one or more base stations.

39. (Original) The system recited in claim 30, wherein the processor is further configured to:

execute a router for dynamically managing one or more network capacity controlled services and/or QoS sessions for the communications device;

send network busy state information to a service controller, wherein the service controller provides a policy decision point for management for a plurality of communications devices in communication with one or more base stations; and

receive router traffic control instructions from the service controller, wherein the service controller provides the router traffic control instructions to assist in dynamically managing network capacity usage for the plurality of communications devices in communication with the one or more base stations for protecting network capacity of one or more access networks.

40. (Original) The system recited in claim 30, wherein the classifying is based on a current access network and/or the network service usage control policy is based on a current access network.

41. (Original) The system recited in claim 30, wherein classifying includes dynamically assigning a network capacity controlled services priority level based on a network busy state.

42. (Original) The system recited in claim 30, wherein classifying includes querying a network element for determining a network capacity controlled services classification and/or associating includes querying a network element for determining an association with the network service usage control policy.

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43. (Original) The system recited in claim 30, wherein the network service usage control policy includes one or more of the following: block/allow settings, throttle settings, adaptive throttle settings, QoS class settings, packet error rate, jitter and delay settings, queue settings, and tag settings.

44. (Original) The system recited in claim 30, wherein the network service usage control policy includes traffic control policy filters.

45. (Original) The system recited in claim 30, wherein the network service usage control policy includes traffic control policy filters implemented as cascading filters.

46. (Original) The system recited in claim 30, wherein the network service usage control policy includes traffic control policy filters using a network busy state and/or a time of day as an index into a traffic control setting.

47. (Original) The system recited in claim 30, wherein the processor is further configured to:

differentially control the network service usage activity based on the network service usage control policy based on a network busy state, wherein the network service usage activity is classified as a network capacity controlled service.

48. (Original) The system recited in claim 30, wherein the processor is further configured to:

differentially control the network service usage activity based on the network service usage control policy based on a user input and/or a current access network, wherein the network service usage activity is classified as a network capacity controlled service.

49. (Original) The system recited in claim 30, wherein the processor is further configured to:

modify or replace a network stack interface of the communications device to provide for intercept or discontinuance of network access messaging for implementing traffic control for network capacity controlled services for protecting network capacity.

50. (Original) The system recited in claim 30, wherein the processor is further configured to:

store a network capacity controlled service list, wherein the network capacity controlled service list is periodically updated based on monitored network service usage activities.

51. (Original) A method, comprising:

monitoring a network service usage activity of the communications device in network communication;

classifying the network service usage activity for differential network access control for protecting network capacity; and

associating the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity.

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52. (Original) A computer program product, the computer program product being embodied in a computer readable storage medium and comprising computer instructions for:

monitoring a network service usage activity of the communications device in network communication;

classifying the network service usage activity for differential network access control for protecting network capacity; and

associating the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity.

53. (Original) A method comprising:

examining a particular service usage activity to determine if the particular service usage activity fits a set of one or more classification rules that define the particular service usage activity as a background service usage activity;

determining whether a condition is satisfied, the condition including a finding that the particular service usage activity is determined to be a background service usage activity; and

when the condition is satisfied, restricting network access of the particular service usage activity.

54. (Original) The method of claim 53, wherein the set of one or more classification rules examines at least one of network type, time of day, connection cost, whether home or roaming, network busy state, QoS, and whether the particular service usage activity is in foreground of user interaction or in the background of user interaction.

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55. (Original) The method of claim 53, wherein the set of one or more classification rules includes examining if one or more of the following has taken place within a specified period of time: user has interacted with the device, user has interacted with the service usage activity, user has picked up the device, service usage activity UI content is in the foreground of the device UI, audio or video information is being played by the service usage activity, a certain amount of data has been communicated by the service usage activity, service usage activity is or is not on a foreground or background service list.

56. (Original) The method of claim 53, further comprising obtaining user selection of rules that define which service usage activities to classify as background service usage activities.

57. (Original) The method of claim 56, wherein the user selection of classification rules includes user selection of specific service usage activities to classify as background service usage activities.

58. (Original) The method of claim 56, further comprising obtaining user selection of rules that define more than one level of service background class for the user to choose from.

59. (Original) The method of claim 56, wherein the obtaining user selection includes presenting usage information for service usage activities to aid in determining which to define as background service usage activities.

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60. (Original) The method of claim 56, wherein the obtaining user selection includes presenting cost information for service usage activities to aid in determining which to define as background service usage activities.

61. (Original) The method of claim 53, wherein the condition includes enabling the user to select a network for background service usage activities.

62. (Original) The method of claim 61, wherein the selection of the network is based on the time of day.

63. (Original) The method of claim 61, wherein the selection of the network is based on connection cost.

64. (Original) The method of claim 53, wherein the user can modify the set of one or more classification rules.

65. (Original) The method of claim 53, wherein the condition includes

detecting when the service usage activity was initiated or attempted to be initiated;

notifying the user that this is a background service usage activity; and

provides the user with an option to implement the step of restricting.

66. (Currently amended) The method of claim 65, further comprising

informing the user of what the restriction options are; [[and]]

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implementing the restriction if the user chooses to implement a restriction option; and

disabling the restriction if the user chooses to proceed.

67. (Original) The method of claim 66, wherein a network element sets the classification rules.

68. (Original) The method of claim 67, wherein the setting of the set of one or more classification rules is based on network manager input.

69. (Original) The method of claim 67, wherein the setting the set of one or more classification rules is based on characterizing application usage behavior.

70. (Original) The method of claim 66, wherein the setting the set of one or more classification rules is based on a policy instruction provided from a network element to the device.

71. (Original) The method of claim 53, wherein the examining takes place on the device.

72. (Original) The method of claim 53, wherein the set of one or more classification rules includes determining if an app is an OS function, client/server data sharing/update function, software update or download, background file download, email or calendar or contact update or synch function.

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73. (Original) The method of claim 53, wherein the restricting includes one or more of: blocking, delaying, implementing a time window, aggregating/holding/transmitting, throttling, restricting to a range of NBS level, restricting to certain network types, restricting based on whether home or roaming, restricting to a certain time period, waiting for lower cost condition, waiting for specified network, waiting for home network, waiting for time of day, and waiting for network background state.

74. (Original) The method of claim 53, wherein the background service usage activity data that needs to be communicated via the device is cached until the condition is modified, reduced or removed.

75. (Original) The method of claim 74, wherein the cached data is prioritized so that most important data is communicated first when the condition is modified, reduced or removed.

76. (Original) The method of claim 53, wherein the restricting occurs on the device, and the app is unaware that it might be subjected to background service restrictions.

77. (Original) The method of claim 53, further comprising modifying or repressing app notification messages about lack of network connectivity.

77. (Original) The method of claim 53, wherein an app is provided with network state indications that are differential for different apps according to app background class or priority.

78. (Original) The method of claim 53, wherein an app is made aware that it might be subjected to background service restrictions.

79. (Original) The method of claim 78, wherein the awareness is provided via a background service API.

80. (Original) The method of claim 53, wherein an app has rules defining in which background states it should transmit.

81. (Original) The method of claim 53, wherein an app has a capability to override background service rules for high priority data.

82. (Original) The method of claim 53, wherein an app background service status API indicates one or more of: background transmission permission status, background class or classes allowed to transmit, NBS, QoS, apps allowed to transmit, service classes allowed to transmit, type of network, time of day, geography, and whether home or roaming.

82. (Cancelled)

83. (Original) The method of claim 53, wherein the user is charged less for background services that are implemented with background service policy controls.

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84. (Original) The method of claim 53, wherein the user can override background service policy enforcement for high priority communication.

85. (Original) The method of claim 53, wherein the user pays a higher price when background service policy enforcement is overridden.

86. (Original) The method of claim 53, wherein a sponsored service partner is charged less for background services that are implemented with background service policy controls.

87. (Original) The method of claim 53, wherein a sponsor can override background service policy enforcement for high priority communication.

88. (Original) The method of claim 53, wherein a sponsor programs override decision conditions into an app.

89. (Original) The method of claim 53, wherein a sponsor programs override decision conditions into a network element.

90. (Original) The method of claim 53, wherein a sponsor app or network element can override background service policy.

91. (Original) The method of claim 53, wherein a sponsor pays a higher price when background service policy enforcement is overridden.

Google Exhibit 1006, Page 364 of 901

92. (Original) The method of claim 53, wherein a restriction occurs in the network.

93. (Original) The method of claim 92, wherein an app is not aware that it might be subjected to background service restrictions.

94. (Original) The method of claim 92, further comprising modifying or repressing app notification messages about lack of network connectivity.

95. (Original) The method of claim 92, further comprising providing an app with network state indications that are differential for different apps according to app background class or priority.

96. (Original) The method of claim 92, further comprising informing an app that it might be subjected to background service restrictions.

97. (Original) The method of claim 96, wherein a background service API performs the informing.

98. (Original) The method of claim 92, wherein an app has rules for which background states it should transmit.

99. (Original) The method of claim 92, wherein an app has a capability to override background service rules for high priority data.

100. (Original) The method of claim 92, wherein an app background service status API indicates one or more of: background transmission permission status, background class or classes allowed to transmit, NBS, QoS, apps allowed to transmit, service classes allowed to transmit, type of network, time of day, geography, and whether home or roaming.

101. (Original) The method of claim 92, wherein the price for a sponsored service for background service usage activities is reduced when background service policies are followed.

102. (Original) The method of claim 92, wherein a sponsor device app determines background classification state and determines whether or not to restrict communication.

103. (Original) The method of claim 92, wherein an app determines background state from a device API.

104. (Original) The method of claim 92, wherein an app determines background state from a network API.

105. (Original) The method of claim 92, wherein an app determines background state from an NBS monitor.

106. (Original) The method of claim 92, wherein a sponsor price is increased if background policies are overridden by a sponsor app.

107. (Original) The method of claim 92, wherein a sponsor server determines background classification state and determines whether to restrict communication.

108. (Original) The method of claim 92, wherein a network element determines background state from a device API.

109. (Original) The method of claim 92, wherein a network element determines background state from a network API.

110. (Original) The method of claim 92, wherein a network element determines background state from an NBS monitor.

111. (Original) The method of claim 92, wherein a sponsor price is increased if background policies are overridden by a sponsor network element.

112. (Original) The method of claim 92, wherein a background service state indication API on the device makes background service state available to apps or network elements so they can decide when to communicate.

Google Exhibit 1006, Page 367 of 901

113. (Original) The method of claim 92, wherein a background service state indication API on a network element provides API background service state information to device apps or partner servers so they can decide when to communicate.

114. (New) The method of claim 53, wherein the restricting allows a minimum connectivity for background services.

Google Exhibit 1006, Page 368 of 901

REMARKS

Prior to examination on the merits, Applicants respectfully request entry of the preliminary amendment set forth in this paper. Paragraph [0001] of the specification and Claims 25 and 66 are being amended herein. The second instance of claim 82 is being cancelled and added as new claim 114.

The undersigned authorizes any fees which may be required, or credit any overpayment to Deposit Account No. 50-4561. Should the Examiner have any questions or need any additional information regarding this communication, the Examiner is invited to contact the undersigned at the telephone number shown below.

Respectfully submitted,

Date: August 17, 2011

By: _____

Marc A. Sockol
Reg. No. 40,823
Customer Number 69849
Sheppard Mullin Richter & Hampton LLP
390 Lytton Avenue
Palo Alto, CA 94301-1432
Telephone: (650) 815-2600

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being filed electronically via EFS-Web addressed to the Commissioner for Patents on:

Date: August 17, 2011 By: Linda K. Brost

Linda K. Brost

PTO/SB/06 (07-06)
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
13/134,028	05/25/2011	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ 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 $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $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).						
☐ 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

AMENDMENT 08/17/2011

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 114	Minus	** 115	= 0	X $26 =	0	OR	X $ =	
Independent (37 CFR 1.16(h))	* 14	Minus	***14	= 0	X $110 =	0	OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/AMANDA FORD/

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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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: 69849

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: 69849

OR

☐ Firm or Individual Name			
Address			
City		State	Zip
Country			
Telephone		Email	

Assignee Name and Address:
Headwater Partners I, LLC
350 Marine Parkway, Suite 300
Redwood City, California 94065
U.S.A.

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: 18 MARCH, 2011
Name	David R. Johnson	Telephone: 650-517-2782
Title	Chief Financial Officer	

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

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

PTO/SB/96 (07-09)
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STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Gregory G. Raleigh

Application No./Patent No.: 13/134,028 Filed/Issue Date: May 25, 2011

Titled: Device-Assisted Services for Protecting Network Capacity

Headwater Partners I, LLC, a limited liability company
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.

states that it is:

1. [X] the assignee of the entire right, title, and interest in;

2. [ ] an assignee of less than the entire right, title, and interest in (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) the patent application/patent identified above, by virtue of either:

A. [X] 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 026771, Frame 0395, or for which a copy therefore 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(s).

[X] 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.

Signature — August 26, 2011 (Date)

Marc A. Sockol, Reg. No. 40,823 (Printed or Typed Name) — Attorney of Record (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 1.11 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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Electronic Acknowledgement Receipt	
EFS ID:	10828361
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	69849
Filer:	Marc A. Sockol/Linda Brost
Filer Authorized By:	Marc A. Sockol
Attorney Docket Number:	26WV-160509 [RALEP032]
Receipt Date:	26-AUG-2011
Filing Date:	25-MAY-2011
Time Stamp:	19:34:56
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		160509-RALEP032-POAand3-73bStmt082611.pdf	181146 0715b14f065422eb2358741e3434dfdf723a33db	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal 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):	181146	

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

PTO/SB/21 (07-09)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	3

Application Number	13/134,028
Filing Date	May 25, 2011
First Named Inventor	Gregory G. Raleigh
Art Unit	2447 Conf. No. 3250
Examiner Name	Not Yet Assigned
Attorney Docket Number	26WV-160509 [RALEP032]

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Preliminary Amendment
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement with PTO/SB/08a/b
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
- ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☒ Power of Atty. to Prosecute Applications Before the USPTO (1 pg.)
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
- ☐ Proprietary Information
- ☐ Status Letter
- ☒ Other Enclosure(s) (please Identify below):
  Statement Under 37 CFR 3.73(b) (1 pg.)

Remarks

You are hereby authorized to charge any additional fee required or credit any overpayment to Deposit Account No. 50-4561.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Sheppard, Mullin, Richter & Hampton LLP Customer No. 69849		
Signature			
Printed name	Marc A. Sockol		
Date	August 26, 2011	Reg. No.	40,823

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this correspondence is being filed electronically via EFS-Web addressed to the Commissioner for Patents on the date shown below:

Signature	Linda K. Brost		
Typed or printed name	Linda K. Brost	Date	August 26, 2011

This collection of information is required by 37 CFR 1.5. 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 2 hours 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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W02-WEST:1LKB1\403855129.1

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Paper No.

MAILED

AUG 29 2011

OFFICE OF PETITIONS

SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
390 Lytton Avenue
Palo Alto CA 94301

In re Application of :
Raleigh et al. :
Application No. 13/134,028 :
Filed: May 25, 2011 :
Attorney Docket No.: 26WV-160509 [RALEP032] :
Title: DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY :

DECISION ON PETITION PURSUANT TO 37 C.F.R. § 1.182

This is a decision on the petition filed August 17, 2011, requesting that the above-identified application, including Figure 27, be accorded a filing date of May 25, 2011 as part of the original disclosure.

Receipt of the concurrently submitted 29 sheets of replacement drawings is acknowledged.

The application was deposited on May 25, 2011. However, on June 17, 2011, the Office of Data Management (ODM) mailed a "Notice to File Corrected Application Papers" (notice), stating, *inter alia*, that the application had been accorded a filing date, and advising Applicants that Figure 27 appeared to have been omitted on filing. The notice set a two-month period for reply.

In response, on August 17, 2011, Applicants filed this petition. The petition is further accompanied by, *inter alia*, the petition fee, a copy of Figure 27, and a copy of Applicants' postcard receipt acknowledging receipt of "Drawings: 29 Sheets" in the United States Patent and Trademark Office (Office) on May 25, 2011. Applicants request that Figure 27 be accorded a filing date of May 25, 2011.

Upon review of the electronic file, 28 sheets of drawings have been located, containing Figures 1-26. Figure 27 has not been located among the application papers. However, the evidence is convincing that the application papers deposited on May 25, 2011 included 29 drawing sheets containing Figures 1-27, and the twenty-ninth sheet (containing Figure 27) was subsequently misplaced in the Office.

Therefore, the application, including Figure 27, was complete on filing and entitled to a filing date of May 25, 2011 as part of the original disclosure.

Accordingly, the petition pursuant to 37 C.F.R. § 1.182 is **GRANTED.**

The portion of the notice mailed June 17, 2011 which refers to the omitted drawing was sent in error, and that portion is hereby **VACATED.** Therefore, no petition fee is necessary, and the petition fee will be credited to Deposit Account No. 50-4561 in due course.

Pursuant to this decision, the application will be referred to the Office of Patent Application Processing (OPAP) for:

- Processing the application with a filing date of May 25, 2011, using the original application papers filed on that date, as well as Figure 27 submitted on August 17, 2011, and;
- noting in Office records that Figure 27 was present on filing.

The general phone number for OPAP is 571-272-4000. Telephone inquiries **regarding this decision** should be directed to the undersigned at (571) 272-3225.[1]

/Paul Shanoski/
Paul Shanoski
Senior Attorney
Office of Petitions

---

1 Petitioner will note that all practice before the Office should be in writing, and the action of the Office will be based exclusively on the written record in the Office. See 37 C.F.R. § 1.2. As such, Petitioner is reminded that no telephone discussion may be controlling or considered authority for any further action(s) of Petitioner.

UNITED STATES PATENT & TRADEMARK OFFICE
Washington, D.C. 20231

REQUEST FOR PATENT FEE REFUND

1 Date of Request: 08/23/11	2 Serial/Patent # 13134028

	3 Please refund the following fee(s):	4 PAPER NUMBER	5 DATE FILED	6 AMOUNT
	Filing			$
	Amendment			$
	Extension of Time			$
	Notice of Appeal/Appeal			$
X	Petition	none	08/17/11	$ 400.00
	Issue			$
	Cert of Correction/Terminal Disc.			$
	Maintenance			$
	Assignment			$
	Other			$

7 TOTAL AMOUNT OF REFUND	$ 400.00

8 TO BE REFUNDED BY:

	Treasury Check
X	Credit Deposit A/C #:

9 5 0 -- 4 5 6 1

10 REASON:	
	Overpayment
	Duplicate Payment
X	No Fee Due (Explanation):

PTO mailed the notice in error.

11 REFUND REQUESTED BY:

TYPED/PRINTED NAME: Paul Shanoski TITLE: Senior Attorney

SIGNATURE: /Paul Shanoski/ PHONE: 571-272-3225

OFFICE: Office of Petitions

****

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APPROVED: [signature] DATE: 8/29/11

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Office of Finance
Refund Branch
Crystal Park One, Room 802B

FORM PTO 1577
(01/90)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Gregory G. Raleigh, et al.	Not Yet Assigned
Serial No. 13/134,028	Art Unit: 2447
Filed: May 25, 2011	Conf. No.: 3250

Title: Device-Assisted Services for Protecting Network Capacity

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

RESPONSE TO NOTICE TO FILE MISSING PARTS UNDER 37 C.F.R. 1.53(b)

Dear Sir:

In response to the Notice to File Missing Parts of Application mailed on June 17, 2011 in the above-identified application, enclosed herewith are the missing parts needed to complete filing of the above-identified patent application. The signed declaration for patent application is enclosed herewith under 37 C.F.R. §§1.27 and 1.16(e). Replacement drawings are also enclosed herewith under 37 C.F.R. §§1.84 and 1.121(d).

In addition, enclosed is a Petition for Date of Deposit with respect to Figure 27.

☒ Small entity status is proper for the assignee under 37 C.F.R. §§1.9 and 1.27.

The fees associated with the filing of this response are shown below:

	Fees
Missing Parts Surcharge (small entity)	$ 65.00
TOTAL FEE ENCLOSED =	**$ 65.00**

Google Exhibit 1006, Page 379 of 901

☐ No additional fee is required for this _____.
☒ Please charge Deposit Account No. 50-4561 in the amount of $65.00.
☒ The Commissioner is hereby authorized to charge any additional fees and credit any overpayments to Deposit Account No. 50-4561.
☒ Charge any patent application processing fees under 37 C.F.R. 1.17.

Respectfully submitted,

Date: August 17, 2011

By: _____

Marc A. Sockol
Reg. No. 40,823
Customer Number 69849
Sheppard Mullin Richter & Hampton LLP
390 Lytton Avenue
Palo Alto, CA 94301-1432

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	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/134,028	05/25/2011	2447	4695	26WV-160509 [RALEP032]	115	14

CONFIRMATION NO. 3250

69849
SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
390 Lytton Avenue
Palo Alto, CA 94301

UPDATED FILING RECEIPT

Date Mailed: 09/15/2011

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)

Gregory G. Raleigh, Woodside, CA;
Alireza Raissinia, Monte Sereno, CA;
James Lavine, Mill Valley, CA;

Power of Attorney: The patent practitioners associated with Customer Number 69849

Domestic Priority data as claimed by applicant

This application is a CIP of 12/380,757 03/02/2009
and claims benefit of 61/348,022 05/25/2010
and claims benefit of 61/381,159 09/09/2010
and claims benefit of 61/381,162 09/09/2010
and claims benefit of 61/384,456 09/20/2010
and claims benefit of 61/389,547 10/04/2010
and claims benefit of 61/385,020 09/21/2010
and claims benefit of 61/387,243 09/28/2010
and claims benefit of 61/387,247 09/28/2010
and claims benefit of 61/407,358 10/27/2010
and claims benefit of 61/418,507 12/01/2010
and claims benefit of 61/418,509 12/01/2010
and claims benefit of 61/420,727 12/07/2010
and claims benefit of 61/422,565 12/13/2010
and claims benefit of 61/422,572 12/13/2010
and claims benefit of 61/422,574 12/13/2010
and claims benefit of 61/435,564 01/24/2011
and claims benefit of 61/472,606 04/06/2011

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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.)

Permission to Access - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 06/15/2011

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/134,028**

Projected Publication Date: 12/22/2011

Non-Publication Request: No

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

Device-assisted services for protecting network capacity

Preliminary Class

709

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.

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For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

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

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 13/134,028

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	165		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	270		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	110		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	115 minus 20 =	* 95	x 26 =	2470	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	14 minus 3 =	* 11	x 110 =	1210			
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).			405			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	4630		TOTAL	

APPLICATION AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/134,028	05/25/2011	Gregory G. Raleigh	26WV-160509 [RALEP032]

CONFIRMATION NO. 3250

69849
SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
390 Lytton Avenue
Palo Alto, CA 94301

POA ACCEPTANCE LETTER

OC000000049745422

Date Mailed: 09/15/2011

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/26/2011.

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.

/ttran/

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

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UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/134,028	05/25/2011	Gregory G. Raleigh	26WV-160509 [RALEP032]

CONFIRMATION NO. 3250

69849
SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
390 Lytton Avenue
Palo Alto, CA 94301

IMPROPER CFR REQUEST

Date Mailed: 09/15/2011

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

Continuity, Priority Claims, Petitions, and Non-Publication Requests

In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request because:

- The application(s) to which priority is claimed were filed over a year prior to the filing date of this application. Therefore, the referenced application(s) cannot be claimed as domestic or foreign priority.

/ttran/

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

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/134,028	05/25/2011	Gregory G. Raleigh	26WV-160509 [RALEP032]

CONFIRMATION NO. 3250

69849
SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
379 Lytton Avenue
Palo Alto, CA 94301

PUBLICATION NOTICE

OC000000051631534

Title: Device-assisted services for protecting network capacity

Publication No.US-2011-0314145-A1
Publication Date:12/22/2011

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.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Gregory G. Raleigh, et al.	Not Yet Assigned
Serial No.: 13/134,028	Art Unit: 2447
Filed: May 25, 2011	Conf. No.: 3250

Title: Device-Assisted Services for Protecting Network Capacity

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

PETITION TO ACCEPT UNINTENTIONALLY DELAYED PRIORITY CLAIM FOR THE BENEFIT OF A PRIOR FILED APPLICATION

Dear Sir:

Applicants respectfully request acceptance of an unintentionally delayed priority claim for the benefit of several priority applications.

Applicant recently learned that the above-identified application as filed did not include a priority claim to certain priority applications, including certain priority provisional applications.

The claim to the certain priority provisional applications is proper since they are within the priority chain of co-pending nonprovisional applications that Applicant is now adding to this application's priority claim. The entire delay from the date the priority claim due (i.e., four months from May 25, 2011, or September 25, 2011) until the filing of a grantable petition was unintentional.

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Enclosed with this Petition is a preliminary amendment to correct the priority claim. The fees associated with the filing of this petition are shown below:

			Fees
Fee for the acceptance of an unintentionally delayed claim for priority			$1,410.00
	TOTAL FEE ENCLOSED	=	**$1,410.00**

☐ No additional fee is required for this _____.
☒ Please charge Deposit Account No. 50-4561 in the amount of $1,410.00.
☒ The Commissioner is hereby authorized to charge any additional fees and credit any overpayments to Deposit Account No. 50-4561.
☒ Charge any patent application processing fees under 37 C.F.R. 1.17.

Respectfully submitted,

Date: January 11, 2012 By: _____

Marc A. Sockol, Reg. No. 40,823
Attorney for Applicants
Customer Number 69849
Sheppard, Mullin, Richter & Hampton LLP
379 Lytton Avenue
Palo Alto, CA 94301-1432
Telephone: (650) 815-2602

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being filed electronically via EFS-Web addressed to the Commissioner for Patents on:

Date: January 11, 2012 By: Linda K. Brost
Linda K. Brost

Google Exhibit 1006, Page 389 of 901

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Gregory G. Raleigh, et al.	Not Yet Assigned
Serial No. 13/134,028	Art Unit: 2447
Filed: May 25, 2011	Conf. No.: 3250
Title: Device-Assisted Services for Protecting Network Capacity	

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

PRELIMINARY AMENDMENT

Sir:

Prior to examination of the above-referenced application, please enter the following amendments and consider the following remarks:

In the Specification:

Please replace Paragraphs [0001] through [0003] on Pages 1 through 4 of the specification with the following paragraphs [0001] through [0003]:

[0001] This application is a continuation-in-part of and incorporates by reference the following U.S. pending non-provisional patent applications: U.S. serial No. 12/380,759 filed March 2, 2009, entitled "Verifiable Device Assisted Service Policy Implementation," U.S. serial No. 12/380,779 filed March 2, 2009, entitled "Device Assisted Service Profile Management with User Preference, Adaptive Policy, Network Neutrality, and User Privacy," U.S. serial No. 12/380,758 filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Monitoring with Reporting, Synchronization, and Notification," U.S. serial No. 12/380,778 filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Billing with Integrated Accounting, Mediation Accounting, and Multi-Account," U.S. serial No. 12/380,768 filed March 2, 2009, entitled "Network Based Service Policy Implementation with Network Neutrality and User Privacy," U.S. serial No. 12/380,767 filed March 2, 2009, entitled "Network Based Service Profile Management with User Preference, Adaptive Policy, Network Neutrality and User Privacy," U.S. serial No. 12/380,780 filed March 2, 2009, entitled "Automated Device Provisioning and Activation," U.S. serial No. 12/380,755 filed March 2, 2009, entitled "Device Assisted Ambient Services," U.S. serial No. 12/380,756 filed March 2, 2009, entitled "Network Based Ambient Services," U.S. serial No. 12/380,770 filed March 2, 2009, entitled "Network Tools for Analysis, Design, Testing, and Production of Services," U.S. serial No. 12/380,771 filed March 2, 2009, entitled "Verifiable Service Billing for Intermediate Networking Devices" (issued as U.S. Patent No. 8,023,425 on September 20, 2011), U.S. serial No. 12/380,772 filed March 2, 2009, entitled "Roaming Services Network and Overlay Networks," U.S. serial No. 12/380,782 filed March 2, 2009, entitled "Open Development System for Access Service Providers," U.S. serial No. 12/380,783 filed March 2, 2009, entitled "Virtual Service Provider Systems," U.S. serial No. 12/380,757 filed March 2, 2009, entitled "Service Activation Tracking System," U.S. serial No. 12/380,781 filed March 2, 2009, entitled "Open Transaction Central Billing System," U.S. serial No. 12/380,774 filed March 2, 2009, entitled "Verifiable and Accurate Service Usage Monitoring for Intermediate Networking Devices," U.S. serial No.

12/380,773 filed March 2, 2009, entitled "Verifiable Service Policy Implementation for Intermediate Networking Devices," U.S. serial No. 12/380,769 filed March 2, 2009, entitled "Service Profile Management with User Preference, Adaptive Policy, Network Neutrality and User Privacy for Intermediate Networking Devices," U.S. serial No. 12/380,777 filed March 2, 2009, entitled "Simplified Service Network Architecture," U.S. serial No. 12/695,019 filed January 27, 2010, entitled "Device Assisted CDR Creation, Aggregation, Mediation and Billing," U.S. serial No. 12/695,020 filed January 27, 2010, entitled "Adaptive Ambient Services," U.S. serial No. 12/694,445 filed January 27, 2010, entitled "Security Techniques for Device Assisted Services," U.S. serial No. 12/694,451 filed January 27, 2010, entitled "Device Group Partitions and Settlement Platform," U.S. serial No. 12/694,455 filed January 27, 2010, entitled "Device Assisted Services Install," U.S. serial No. 12/695,021 filed January 27, 2010, entitled "Quality of Service for Device Assisted Services," U.S. serial No. 12/695,980 filed January 28, 2010, entitled "Enhanced Roaming Services and Converged Carrier Networks with Device Assisted Services and a Proxy," and U.S. application serial No. 13/134,005, filed May 25, 2011, and entitled "System and Method for Wireless Network Offloading." This application claims priority to and incorporates by reference the following U.S. pending provisional patent applications: U.S. provisional serial No. 61/348,022 filed May 25, 2010, entitled "Device Assisted Services for Protecting Network Capacity," U.S. provisional serial No. 61/381,159 filed September 9, 2010, entitled "Device Assisted Services for Protecting Network Capacity," U.S. provisional serial No. 61/381,162 filed September 9, 2010, entitled "Service Controller Interfaces and Workflows" U.S. provisional serial No. 61/384,456 filed September 20, 2010, entitled "Securing Service Processor with Sponsored SIMs," U.S. provisional serial No. 61/385,020 filed September 21, 2010, entitled "Service Usage Reconciliation System Overview," U.S. provisional serial No. 61/387,243 filed September 28, 2010, entitled "Enterprise and Consumer Billing Allocation for Wireless Communication Device Service Usage Activities," and U.S. provisional serial No. 61/387,247 filed September 28, 2010, entitled "Secured Device Data Records," U.S. provisional serial No. 61/389,547 filed October 4, 2010, entitled "User Notifications for Device Assisted Services," U.S. provisional serial No. 61/407,358 filed October 27, 2010, entitled "Service Controller and Service Processor Architecture," U.S. provisional serial No. 61/418,507 filed December 1, 2010, entitled "Application Service Provider Interface System," U.S. provisional serial No. 61/418,509 filed

December 1, 2010, entitled "Service Usage Reporting Reconciliation and Fraud Detection for Device Assisted Services," U.S. provisional serial No. 61/420,727 filed December 7, 2010, entitled "Secure Device Data Records," U.S. provisional serial No. 61/422,565 filed December 13, 2010, entitled "Service Design Center for Device Assisted Services," U.S. provisional serial No. 61/422,572 filed December 13, 2010, entitled "System Interfaces and Workflows for Device Assisted Services," U.S. provisional serial No. 61/422,574 filed December 13, 2010, entitled "Security and Fraud Detection for Device Assisted Services," U.S. provisional serial No. 61/435,564 filed January 24, 2011, entitled "Framework for Device Assisted Services," and U.S. provisional serial No. 61/472,606 filed April 6, 2011, entitled "Managing Service User Discovery and Service Launch Object Placement on a Device." Further, this application incorporates by reference the following U.S. provisional patent applications: U.S. provisional serial No. 61/206,354 filed January 28, 2009, entitled "Services Policy Communication System and Method," U.S. provisional serial No. 61/206,944 filed February 4, 2009, entitled "Services Policy Communication System and Method," U.S. provisional serial No. 61/207,393 filed February 10, 2009, entitled "Services Policy Communication System and Method," U.S. provisional serial No. 61/207,739 filed February 13, 2009, entitled "Services Policy Communication System and Method," U.S. provisional serial No. 61/270,353 filed July 6, 2009, entitled "Device Assisted CDR Creation, Aggregation, Mediation and Billing," U.S. provisional serial No. 61/275,208 filed August 25, 2009, entitled "Adaptive Ambient Services," U.S. provisional serial No. 61/237,753 filed August 28, 2009, entitled "Adaptive Ambient Services," U.S. provisional serial No. 61/252,151 filed October 15, 2009, entitled "Security Techniques for Device Assisted Services," U.S. provisional serial No. 61/252,153 filed October 15, 2009, entitled "Device Group Partitions and Settlement Platform," U.S. provisional serial No. 61/264,120 filed November 24, 2009, entitled "Device Assisted Services Install," and U.S. provisional serial No. 61/264,126 filed November 24, 2009, entitled "Device Assisted Services Activity Map."

[0002] The following applications, U.S. serial No. 12/380,759 filed March 2, 2009, entitled "Verifiable Device Assisted Service Policy Implementation," U.S. serial No. 12/380,779 filed March 2, 2009, entitled "Device Assisted Service Profile Management with User Preference, Adaptive Policy, Network Neutrality, and User Privacy," U.S. serial No. 12/380,758 filed March

Google Exhibit 1006, Page 393 of 901

2, 2009, entitled "Verifiable Device Assisted Service Usage Monitoring with Reporting, Synchronization, and Notification," U.S. serial No. 12/380,778 filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Billing with Integrated Accounting, Mediation Accounting, and Multi-Account," U.S. serial No. 12/380,768 filed March 2, 2009, entitled "Network Based Service Policy Implementation with Network Neutrality and User Privacy," U.S. serial No. 12/380,767 filed March 2, 2009, entitled "Network Based Service Profile Management with User Preference, Adaptive Policy, Network Neutrality and User Privacy," U.S. serial No. 12/380,780 filed March 2, 2009, entitled "Automated Device Provisioning and Activation," U.S. serial No. 12/380,755 filed March 2, 2009, entitled "Device Assisted Ambient Services," U.S. serial No. 12/380,756 filed March 2, 2009, entitled "Network Based Ambient Services," U.S. serial No. 12/380,770 filed March 2, 2009, entitled "Network Tools for Analysis, Design, Testing, and Production of Services," U.S. serial No. 12/380,772 filed March 2, 2009, entitled "Roaming Services Network and Overlay Networks," U.S. serial No. 12/380,782 filed March 2, 2009, entitled "Open Development System for Access Service Providers," U.S. serial No. 12/380,783 filed March 2, 2009, entitled "Virtual Service Provider Systems," U.S. serial No. 12/380,757 filed March 2, 2009, entitled "Service Activation Tracking System," U.S. serial No. 12/380,781 filed March 2, 2009, entitled "Open Transaction Central Billing System," U.S. serial No. 12/380,774 filed March 2, 2009, entitled "Verifiable and Accurate Service Usage Monitoring for Intermediate Networking Devices," U.S. serial No. 12/380,771 filed March 2, 2009, entitled "Verifiable Service Billing for Intermediate Networking Devices" (issued as U.S. Patent No. 8,023,425 on September 20, 2011), U.S. serial No. 12/380,773 filed March 2, 2009, entitled "Verifiable Service Policy Implementation for Intermediate Networking Devices," U.S. serial No. 12/380,777 filed March 2, 2009, entitled "Simplified Service Network Architecture," U.S. serial No. 12/695,019 filed January 27, 2010, entitled "Device Assisted CDR Creation, Aggregation, Mediation, and Billing," U.S. serial No. 12/695,020 filed January 27, 2010, entitled "Adaptive Ambient Services," U.S. serial No. 12/694,445 filed January 27, 2010, entitled "Security Techniques for Device Assisted Services," U.S. serial No. 12/694,451 filed January 27, 2010, entitled "Device Group Partitions and Settlement Platform," U.S. serial No. 12/694,455 filed January 27, 2010, entitled "Device Assisted Services Install," U.S. serial No. 12/695,021 filed January 27, 2010, entitled "Quality of Service for Device Assisted Services," and U.S. serial No. 12/695,980 filed January 28, 2010, entitled "Enhanced Roaming Services and

Converged Carrier Networks with Device Assisted Services and a Proxy," claim priority to U.S. provisional serial No. 61/206,354 filed January 28, 2009, entitled "Services Policy Communication System and Method." The following applications, U.S. serial No. 12/380,759 filed March 2, 2009, entitled "Verifiable Device Assisted Service Policy Implementation," U.S. serial No. 12/380,779 filed March 2, 2009, entitled "Device Assisted Service Profile Management with User Preference, Adaptive Policy, Network Neutrality, and User Privacy," U.S. serial No. 12/380,758 filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Monitoring with Reporting, Synchronization, and Notification," U.S. serial No. 12/380,778 filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Billing with Integrated Accounting, Mediation Accounting, and Multi-Account," U.S. serial No. 12/380,768 filed March 2, 2009, entitled "Network Based Service Policy Implementation with Network Neutrality and User Privacy," U.S. serial No. 12/380,767 filed March 2, 2009, entitled "Network Based Service Profile Management with User Preference, Adaptive Policy, Network Neutrality and User Privacy," U.S. serial No. 12/380,780 filed March 2, 2009, entitled "Automated Device Provisioning and Activation," U.S. serial No. 12/380,755 filed March 2, 2009, entitled "Device Assisted Ambient Services," U.S. serial No. 12/380,756 filed March 2, 2009, entitled "Network Based Ambient Services," U.S. serial No. 12/380,770 filed March 2, 2009, entitled "Network Tools for Analysis, Design, Testing, and Production of Services," U.S. serial No. 12/380,772 filed March 2, 2009, entitled "Roaming Services Network and Overlay Networks," U.S. serial No. 12/380,782 filed March 2, 2009, entitled "Open Development System for Access Service Providers," U.S. serial No. 12/380,783 filed March 2, 2009, entitled "Virtual Service Provider Systems," U.S. serial No. 12/380,757 filed March 2, 2009, entitled "Service Activation Tracking System," U.S. serial No. 12/380,781 filed March 2, 2009, entitled "Open Transaction Central Billing System," U.S. serial No. 12/380,774 filed March 2, 2009, entitled "Verifiable and Accurate Service Usage Monitoring for Intermediate Networking Devices," U.S. serial No. 12/380,771 filed March 2, 2009, entitled "Verifiable Service Billing for Intermediate Networking Devices" (issued as U.S. Patent No. 8,023,425 on September 20, 2011), U.S. serial No. 12/380,773 filed March 2, 2009, entitled "Verifiable Service Policy Implementation for Intermediate Networking Devices," U.S. serial No. 12/380,777 filed March 2, 2009, entitled "Simplified Service Network Architecture," U.S. serial No. 12/695,019 filed January 27, 2010, entitled "Device Assisted CDR Creation, Aggregation, Mediation, and Billing," U.S. serial No.

12/695,020 filed January 27, 2010, entitled "Adaptive Ambient Services," U.S. serial No. 12/694,445 filed January 27, 2010, entitled "Security Techniques for Device Assisted Services," U.S. serial No. 12/694,451 filed January 27, 2010, entitled "Device Group Partitions and Settlement Platform," U.S. serial No. 12/694,455 filed January 27, 2010, entitled "Device Assisted Services Install," U.S. serial No. 12/695,021 filed January 27, 2010, entitled "Quality of Service for Device Assisted Services," and U.S. serial No. 12/695,980 filed January 28, 2010, entitled "Enhanced Roaming Services and Converged Carrier Networks with Device Assisted Services and a Proxy," claim priority to U.S. provisional serial No. 61/206,944 filed February 4, 2009, entitled "Services Policy Communication System and Method." The following applications, U.S. serial No. 12/380,759 filed March 2, 2009, entitled "Verifiable Device Assisted Service Policy Implementation," U.S. serial No. 12/380,779 filed March 2, 2009, entitled "Device Assisted Service Profile Management with User Preference, Adaptive Policy, Network Neutrality, and User Privacy," U.S. serial No. 12/380,758 filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Monitoring with Reporting, Synchronization, and Notification," U.S. serial No. 12/380,778 filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Billing with Integrated Accounting, Mediation Accounting, and Multi-Account," U.S. serial No. 12/380,768 filed March 2, 2009, entitled "Network Based Service Policy Implementation with Network Neutrality and User Privacy," U.S. serial No. 12/380,767 filed March 2, 2009, entitled "Network Based Service Profile Management with User Preference, Adaptive Policy, Network Neutrality and User Privacy," U.S. serial No. 12/380,780 filed March 2, 2009, entitled "Automated Device Provisioning and Activation," U.S. serial No. 12/380,755 filed March 2, 2009, entitled "Device Assisted Ambient Services," U.S. serial No. 12/380,756 filed March 2, 2009, entitled "Network Based Ambient Services," U.S. serial No. 12/380,770 filed March 2, 2009, entitled "Network Tools for Analysis, Design, Testing, and Production of Services," U.S. serial No. 12/380,772 filed March 2, 2009, entitled "Roaming Services Network and Overlay Networks," U.S. serial No. 12/380,782 filed March 2, 2009, entitled "Open Development System for Access Service Providers," U.S. serial No. 12/380,783 filed March 2, 2009, entitled "Virtual Service Provider Systems," U.S. serial No. 12/380,757 filed March 2, 2009, entitled "Service Activation Tracking System," U.S. serial No. 12/380,781 filed March 2, 2009, entitled "Open Transaction Central Billing System," U.S. serial No. 12/380,774 filed March 2, 2009, entitled "Verifiable and Accurate Service Usage Monitoring for Intermediate

Networking Devices," U.S. serial No. 12/380,771 filed March 2, 2009, entitled "Verifiable Service Billing for Intermediate Networking Devices" (issued as U.S. Patent No. 8,023,425 on September 20, 2011), U.S. serial No. 12/380,773 filed March 2, 2009, entitled "Verifiable Service Policy Implementation for Intermediate Networking Devices," U.S. serial No. 12/380,777 filed March 2, 2009, entitled "Simplified Service Network Architecture," U.S. serial No. 12/695,019 filed January 27, 2010, entitled "Device Assisted CDR Creation, Aggregation, Mediation, and Billing," U.S. serial No. 12/695,020 filed January 27, 2010, entitled "Adaptive Ambient Services," U.S. serial No. 12/694,445 filed January 27, 2010, entitled "Security Techniques for Device Assisted Services," U.S. serial No. 12/694,451 filed January 27, 2010, entitled "Device Group Partitions and Settlement Platform," U.S. serial No. 12/694,455 filed January 27, 2010, entitled "Device Assisted Services Install," U.S. serial No. 12/695,021 filed January 27, 2010, entitled "Quality of Service for Device Assisted Services," and U.S. serial No. 12/695,980 filed January 28, 2010, entitled "Enhanced Roaming Services and Converged Carrier Networks with Device Assisted Services and a Proxy," claim priority to U.S. provisional serial No. 61/207,393 filed February 10, 2009, entitled "Services Policy Communication System and Method." The following applications, U.S. serial No. 12/380,759 filed March 2, 2009, entitled "Verifiable Device Assisted Service Policy Implementation," U.S. serial No. 12/380,779 filed March 2, 2009, entitled "Device Assisted Service Profile Management with User Preference, Adaptive Policy, Network Neutrality, and User Privacy," U.S. serial No. 12/380,758 filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Monitoring with Reporting, Synchronization, and Notification," U.S. serial No. 12/380,778 filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Billing with Integrated Accounting, Mediation Accounting, and Multi-Account," U.S. serial No. 12/380,768 filed March 2, 2009, entitled "Network Based Service Policy Implementation with Network Neutrality and User Privacy," U.S. serial No. 12/380,767 filed March 2, 2009, entitled "Network Based Service Profile Management with User Preference, Adaptive Policy, Network Neutrality and User Privacy," U.S. serial No. 12/380,780 filed March 2, 2009, entitled "Automated Device Provisioning and Activation," U.S. serial No. 12/380,755 filed March 2, 2009, entitled "Device Assisted Ambient Services," U.S. serial No. 12/380,756 filed March 2, 2009, entitled "Network Based Ambient Services," U.S. serial No. 12/380,770 filed March 2, 2009, entitled "Network Tools for Analysis, Design, Testing, and Production of Services," U.S. serial No. 12/380,772 filed March 2, 2009,

entitled "Roaming Services Network and Overlay Networks," U.S. serial No. 12/380,782 filed March 2, 2009, entitled "Open Development System for Access Service Providers," U.S. serial No. 12/380,783 filed March 2, 2009, entitled "Virtual Service Provider Systems," U.S. serial No. 12/380,757 filed March 2, 2009, entitled "Service Activation Tracking System," U.S. serial No. 12/380,781 filed March 2, 2009, entitled "Open Transaction Central Billing System," U.S. serial No. 12/380,774 filed March 2, 2009, entitled "Verifiable and Accurate Service Usage Monitoring for Intermediate Networking Devices," U.S. serial No. 12/380,771 filed March 2, 2009, entitled "Verifiable Service Billing for Intermediate Networking Devices" (issued as U.S. Patent No. 8,023,425 on September 20, 2011), U.S. serial No. 12/380,773 filed March 2, 2009, entitled "Verifiable Service Policy Implementation for Intermediate Networking Devices," U.S. serial No. 12/380,777 filed March 2, 2009, entitled "Simplified Service Network Architecture," U.S. serial No. 12/695,019 filed January 27, 2010, entitled "Device Assisted CDR Creation, Aggregation, Mediation, and Billing," U.S. serial No. 12/695,020 filed January 27, 2010, entitled "Adaptive Ambient Services," U.S. serial No. 12/694,445 filed January 27, 2010, entitled "Security Techniques for Device Assisted Services," U.S. serial No. 12/694,451 filed January 27, 2010, entitled "Device Group Partitions and Settlement Platform," U.S. serial No. 12/694,455 filed January 27, 2010, entitled "Device Assisted Services Install," U.S. serial No. 12/695,021 filed January 27, 2010, entitled "Quality of Service for Device Assisted Services," and U.S. serial No. 12/695,980 filed January 28, 2010, entitled "Enhanced Roaming Services and Converged Carrier Networks with Device Assisted Services and a Proxy," claim priority to U.S. provisional serial No. 61/207,739 filed February 13, 2009, entitled "Services Policy Communication System and Method." The following applications, U.S. serial No. 12/695,019 filed January 27, 2010, entitled "Device Assisted CDR Creation, Aggregation, Mediation, and Billing," U.S. serial No. 12/694,451 filed January 27, 2010, entitled "Device Group Partitions and Settlement Platform," and U.S. serial No. 12/695,980 filed January 28, 2010, entitled "Enhanced Roaming Services and Converged Carrier Networks with Device Assisted Services and a Proxy," claim priority to U.S. provisional serial No. 61/270,353 filed July 6, 2009, entitled "Device Assisted CDR Creation, Aggregation, Mediation and Billing." The following application, U.S. serial No. 12/695,020 filed January 27, 2010, entitled "Adaptive Ambient Services," claims priority to U.S. provisional serial No. 61/275,208 filed August 25, 2009, entitled "Adaptive Ambient Services." The following application, U.S. serial No. 12/695,020

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filed January 27, 2010, entitled "Adaptive Ambient Services," claims priority to U.S. provisional serial No. 61/237,753 filed August 28, 2009, entitled "Adaptive Ambient Services." The following applications, U.S. serial No. 12/694,445 filed January 27, 2010, entitled "Security Techniques for Device Assisted Services," and U.S. serial No. 12/695,021 filed January 27, 2010, entitled "Quality of Service for Device Assisted Services," claim priority to U.S. provisional serial No. 61/252,151 filed October 15, 2009, entitled "Security Techniques for Device Assisted Services." The following applications, U.S. serial No. 12/694,451 filed January 27, 2010, entitled "Device Group Partitions and Settlement Platform," and U.S. serial No. 12/695,021 filed January 27, 2010 entitled "Quality of Service for Device Assisted Services," claim priority to U.S. provisional serial No. 61/252,153 filed October 15, 2009, entitled "Device Group Partitions and Settlement Platform." The following application, U.S. serial No. 12/694,455 filed January 27, 2010, entitled "Device Assisted Services Install," claims priority to U.S. provisional serial No. 61/264,120 filed November 24, 2009, entitled "Device Assisted Services Install." The following application, U.S. serial No. 12/695,019 filed January 27, 2010, entitled "Device Assisted CDR Creation, Aggregation, Mediation, and Billing," claims priority to U.S. provisional serial No. 61/264,126 filed November 24, 2009, entitled "Device Assisted Services Activity Map."

[0003] All of the above patents and applications are hereby incorporated by reference.

REMARKS

Applicants respectfully request entry of the preliminary amendment set forth in this paper. Paragraphs [0001] through [0003] of the specification are being replaced herein.

The undersigned authorizes any fees which may be required, or credit any overpayment to Deposit Account No. 50-4561. Should the Examiner have any questions or need any additional information regarding this communication, the Examiner is invited to contact the undersigned at the telephone number shown below.

Respectfully submitted,

Date: January 11, 2012

By: _____

Marc A. Sockol
Reg. No. 40,823
Customer Number 69849
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379 Lytton Avenue
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CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being filed electronically via EFS-Web addressed to the Commissioner for Patents on:

Date: January 11, 2012 By: Linda K. Brost

Linda K. Brost

Electronic Patent Application Fee Transmittal

Application Number:	13134028
Filing Date:	25-May-2011
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Marc A. Sockol/Linda Brost
Attorney Docket Number:	26WV-160509 [RALEP032]

Filed as Small 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:				
Priority accept. unintent. delayed claim	1454	1	1410	1410
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**1410**

Electronic Acknowledgement Receipt	
EFS ID:	11816190
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	69849
Filer:	Marc A. Sockol/Linda Brost
Filer Authorized By:	Marc A. Sockol
Attorney Docket Number:	26WV-160509 [RALEP032]
Receipt Date:	11-JAN-2012
Filing Date:	25-MAY-2011
Time Stamp:	20:01:51
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$1410
RAM confirmation Number	7423
Deposit Account	504561
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees) 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 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	**Document Description**	**File Name**	**File Size(Bytes)/ Message Digest**	**Multi Part /.zip**	**Pages (if appl.)**
1		160509-RALEP032-PettoAccUnintDelClaimandPrelimAmend011112.pdf	229553 aa2906f2c335f43154c26c272ed8957d11b5a4fe	yes	14
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Transmittal Letter		1	1	
	Petition for review by the Office of Petitions.		2	3	
	Preliminary Amendment		4	13	
	Applicant Arguments/Remarks Made in an Amendment		14	14	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30369 afc3aa722b20378c1829822e5f4ae9d4ede929af	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	259922		

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

PTO/SB/21 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	14

Application Number	13/134,028
Filing Date	May 25, 2011
First Named Inventor	Gregory G. Raleigh, et al.
Art Unit	2447 Conf. No. 3250
Examiner Name	Not Yet Assigned
Attorney Docket Number	26WV-160509 [RALEP032]

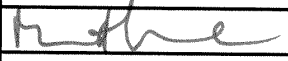
ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
- ☐ Fee Attached
- ☒ Preliminary Amendment (11 pgs.)
- ☐ After Final
- ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement with PTO/SB/08a/b
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
- ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☒ Petition to Accept Unintentionally Delayed Priority Claim for the Benefit of a Prior Filed Application (2 pgs.)
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Atty.
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
- ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
- ☐ Proprietary Information
- ☐ Status Letter
- ☐ Other Enclosure(s) (please Identify below):

Remarks

You are hereby authorized to charge any additional fee required or credit any overpayment to Deposit Account No. 50-4561.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Sheppard, Mullin, Richter & Hampton LLP Customer No. 69849		
Signature			
Printed name	Marc A. Sockol		
Date	January 11, 2012	Reg. No.	40,823

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this correspondence is being filed electronically via EFS-Web addressed to the Commissioner for Patents on the date shown below:

Signature			
Typed or printed name	Linda K. Brost	Date	January 11, 2012

This collection of information is required by 37 CFR 1.5. 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 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
13/134,028	05/25/2011	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ 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 $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $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).						
☐ 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

AMENDMENT **01/11/2012**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 114	Minus	** 115	= 0	X $30 =	0	OR	X $ =	
Independent (37 CFR 1.16(h))	* 14	Minus	***14	= 0	X $125 =	0	OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/AMANDA FORD/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

PTO/SB/08a (07-09)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 4

Complete if Known	
Application Number	13/134,028
Filing Date	May 25, 2011
First Named Inventor	Gregory G. Raleigh, et al.
Art Unit	2447
Examiner Name	Joon H. Hwang
Attorney Docket Number	26WV-160509 [RALEP032]

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		6,449,479	09-10-2002	SANCHEZ, Eduardo	
		6,603,969	08-05-2003	VUORISTO, et al.	
		6,658,254	12-02-2003	PURDY, et al.	
		6,785,889	08-31-2004	WILLIAMS	
		6,829,696	12-07-2004	BALMER et al	
		6,920,455	07-19-2005	WESCHLER, Paul	
		6,998,985	02-14-2006	REISMAN et al	
		7,027,408	04-11-2006	NABKEL, et al.	
		7,092,696	08-15-2006	HOSAIN et al	
		7,158,792	01-02-2007	COOK et al	
		7,180,855	02-20-2007	LIN	
		7,280,818	10-09-2007	CLAYTON, Steve	
		7,324,447	01-29-2008	MORFORD	
		7,421,004	09/02/2008	FEHER, Kamilo	
		7,450,591	11-11-2008	KORLING, et al.	
		7,486,185	02-03-2009	CULPEPPER et al	
		7,574,731	08-11-2009	FASCENDA, Anthony C.	
		7,580,857	08-25-2009	VanFLEET, et al.	
		7,617,516	11-10-2009	HUSLAK, et al.	
		7,620,065	11-17-2009	FALARDEAU, Eric	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] "Number[4] "Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1]Applicant's unique citation designation number (optional). [2]See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3]Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4]For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached.

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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 2 of 4

Complete if Known	
Application Number	13/134,028
Filing Date	May 25, 2011
First Named Inventor	Gregory G. Raleigh, et al.
Art Unit	2447
Examiner Name	Joon H. Hwang
Attorney Docket Number	26WV-160509 [RALEP032]

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		7,668,903	02-23-2010	EDWARDS, et al.	
		7,720,505	05-18-2010	GOPI, et al.	
		7,848,768	12-07-2010	OMORI, et al.	
		7,868,778	01-11-2011	KENWRIGHT, David Norris	
		7,873,705	01-18-2011	KALISH, Dan	
		7,882,029	02/01/2011	WHITE, Craig R.	
		7,941,184	05-10-2011	PRENDERGAST et al	
		7,975,184	07-05-2011	GOFF et al	
		7,986,935	07-26-2011	D'SOUZA et al	
		8,005,459	08-23-2011	BALSILLIE, Jim	
		8,010,080	08-30-2011	THENTHIRUPERAI, et al.	
		8,010,081	08-30-2011	ROSKOWSKI, Steve	
		8,015,133	09-06-2011	WU, et al	
		8,015,234	09-06-2011	LUM et al	
		2002/0120540	08-29-2002	KENDE et al	
		2002/0131404	09-19-2002	MEHTA et al	
		2004/0132427	07-08-2004	LEE et al	
		2005/0254435	11-17-2005	MOAKLEY et al	
		2006/0014519	01-19-2006	MARSH et al	
		2006/0199608	09-07-2006	DUNN et al	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] "Number[4] "Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 3 of 4

Complete if Known	
Application Number	13/134,028
Filing Date	May 25, 2011
First Named Inventor	Gregory G. Raleigh, et al.
Art Unit	2447
Examiner Name	Joon H. Hwang
Attorney Docket Number	26WV-160509 [RALEP032]

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		2007/0093243	04-26-2007	KAPADEKAR et al	
		2007/0259673	11-08-2007	WILLARS et al	
		2007/0263558	11-15-2007	SALOMONE	
		2008/0049630	02-28-2008	KOZISEK et al	
		2008/0147454	06-19-2008	WALKER, et al.	
		2008/0162637	07-03-2008	ADAMCZYK et al	
		2008/0167027	07-10-2008	GAUTIER et al	
		2008/0318547	12-25-2008	BALLOU et al	
		2009/0180391	07-16-2009	PETERSEN et al	
		2009/0197585	08-06-2009	AARON, Jeffrey A.	
		2009/0257379	10-15-2009	ROBINSON et al	
		2010/0082431	04-01-2010	RAMER et al	
		2010/0188975	07-29-2010	RALEIGH, Gregory G.	
		2010/0188990	07-29-2010	RALEIGH, Gregory G.	
		2010/0188992	07-29-2010	RALEIGH, Gregory G.	
		2010/0188994	07-29-2010	RALEIGH, Gregory G.	
		2010/0191846	07-29-2010	RALEIGH, Gregory G.	
		2010/0192170	07-29-2010	RALEIGH, Gregory G.	
		2010/0197268	08-05-2010	RALEIGH, Gregory G., et al	
		2010/0198698	08-05-2010	RALEIGH, Gregory G., et al	
		2010/0198939	08-05-2010	RALEIGH, Gregory G., et al	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] "Number[4] "Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

Examiner Signature		Date Considered	

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Substitute for form 1449B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 4 of 4

Complete if Known	
Application Number	13/134,028
Filing Date	May 25, 2011
First Named Inventor	Gregory G. Raleigh, et al.
Art Unit	2447
Examiner Name	Joon H. Hwang
Attorney Docket Number	26WV-160509 [RALEP032]

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	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, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
		International Search Report and Written Opinion mailed October 17, 2011 from International Serial Number PCT/US2011/000937 filed May 25, 2011.	

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.
[1] Applicant's unique citation designation number (optional). [2] Applicant is to place a check mark here if English language Translation is attached.
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If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:
MARC A. SOCKOL
SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
390 LYTTON AVENUE
PALO ALTO, CA 94301

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference 26WV-160509[RALEP032]	Date of mailing *(day/month/year)* 17 OCT 2011 **FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No. PCT/US 11/00937	International filing date *(day/month/year)* 25 May 2011 (25.05.2011)
Applicant HEADWATER PARTNERS I LLC	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

   Filing of amendments and statement under Article 19:
   The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

   When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

   Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

   For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

   ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.

   ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

   The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. Following the expiration of 30 months from the priority date, these comments will also be made available to the public.

   Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

   Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

   In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

   For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer Lee W. Young PCT Helpdesk: 571-272-4300 Telephone No. PCT OSP: 571-272-7774

Form PCT/ISA/220 (July 2010)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 26WV-160509[RALEP032]	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 11/00937	International filing date *(day/month/year)* 25 May 2011 (25.05.2011)	(Earliest) Priority Date *(day/month/year)* 25 May 2010 (25.05.2010)
Applicant HEADWATER PARTNERS I LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 7 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the drawings to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 11/00937

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G01R 31/08 (2011.01)
USPC - 370/252
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) - G01R 31/08 (2011.01)
USPC - 370/252

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 370/241, 252, 254, 259 (keyword limited - see terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Electronic Databases: PubWEST(PGPB,USPT,USOC,EPAB,JPAB); Google Patents/Scholar
Search terms used: Communication, network, usage, activity, service, capacity, access, protect, classification

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — Y	US 7,322,044 B2 (Hrastar) 22 January 2008 (22.01.2008), entire document, especially col. 7, ln. 35-40; col. 14, ln. 37-59; col. 29, ln. 13-33	1-18, 25, 28, 30-32, 40, 42, 47-52 ——— 19-24, 26, 27, 29, 33-39, 41, 43-46, 53-113
Y	US 2008/0318547 A1 (Ballou et al.) 25 December 2008 (25.12.2008), para. [0101], [0170]	26, 33, 35
Y	US 7,180,855 B1 (Lin) 20 February 2007 (20.02.2007), abstract, col. 6, ln. 1-5	27, 37-39, 43
Y	US 2009/0257379 A1 (Robinson et al.) 15 October 2009 (15.10.2009), para. [0095], [0099]	19-24, 34
Y	US 2008/0162637 A1 (Adamczyk et al.) 03 July 2008 (03.07.2008), para. [0256]-[0274]	19-24, 36, 41
Y	US 2007/0259673 A1 (Willars et al.) 08 November 2007 (08.11.2007), para. [0036], [0039], [0047]	29, 44-46
Y	US 2010/0082431 A1 (Ramer et al.) 01April 2010 (01.04.2010), entire document, especially para. [0191], [0205]	53-113
A	US 20090180391 A1 (Petersen et al.) 16 July 2009 (16.07.2009), entire document	1-113
A	US 7,324,447 B1 (Morford) 29 January 2008 (29.01.2008), entire document	1-113
A	US 2007/0263558 A1 (Salomone) 15 November 2007 (15.11.2007), entire document	53-113

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
28 September 2011 (28.09.2011)	17 OCT 2011
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

Response due 1/17/12

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: MARC A. SOCKOL
SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
390 LYTTON AVENUE
PALO ALTO, CA 94301

PCT

NO MAS

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	17 OCT 2011
Applicant's or agent's file reference 26WV-160509[RALEP032]	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US 11/00937	25 May 2011 (25.05.2011)	25 May 2010 (25.05.2010)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G01R 31/08 (2011.01)
USPC - 370/252

Applicant HEADWATER PARTNERS I LLC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 *bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to th IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Fom PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	10 October 2011 (10.10.2011)	Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 11/00937

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

      ☐ on paper

      ☐ in electronic form

   b. (time)

      ☐ in the international application as filed

      ☐ together with the international application in electronic form

      ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

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Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	19-24, 26, 27, 29, 33-39, 41, 43-46, 53-113	YES
	Claims	1-18, 25, 28, 30-32, 40, 42, 47-52	NO
Inventive step (IS)	Claims	None.	YES
	Claims	1 - 113	NO
Industrial applicability (IA)	Claims	1 - 113	YES
	Claims	None.	NO

2. Citations and explanations:

Claims 1-18, 25, 28, 30-32, 40, 42, and 47-52 lack novelty under PCT Article 33(2) as being anticipated by US 7,322,044 B2 (Hrastar).

As per claim 1, Hrastar discloses a system, comprising:
a processor of a communications device (col. 7, ln. 35-40 - processor for wireless network) configured to:
monitor a network service usage activity of the communications device in network communication (col. 14, ln. 51-59 - collection of activity, usage and connectivity patterns; col. 32, ln. 33-39 - in step 315 network usage activity is monitored);
classify the network service usage activity for differential network access control for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity); and
associate the network service usage activity with a service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations); and
a memory coupled to the processor and configured to provide the processor with instructions (col. 29, ln. 13-33 - processor having a memory such as RAM or other storage options).

As per claim 2, Hrastar discloses a system, comprising:
a processor of a communications device (col. 7, ln. 35-40 - processor for wireless network) configured to:
monitor a network service usage activity of the communications device in wireless network communication (col. 14, ln. 51-59 - collection of activity, usage and connectivity patterns; col. 32, ln. 33-39 - in step 315 network usage activity is monitored);
report the network service usage activity of the communications device to a network element, wherein the network element performs statistical analysis of a plurality of reported network service usage activities across a plurality of devices (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations);
receive a network service usage activity classification list from the network element (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations); and
classify the network service usage activity based on the network service usage activity classification list for differential network access control for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations); and
a memory coupled to the processor and configured to provide the processor with instructions (col. 29, ln. 13-33 - processor having a memory such as RAM or other storage options).

As per claim 3, Hrastar discloses the system recited in claim 2, and further discloses that the processor of the communications device is further configured to:
associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations).

As per claim 4, Hrastar discloses the system recited in claim 2, and further discloses that the processor of the communications device is further configured to:
associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations; col. 31, ln. 54-62 - control policy; col. 40, ln. 42-50 - automated policy based on monitored activity); and
differentially control the network service usage activity based on the network service usage activity classification list, wherein the network service usage activity is a network capacity controlled service (col. 14, ln. 37-59 - classification of network usage and activity; col. 31, ln. 54-62 - control policy; col. 40, ln. 42-50 - automated policy based on monitored activity).

---(see continuation on supplemental pages)---

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Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claim number 77 appears twice. For the purposes of this search and opinion, the first claim numbered 77 will be referenced as 77(a), and the second claim numbered 77 will be references as 77(b).

Claim number 82 appears twice. For the purposes of this search and opinion, the first claim numbered 82 will be referenced as 82(a), and the second claim numbered 82 will be references as 82(b).

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

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Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Box No. V.2. Citations and Explanations:

As per claim 5, Hrastar discloses a system, comprising:
a processor of a network device (col. 7, ln. 35-40 - processor for wireless network) configured to:
receive a first report of network service usage activities of a first device from the first device (col. 33, ln. 32-49 - step 315 usage monitoring for a network device, which may be device 195A or 196B or any other device in network in FIG. 2D);
receive a second report of network service usage activities of a second device from the second device;
perform a statistical analysis of a plurality of reported service usage activities across a plurality of devices, including the first device and the second device (col. 33, ln. 32-49 - step 315 usage monitoring for a network device, which may be device 195A or 196B or any other device in network in FIG. 2D); and
send a network service usage activity classification list to the first device and the second device for classifying network service usage activities based on the service usage activity classification list for differential network access control for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations; col. 31, ln. 54-62 - control policy; col. 40, ln. 42-50 - automated policy based on monitored activity); and
a memory coupled to the processor and configured to provide the processor with instructions (col. 29, ln. 13-33 - processor having a memory such as RAM or other storage options).

As per claim 6, Hrastar discloses the system recited in claim 5, and further discloses that the processor of the network device is further configured to:
associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations; col. 31, ln. 54-62 - control policy; col. 40, ln. 42-50 - automated policy based on monitored activity).

As per claim 7, Hrastar discloses the system recited in claim 5, and further discloses that the processor of the network device is further configured to:
associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity; and
differentially control the network service usage activity based on the service usage activity classification list for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations; col. 31, ln. 54-62 - control policy; col. 40, ln. 42-50 - automated policy based on monitored activity).

As per claim 8, Hrastar discloses a system, comprising:
a processor of a communications device (col. 7, ln. 35-40 - processor for wireless network) configured to:
associate a network service usage activity of the communications device with a network service usage control policy based on a classification of the network service usage activity for differential network access control for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations; col. 31, ln. 54-62 - control policy; col. 40, ln. 42-50 - automated policy based on monitored activity); and
generate a user notification based on the network service usage control policy (abstract - .notification to a user.); and
a memory coupled to the processor and configured to provide the processor with instructions (col. 29, ln. 13-33 - processor having a memory such as RAM or other storage options).

As per claim 9, Hrastar discloses the system recited in claim 8, and further discloses that the network service usage control policy includes a network service usage notification policy (col. 33, ln. 50-58 - when to send a notification and when not to policy).

As per claim 10, Hrastar discloses the system recited in claim 8, and further discloses that the user notification includes one or more of the following:
one or more service activities classified as network capacity controlled services,
type of network service policy in effect for one or more network capacity controlled services (see table in col .16, where name of service is one of the options),
notification that a network service activity belongs to a network capacity controlled services classification,
notification that a service activity that is classified as network capacity controlled services classification can have the classification changed,
notification that if the service class is changed for the network service activity that the associated network service usage charges will change,
a service plan upgrade/downgrade offer, and
an offer for a service plan that provides discounts and/or incentives for responding to one or more user notifications for protecting network capacity.

As per claim 11, Hrastar discloses the system recited in claim 8, and further discloses that the user notification includes a user preference selection, including one or more of the following:
a provision to associate a network service usage control policy with the network service usage activity,
an over-ride option for selecting the network service usage control policy,
a modify option to select the service usage control policy (on-demand inquiry from a user - col. 14, ln. 32-36, see table in col .16, where user names access point, and to allow user to administer the wireless network), and
a select option to select a new service plan.

---see continuation on supplemental page---

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Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:
Box No. V.2. Citations and Explanations:

As per claim 12, Hrastar discloses the system recited in claim 8, and further discloses that the user notification occurs after one or more of the following:
an attempt to download or load an application onto the communications device,
an attempt to execute the network service activity or the network service usage activity attempts to access the network,
a network service usage activity meets or exceeds a network service usage threshold,
a network service usage activity attempts a network service usage that satisfies a pre-condition,
an update to a network capacity controlled service activity classification list,
an update to a network capacity controlled services policy, and
a network message is sent to the device triggering the notification (col. 3, ln. 5-6, notification with contents of message if appropriate).

As per claim 13, Hrastar discloses the system recited in claim 8, and further discloses that the user notification includes one or more of the following: network service usage activity information for one or more network capacity controlled services (col. 14, ln. 37-59 - network usage activity is monitored and analyzed, and a notification or normal or anomalous activity is sent),
predicted network service usage activity information for one or more network capacity controlled services,
an option for obtaining more information about the network service usage of the network service usage activity (col. 14, ln. 37-59 - network usage activity is monitored and analyzed, and a notification or normal or anomalous activity is sent),
a message that the network service usage activity may result in network service usage that exceeds a threshold for a service plan associated with the device (col. 31, ln. 47-48 - .If the difference is larger than a configurable threshold, an alert is generated.),
an option to review or select an alternative service plan,
an acknowledgement request, and
an option to submit the acknowledgement request.

As per claim 14, Hrastar discloses a system, comprising:
a processor of a communications device (col. 7, ln. 35-40 - processor for wireless network) configured to:
determine a network busy state of a wireless network (col. 17, ln. 17-22 - available bandwidth; col. 43, ln. 57-67 - determines available IP and MAC addresses, per applicant's page 24, busy state is also the availability state); and
classify a network service usage activity of the communications device based on the network busy state to facilitate differential network access control for protecting network capacity of the wireless networks (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations; col. 31, ln. 54-62 - control policy; col. 40, ln. 42-50 - automated policy based on monitored activity); and
a memory coupled to the processor and configured to provide the processor with instructions (col. 29, ln. 13-33 - processor having a memory such as RAM or other storage options).

As per claim 15, Hrastar discloses the system recited in claim 14, and further discloses that the network busy state is based on one or more of
the following:
network performance,
network congestion,
network availability (col. 17, ln. 17-22 - available bandwidth; col. 43, ln. 57-67 - determines available IP and MAC addresses),
network resource availability (col. 17, ln. 17-22 - available bandwidth; col. 43, ln. 57-67 - determines available IP and MAC addresses),
network capacity (col. 17, ln. 17-22 - available bandwidth; col. 43, ln. 57-67 - determines available IP and MAC addresses), and
a time based criteria.

As per claim 16, Hrastar discloses the system recited in claim 14, and further discloses that protecting network capacity of the wireless network includes protecting network capacity of a last edge segment of the wireless network (col. 8, ln. 1-17), and the processor is further configured to: send the network busy state to a network element (col. 17, ln. 17-22 - available bandwidth; col. 43, ln. 57-67 - determines available IP and MAC addresses, per applicant's page 24, busy state is also the availability state, to element such as computer 195A in FIG. 2A).

As per claim 17, Hrastar discloses a system, comprising:
a processor of a communications device (col. 7, ln. 35-40 - processor for wireless network) configured to:
monitor a network service usage activity of a device in wireless network communication (col. 14, ln. 51-59 - collection of activity, usage and connectivity patterns; col. 32, ln. 33-39 - in step 315 network usage activity is monitored);
classify the network service usage activity to facilitate differential network access control for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity); and
account for the network service usage activity based on a classification of the network service usage activity for differential network service usage accounting (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity); and
a memory coupled to the processor and configured to provide the processor with instructions (col. 29, ln. 13-33 - processor having a memory such as RAM or other storage options).

---see continuation on supplemental page---

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In case **the space in any of the preceding boxes is not sufficient.**

Continuation of:
Box No. V.2. Citations and Explanations:

As per claim 18, Hrastar discloses the system recited in claim 17, and further discloses that the processor of the communications device is further configured to:
charge for the network service usage activity based on the classification of the network service usage activity for differential network service usage charging, wherein charging for the network service usage activity includes mediating CDR/IPDR (col. 43, ln. 37-40 - .create an internal database of IP addresses. is equivalent to UPDR) charging records for network capacity controlled services and non-capacity controlled services (col. 31, ln. 29-38 - network usage is changed is a violation is detected).

As per claim 25, Hrastar discloses a system, comprising:
a processor of a communications device (col. 7, ln. 35-40 - processor for wireless network) configured to:
monitor a plurality of network service usage activities of the communications device (col. 14, ln. 51-59 - collection of activity, usage and connectivity patterns; col. 32, ln. 33-39 - in step 315 network usage activity is monitored);
determine a network busy state based on the monitored plurality of network service usage activities (col. 17, ln. 17-22 - available bandwidth; col. 43, ln. 57-67 - determines available IP and MAC addresses, per applicant's page 24, busy state is also the availability state);
send a network busy state report to a network element (col. 32, ln. 9-11 - .reports may be used to provide information regarding generated alarms.); and
a memory coupled to the processor and configured to provide the processor with instructions (col. 29, ln. 13-33 - processor having a memory such as RAM or other storage options).

As per claim 28, Hrastar discloses a system, comprising:
a processor of a communications device (col. 7, ln. 35-40 - processor for wireless network) configured to:
collect network busy state information for one or more access networks for a plurality of communications devices (col. 17, ln. 17-22 - available bandwidth; col. 43, ln. 57-67 - determines available IP and MAC addresses, per applicant's page 24, busy state is also the availability state, from devices such as computer 195A in FIG. 2a); and
cimplement differential network access for one or more network capacity controlled services for the plurality of communications devices based on the network busy state information associated with each of the one or more access networks for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations; col. 31, ln. 54-62 - control policy; col. 40, ln. 42-50 - automated policy based on monitored activity); and
a memory coupled to the processor and configured to provide the processor with instructions (col. 29, ln. 13-33 - processor having a memory such as RAM or other storage options).

As per claim 30, Hrastar discloses a system, comprising:
a processor of a communications device (col. 7, ln. 35-40 - processor for wireless network) configured to:
monitor a network service usage activity of the communications device in network communication (col. 14, ln. 51-59 - collection of activity, usage and connectivity patterns; col. 32, ln. 33-39 - in step 315 network usage activity is monitored);
classify the network service usage activity for differential network access control for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity; and
associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations); and
a memory coupled to the processor and configured to provide the processor with instructions (col. 29, ln. 13-33 - processor having a memory such as RAM or other storage options).

As per claim 31, Hrastar discloses the system recited in claim 30, and further discloses that the communications device is a mobile communications device, and the service includes one or more Internet based services, and wherein the mobile communications device includes one or more of the following: a mobile phone, a PDA, an eBook reader, a music device, an entertainment/gaming device, a computer, laptop, a net book, a tablet, and a home networking system (claim 16 - .telephone, facsimile, pager, electronic mail, SMS, or web page.).

As per claim 32, Hrastar discloses the system recited in claim 30, and further discloses that the processor of the communications device is further configured to:
implement differential network access for the network service usage activity for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity); and
verify implementation of the differential network access for the network service usage activity (verify for automatic policy enforcement - col. 39, ln. 56-62).

As per claim 40, Hrastar discloses the system recited in claim 30, and further discloses that the classifying is based on a current access network and/or the network service usage control policy is based on a current access network (col. 16, ln. 4-5).

As per claim 42, Hrastar discloses the system recited in claim 30, and further discloses that classifying includes querying a network element for determining a network capacity controlled services classification and/or associating includes querying a network element for determining an association with the network service usage control policy (col. 14, ln. 37-59 - association and classifying, col. 33, col. 50-59 - querying function, col. 39, ln. 56-59 - policy reconfiguration).

---see continuation on supplemental page---

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Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:
Box No. V.2. Citations and Explanations:

As per claim 47, Hrastar discloses the system recited in claim 30, and further discloses that the processor is further configured to: differentially control the network service usage activity based on the network service usage control policy based on a network busy state (col. 17, ln. 17-22 - available bandwidth; col. 43, ln. 57-67 - determines available IP and MAC addresses, per applicant's page 24, busy state is also the availability state), wherein the network service usage activity is classified as a network capacity controlled service (col. 14, ln. 37-59 - classification of network service).

As per claim 48, Hrastar discloses the system recited in claim 30, and further discloses that the processor is further configured to: differentially control the network service usage activity based on the network service usage control policy based on a user input and/or a current access network (table in col. 16 - one option is for user to define own settings), wherein the network service usage activity is classified as a network capacity controlled service (col. 14, ln. 37-59 - classification of network service).

As per claim 49, Hrastar discloses the system recited in claim 30, and further discloses that the processor is further configured to: modify or replace a network stack interface of the communications device to provide for intercept or discontinuance of network access messaging for implementing traffic control for network capacity controlled services for protecting network capacity (table in col. 26-27 - modification of various network parameters).

As per claim 50, Hrastar discloses the system recited in claim 30, and further discloses that the processor is further configured to: store a network capacity controlled service list, wherein the network capacity controlled service list is periodically updated based on monitored network service usage activities (30 32-39 - in step 315 capacity data is stores and updated).

As per claim 51, Hrastar discloses a method, comprising:
monitoring a network service usage activity of the communications device in network communication (col. 14, ln. 51-59 - collection of activity, usage and connectivity patterns; col. 32, ln. 33-39 - in step 315 network usage activity is monitored);
classifying the network service usage activity for differential network access control for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity); and
associating the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations).

As per claim 52, Hrastar discloses a computer program product, the computer program product being embodied in a computer readable storage medium and comprising computer instructions (col. 29, ln. 13-33 - processor having a memory such as RAM or other storage options) for:
monitoring a network service usage activity of the communications device in network communication (col. 14, ln. 51-59 - collection of activity, usage and connectivity patterns; col. 32, ln. 33-39 - in step 315 network usage activity is monitored);
classifying the network service usage activity for differential network access control for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity); and
associating the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations).

Claims 29 and 44-46 lack an Inventive step under PCT Article 33(3) as being obvious over Hrastar in view of US 2007/0259673 A1 to Willars et al. (hereinafter Willars).

As per claim 29, Hrastar discloses the system recited in claim 28, but does not disclose that the network busy state information is collected from a plurality of network based measures transmitted to the network device, wherein the network based measures are received from one or more of the following: a base station, a base station monitor, an airwave monitor, and a base station controller. However, Willars disclose a network communication system where the network busy state information is collected from a plurality of network based measures transmitted to the network device, wherein the network based measures are received from one or more of the following: a base station, a base station monitor, an airwave monitor, and a base station controller (para. [0039], [0047] - base station controller). Thus, it would have been obvious to a person having ordinary skill in the art to use policy filters as taught by Willars in the system of Hrastar to control traffic with respect to different traffic or service classes (Willars: para. [0036]).

As per claim 44, Hrastar discloses the system recited in claim 30, but does not disclose that the network service usage control policy includes traffic control policy filters. However, Willars disclose a network communication system where a network service usage control policy includes traffic control policy filters (para. [0036] - traffic policy control filters). Thus, it would have been obvious to a person having ordinary skill in the art to use policy filters as taught by Willars in the system of Hrastar to control traffic with respect to different traffic or service classes (Willars: para. [0036]).

As per claim 45, Hrastar discloses the system recited in claim 30, but does not disclose that the network service usage control policy includes traffic control policy filters implemented as cascading filters. However, Willars disclose a network communication system where the network service usage control policy includes traffic control policy filters implemented as cascading filters (para. [0036] - traffic policy control filters, filters shown in FIG. 3 as cascading triangles). Thus, it would have been obvious to a person having ordinary skill in the art to use policy filters as taught by Willars in the system of Hrastar to control traffic with respect to different traffic or service classes (Willars: para. [0036]).

---see continuation on supplemental page---

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Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:
Box No. V.2. Citations and Explanations:

As per claim 46, Hrastar discloses the system recited in claim 30, but does not disclose that the network service usage control policy includes traffic control policy filters using a network busy state and/or a time of day as an index into a traffic control setting. However, Willars disclose a network communication system where the network service usage control policy includes traffic control policy filters (para. [0036] - traffic policy control filters) using a network busy state and/or a time of day as an index into a traffic control setting (para. [0039] - timer setting - convention timers are based on time of day). Thus, it would have been obvious to a person having ordinary skill in the art to use policy filters as taught by Willars in the system of Hrastar to control traffic with respect to different traffic or service classes (Willars: para. [0036]).

Claims 26, 33, and 35 lack an inventive step under PCT Article 33(3) as being obvious over Hrastar in view of US 2008/0318547 A1 to Ballou et al. (hereinafter Ballou).

As per claim 26, Hrastar discloses the system recited in claim 25, but does not disclose that the communications device includes a verified service processor, and wherein the verified service processor monitors the plurality of network service usage activities of the communications device and determines the network busy state based on the monitored plurality of network service usage activities. However, Ballou discloses a communication system where a communications device includes a verified service processor, and wherein the verified service processor monitors the plurality of network service usage activities of the communications device and determines the network busy state based on the monitored plurality of network service usage activities (para. [0101], [0170] - various users, operations, authorizations, and devices are verified and monitored). Thus, it would have been obvious to a person having ordinary skill in the art to verify the network usage activity as taught by Ballou in the system of Hrastar to confirm if the user is authorized to use the service (Ballou: para. [0170]).

As per claim 33, Hrastar discloses the system recited in claim 30, but does not disclose that the processor of the communications device is further configured to: implement differential network access for the network service usage activity for protecting network capacity using a verified service processor. However, Ballou discloses a communications system where the processor of the communications device is further configured to: implement differential network access for the network service usage activity for protecting network capacity using a verified service processor (para. [0101], [0170] - various users, operations, authorizations, and devices are verified and monitored). Thus, it would have been obvious to a person having ordinary skill in the art to verify the network usage activity as taught by Ballou in the system of Hrastar to confirm if the user is authorized to use the service (Ballou: para. [0170]).

As per claim 35, Hrastar discloses the system recited in claim 30, but does not disclose that the processor of the communications device is further configured to: monitor the network service usage activity based on a service profile; and determine that the network service usage activity is a network capacity controlled service based on the monitored use of the network service usage activity based on the service profile using a verified service processor. However, Ballou discloses a network communication system where the processor of the communications device is further configured to: monitor the network service usage activity based on a service profile (para. [0101], [0170] - various users, operations, authorizations, and devices are verified and monitored); and determine that the network service usage activity is a network capacity controlled service based on the monitored use of the network service usage activity based on the service profile using a verified service processor (para. [0101], [0170] - various users, operations, authorizations, and devices are verified and monitored). Thus, it would have been obvious to a person having ordinary skill in the art to verify the network usage activity as taught by Ballou in the system of Hrastar to confirm if the user is authorized to use the service (Ballou: para. [0170]).

Claims 27, 37-39, and 43 lack an inventive step under PCT Article 33(3) as being obvious over Hrastar in view of US 7,180,855 B1 (Lin).

As per claim 27, Hrastar discloses the system recited in claim 25, but does not disclose that determining the network busy state includes one or more of the following: data rate, latency, jitter, bit error rate, packet error rate, number of network access attempts, number of network access successes, number of network access failures, QoS level availability, QoS level performance, and variability in any of the preceding parameters. However, Lin discloses a communication system where determining the network busy state includes one or more of the following: data rate, latency, jitter, bit error rate, packet error rate, number of network access attempts, number of network access successes, number of network access failures, QoS level availability, QoS level performance, and variability in any of the preceding parameters (QoS level availability, QoS level performance - col. 6, ln. 1-5). Thus, it would have been obvious to a person having ordinary skill in the art to determine QoS availability/performance as taught by Lin in the system of Hrastar to improve control of network resources (Lin: abstract).

As per claim 37, Hrastar discloses the system recited in claim 30, but does not disclose that the processor is further configured to: execute a router for dynamically managing one or more network capacity controlled services and/or QoS sessions for the communications device. However, Lin discloses a communication system where the processor is further configured to: execute a router for dynamically managing one or more network capacity controlled services and/or QoS sessions for the communications device (abstract, col. 6, ln. 1-5). Thus, it would have been obvious to a person having ordinary skill in the art to manage service and QoS availability/performance as taught by Lin in the system of Hrastar to improve control of network resources (Lin: abstract).

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As per claim 38, Hrastar discloses the system recited in claim 30, but does not disclose that the processor is further configured to: execute a router for dynamically managing one or more network capacity controlled services and/or QoS sessions for the communications device; and send network busy state information to a service controller, wherein the service controller provides a policy decision point for management for a plurality of communications devices in communication with one or more base stations. However, Lin discloses a communication system where execute a router for dynamically managing one or more network capacity controlled services and/or QoS sessions for the communications device (abstract, col. 6, ln. 1-5); and send network busy state information to a service controller, wherein the service controller provides a policy decision point for management for a plurality of communications devices in communication with one or more base stations (col 9, ln. 47-61 - policy control method, .admission control entity. is equivalent to the base station). Thus, it would have been obvious to a person having ordinary skill in the art to manage service and QoS availability/performance as taught by Lin in the system of Hrastar to improve control of network resources (Lin: abstract).

As per claim 39, Hrastar discloses the system recited in claim 30, but does not disclose that the processor is further configured to: execute a router for dynamically managing one or more network capacity controlled services and/or QoS sessions for the communications device; send network busy state information to a service controller, wherein the service controller provides a policy decision point for management for a plurality of communications devices in communication with one or more base stations; and receive router traffic control instructions from the service controller, wherein the service controller provides the router traffic control instructions to assist in dynamically managing network capacity usage for the plurality of communications devices in communication with the one or more base stations for protecting network capacity of one or more access networks. However, Lin discloses a communication system where the processor is further configured to: execute a router for dynamically managing one or more network capacity controlled services and/or QoS sessions for the communications device (abstract, col. 6, ln. 1-5); send network busy state information to a service controller, wherein the service controller provides a policy decision point for management for a plurality of communications devices in communication with one or more base stations (col 9, ln. 47-61 - policy control method, .admission control entity. is equivalent to the base station); and receive router traffic control instructions from the service controller, wherein the service controller provides the router traffic control instructions to assist in dynamically managing network capacity usage for the plurality of communications devices in communication with the one or more base stations for protecting network capacity of one or more access networks (col. 6, ln. 29-32 - traffic management). Thus, it would have been obvious to a person having ordinary skill in the art to manage service and QoS availability/performance as taught by Lin in the system of Hrastar to improve control of network resources (Lin: abstract).

As per claim 43, Hrastar discloses the system recited in claim 30, but does not disclose that the network service usage control policy includes one or more of the following: block/allow settings, throttle settings, adaptive throttle settings, QoS class settings, packet error rate, jitter and delay settings, queue settings. and tag settings. However, Lis discloses a network communication system where the network service usage control policy includes one or more of the following: block/allow settings, throttle settings, adaptive throttle settings, QoS class settings (abstract, col. 6, ln. 1-5), packet error rate, jitter and delay settings, queue settings. and tag settings. Thus, it would have been obvious to a person having ordinary skill in the art to manage service and QoS availability/performance as taught by Lin in the system of Hrastar to improve control of network resources (Lin: abstract).

Claims 34 lack an inventive step under PCT Article 33(3) as being obvious over Hrastar in view of US 2009/0257379 A1 to Robinson et al. (hereinafter Robinson).

As per claim 34, Hrastar discloses the system recited in claim 30, but does not disclose that the processor of the communications device is further configured to: implement differential network access for the network service usage activity for protecting network capacity using an emulated network access API. However, Robinson discloses a communication system where the processor of the communications device is further configured to: implement differential network access for the network service usage activity for protecting network capacity using an emulated network access API (para. [0095], [0099] - network capacity is protected using a management software interface such as API). Thus, it would have been obvious to a person having ordinary skill in the art to use API as taught by Robinson in the system of Hrastar to improve network capacity (Robinson: abstract).

Claims 36 and 41 lack an inventive step under PCT Article 33(3) as being obvious over Hrastar in view of US 2008/0162637 A1 to Adamczyk et al. (hereinafter Adamczyk).

As per claim 36, Hrastar discloses the system recited in claim 30, but does not disclose that the processor of the communications device is further configured to: determine if network access for the network service usage activity is authorized based on a service plan associated with the communications device, a network capacity controlled service priority level associated with the network service usage activity, and a network busy state. However, Adamczyk discloses a network communication system where a processor of the communications device is further configured to: determine if network access for the network service usage activity is authorized based on a service plan associated with the communications device (para. [0256]-[0274] - where authorization based on service plan is one of the options), a network capacity controlled service priority level associated with the network service usage activity (para. [0473] - certain traffic receives priority), and a network busy state
(para. [0235] - busy/idle state of network). Thus, it would have been obvious to a person having ordinary skill in the art to use the network access determining process of Adamczyk in the system of Hrastar to set up a user profile for special access to the network for each user, thus, optimizing the network capacity for all users.

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As per claim 41, Hrastar discloses the system recited in claim 30, but does not disclose that classifying includes dynamically assigning a network capacity controlled services priority level based on a network busy state. However, Adamczyk discloses a network communication system where classifying includes dynamically assigning a network capacity controlled services priority level based on a network busy state (para. [0473] - certain traffic receives priority, para. [0235] - busy/idle state of network). Thus, it would have been obvious to a person having ordinary skill in the art to use the network access determining process of Adamczyk in the system of Hrastar to set up a user profile for special access to the network for each user, thus, optimizing the network capacity for all users.

Claims 53-113 lack an inventive step under PCT Article 33(3) as being obvious over Hrastar in view of US 2010/0082431 A1 to Ramer et al. (hereinafter Ramer).

As per claim 53, Hrastar discloses a method comprising:
examining a particular service usage activity (col. 14, ln. 51-59 - collection of activity, usage and connectivity patterns; col. 32, ln. 33-39 - in step 315 network usage activity is monitored) to determine if the particular service usage activity fits a set of one or more classification rules that define the particular service usage activity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity);
determining whether a condition is satisfied, the condition including a finding that the particular service usage activity is determined to be a service usage activity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations); and
when the condition is satisfied, restricting network access of the particular service usage activity (col. 41, ln. 47 to col. 42, ln. 4 - if violations are detected, active defense steps are taken including restricting access).
Hrasar does not disclose rules that define the particular service usage activity as a background service usage activity, or determining whether a condition is satisfied, the condition including a finding that the particular service usage activity is determined to be a background service usage activity.
However, Ramer discloses a communications method where a particular service usage activity as a background service usage activity, or determining whether a condition is satisfied, the condition including a finding that the particular service usage activity is determined to be a background service usage activity (para. [0191], [0205] - background activity and changing background activity based on usage patterns). Thus, it would have been obvious to a person having ordinary skill in the art to detect background activity as taught by Bartas in the method of Ramer to process the communication data without taxing the operating system.

As per claim 54, Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses that the set of one or more classification rules examines at least one of network type, time of day, connection cost (para. [0236] - user bills and costs are presented), whether home or roaming, network busy state, QoS, and whether the particular service usage activity is in foreground of user interaction or in the background of user interaction.

As per claim 55, Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses that the set of one or more classification rules includes
examining if one or more of the following has taken place within a specified period of time:
user has interacted with the device,
user has interacted with the service usage activity,
user has picked up the device,
service usage activity UI content is in the foreground of the device UI (para. [0201], [0240] - specifically network usage and off-line usage),
audio or video information is being played by the service usage activity,
a certain amount of data has been communicated by the service usage activity,
service usage activity is or is not on a foreground or background service list.

As per claim 56, Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses obtaining user selection of rules that define which service usage activities to classify as background service usage activities (para. [0652] - classification performed based on various characteristics).

As per claim 57, Hrastar as modified by Ramer discloses the method of claim 56, and Ramer further discloses taht the user selection of classification rules includes user selection of specific service usage activities to classify as background service usage activities (para. [0648], [0652] - user activities such as setting parental controls or entering a query).

As per claim 58, Hrastar as modified by Ramer discloses the method of claim 56, and Ramer further discloses obtaining user selection of rules that define more than one level of service background class for the user to choose from (para. [0044]).

As per claim 59, Hrastar as modified by Ramer discloses the method of claim 56, and Ramer further discloses that the obtaining user selection includes presenting usage information for service usage activities to aid in determining which to define as background service usage activities (para. [0201], [0240] - specifically network usage and off-line usage).

As per claim 60, Hrastar as modified by Ramer discloses the method of claim 56, and Ramer further discloses that the obtaining user selection includes presenting cost information for service usage activities to aid in determining which to define as background service usage activities (para. [0236] - user bills and costs are presented).

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As per claim 61, Hrastar as modified by Ramer discloses the method of claim 56, and Ramer further discloses that the condition includes enabling the user to select a network for background service usage activities (para. [0072] - select between networks or local usage).

As per claim 62, Hrastar as modified by Ramer discloses the method of claim 61, and Hrastar further discloses that the selection of the network is based on the time of day (col. .27, ln. 50-57 - see table where time and date and set, and col. 14, ln .14-15 - timer is set for network selection).

As per claim 63, Hrastar as modified by Ramer discloses the method of claim 61, and Ramer further discloses that the selection of the network is based on connection cost (para. [0236] - user bills and costs are considered).

As per claim 64, Hrastar as modified by Ramer discloses the method of claim 53, and Hrastar further discloses that the user can modify the set of one or more classification rules (on-demand inquiry from a user - col. 14, ln. 32-36, see table in col .16, where user names access point, and to allow user to administer the wireless network).

As per claim 65, Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses that the condition includes: detecting when the service usage activity was initiated or attempted to be initiated (when user sends query - para. [0043]-[0044]); notifying the user that this is a background service usage activity (para. [0191], [0205] - background activity and changing background activity based on usage patterns, notification about activity - para. [0187]); and
provides the user with an option to implement the step of restricting (para. [0183], [0187] - content restrictions, such as parental controls).

As per claim 66, Hrastar as modified by Ramer discloses the method of claim 65, and Ramer further discloses informing the user of what the restriction options are; and implementing the restriction if the user chooses to implement a restriction option; and disabling the restriction if the user chooses to proceed (para. [0183], [0187] - content restrictions, such as parental controls).

As per claim 67, Hrastar as modified by Ramer discloses the method of claim 65, and Ramer further discloses that a network element sets the classification rules (para. [0423] - classifications associated with the mobile communication facility 102, para. [0283] - provider can apply policy).

As per claim 68, Hrastar as modified by Ramer discloses the method of claim 65, and Ramer further discloses that the setting of the set of one or more classification rules is based on network manager input (para. [0663] - Personal Information Manager (PIM) is set up a network level).

As per claim 69, Hrastar as modified by Ramer discloses the method of claim 67, and Ramer further discloses that the setting the set of one or more classification rules is based on characterizing application usage behavior (para. [0662] - application background activity performed, para. [0663] - setting an idle state based on applicable non-use).

As per claim 70, Hrastar as modified by Ramer discloses the method of claim 67, and Ramer further discloses that the setting the set of one or more classification rules is based on a policy instruction provided from a network element to the device (para. [0423] - classifications associated with the mobile communication facility 102, para. [0283] - provider can apply policy).

As per claim 71, Hrastar as modified by Ramer discloses the method of claim 53, and Hrastar further discloses that the examining takes place on the device (col. 14, ln. 51-59 - collection of activity, usage and connectivity patterns; col. 32, ln. 33-39 - in step 315 network usage activity is monitored).

As per claim 72, Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses that the set of one or more classification rules includes determining if an app is an as function, client/server data sharing/update function (cache update - para. [0694]), software update or download (para. [1060] - user is notified of application update and may download), background file download, email or calendar or contact update or synch function.

As per claim 73, Hrastar as modified by Ramer discloses the method of claim 53, and Hrastar further discloses that the restricting includes one or more of: blocking (col. 41, ln. 47 to col. 42, ln. 4 - if violations are detected, active defense steps are taken including restricting access, including blocking the activity), delaying, implementing a time window, aggregating/holding/transmitting, throttling, restricting to a range of NBS level, restricting to certain network types, restricting based on whether home or roaming, restricting to a certain time period, waiting for lower cost condition, waiting for specified network, waiting for home network, waiting for time of day, and waiting for network background state.

As per claim 74, Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses that the background service usage activity data that needs to be communicated via the device is cached until the condition is modified, reduced or removed (cache is updated - para. [0694]).

As per claim 75, Hrastar as modified by Ramer discloses the method of claim 74, and Ramer further discloses that the cached data is prioritized so that most important data is communicated first when the condition is modified, reduced or removed (para. [1120] - prioritize data).

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As per claim 76, Hrastar as modified by Ramer discloses the method of claim 74, and Hrastar further discloses that the the restricting occurs on the device, and the app is unaware that it might be subjected to background service restrictions (col. 14, ln. 51-59 - collection of activity, usage and connectivity patterns; col. 32, ln. 33-39 - in step 315 network usage activity is monitored), the violator is not aware of restrictions until such time that the restriction occurs).

As per claim 77(a), Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses modifying or repressing app notification messages about lack of network connectivity (para. [0069], [0071], [0073] - notifications while the connection is initialized, i.e. not yet connected to network).

As per claim 77(b), Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses that an app is provided with network state indications that are differential for different apps according to app background class or priority (para. [0069] - service state indicator).

As per claim 78, Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses that an app is made aware that it might be subjected to background service restrictions (the app is aware of domain restrictions, for example - para. [0119]).

As per claim 79, Hrastar as modified by Ramer discloses the method of claim 78, and Ramer further discloses that the awareness is provided via a background service API (para. [0273] - service API).

As per claim 80, Hrastar as modified by Ramer discloses the method of claim 53, but neither specifies that an app has rules define in which background states it should transmit. However, since the application can determine a background state, it would have been obvious to a person having ordinary skill in the art to set the application to determine which background state to transmit via routine experimentation to optimize the connectivity to the network.

As per claim 81, Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses that an app has a capability to override background service rules for high priority data (para. [0127]-[0128] - determining which content to prioritize, thus overriding other content).

As per claim 82(a), Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses that an app background service status API (para. [0273] - service API) indicates one or more of: background transmission permission status, background class or classes allowed to transmit, NBS, QoS, apps allowed to transmit, service classes allowed to transmit, type of network, time of day, geography (para. [0131] - geographic location), and whether home or roaming (para. [0072] - home or roaming).

As per claim 82(b), Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses that the restricting allows a minimum connectivity for background services (para. [0069], [0071], [0073] - while the connection is initialized, i.e. not yet connected to network but in the process of connecting).

As per claim 83, Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses that the user is charged less for background services that are implemented with background service policy controls (para. [0191] - minimize costs by implementing service policy controls).

As per claim 84, Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses that the user can override background service policy enforcement for high priority communication (para. [0127]-[0128] - determining which content to prioritize, thus overriding other content)..

As per claim 85, Hrastar as modified by Ramer discloses the method of claim 53, but neither specifies that the user pays a higher price when background service policy enforcement is overridden. However, Ramer does consider costs and billing plans based on usage and sending messages to user about option that can reduce their costs (para. [0236]). Thus, it would have been obvious to a person having ordinary skill in the art to set costs based on certain usage patterns and set higher costs discourage user from accessing undesirable levels of activity, thus freeing up more network resources.
As per claim 86, Hrastar as modified by Ramer discloses the method of clalm 53, and Ramer further discloses that the user a sponsored service partner is charged less for background services that are implemented with background service policy controls (para. [0113] - sponsoring content reduces costs).

As per claim 87, Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses that a sponsor (para. [0113]) can override background service policy enforcement for high priority communication (para. [0127]-[0128] - determining which content to prioritize, thus overriding other content).

AsAs per claim 88, Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses that a sponsor (para. [0113]) programs override decision conditions into an app (para. [0127]-[0128] - determining which content to prioritize, thus overriding other content).

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As per claim 89, Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses that a sponsor (para. [0113]) programs override decision conditions into a network element (para. [0127]-[0128] - determining which content to prioritize, thus overriding other content).

As per claim 90, Hrastar as modified by Ramer discloses the method of claim 53, and Ramer further discloses that a sponsor app (para. [0113]) or network element can override background service policy (para. [0127]-[0128] - determining which content to prioritize, thus overriding other policies).

As per claim 91, Hrastar as modified by Ramer discloses the method of claim 53, but neither specifies that the a sponsor pays a higher price when background service policy enforcement is overridden. However, Ramer does consider costs and billing plans based on usage and sending messages to user about option that can reduce their costs (para. [0236]) as well as sponsor content priority (para. [0113]). Thus, it would have been obvious to a person having ordinary skill in the art to set costs based on certain usage patterns (of sponsors as well as users) and set higher costs discourage user from accessing undesirable levels of activity, thus freeing up more network resources.

As per claim 92, Hrastar as modified by Ramer discloses the method of claim 53, and Hrastar further discloses that a restriction occurs in the network (col. 41, ln. 47 to col. 42, ln. 4 - if violations are detected, active defense steps are taken including restricting access).

As per claim 93, Hrastar as modified by Ramer discloses the method of claim 92, and Hrastar further discloses that an app is not aware that it might be subjected to background service restrictions (col. 14, ln. 51-59 - collection of activity, usage and connectivity patterns; col. 32, ln. 33-39 - in step 315 network usage activity is monitored), the violator is not aware of restrictions until such time that the restriction occurs).

As per claim 94, Hrastar as modified by Ramer discloses the method of claim 92, and Ramer further discloses modifying or repressing app notification messages about lack of network connectivity (para. [0069], [0071], [0073] - notifications while the connection is initialized, i.e. not yet connected to network)..

As per claim 95, Hrastar as modified by Ramer discloses the method of claim 92, and Ramer further discloses providing an app with network state indications that are differential for different apps according to app background class or priority (para. [0069] - service state indicator).

As per claim 96, Hrastar as modified by Ramer discloses the method of claim 92, and Ramer further discloses informing an app that it might be subjected to background service restrictions (para. [0478] - app is restricted based on content, para. [0662] - notification of background services).

As per claim 95, Hrastar as modified by Ramer discloses the method of claim 92, and Ramer further discloses that a background service API performs the informing (para. [0273] - service API).

As per claim 98, Hrastar as modified by Ramer discloses the method of claim 92, but neither specifies that an app has rules define in which background states it should transmit. However, since the application can determine a background state, it would have been obvious to a person having ordinary skill in the art to set the application to determine which background state to transmit via routine experimentation to optimize the connectivity to the network.

As per claim 99, Hrastar as modified by Ramer discloses the method of claim 92, and Ramer further discloses that an app has a capability to override background service rules for high priority data (para. [0127]-[0128] - determining which content to prioritize, thus overriding other content).

As per claim 100, Hrastar as modified by Ramer discloses the method of claim 92, and Ramer further discloses that an app background service status API (para. [0273] - service API) indicates one or more of: background transmission permission status, background class or classes allowed to transmit, NBS, QoS, apps allowed to transmit, service classes allowed to transmit, type of network, time of day, geography (para. [0131] - geographic location), and whether home or roaming (para. [0072] - home or roaming).

As per claim 101, Hrastar as modified by Ramer discloses the method of claim 92, and Ramer further discloses that the price for a sponsored service for background service usage activities is reduced when background service policies are followed (para. [0236]).

As per claim 102, Hrastar as modified by Ramer discloses the method of claim 92, and Ramer further discloses that a sponsor device app (para. [0113]) determines background classification state and determines whether or not to restrict communication (para. [0479]).

As per claims 103 and 104, Hrastar as modified by Ramer discloses the method of claim 92, and Ramer further discloses that an app determines background state from a device API and a network API (para. [0273] - service API).

As per claim 105, Hrastar as modified by Ramer discloses the method of claim 92, and Hrastar further discloses that an app determines background state from an NBS (Network Busy State) monitor (col. 17, ln. 17-22 - available bandwidth; col. 43, ln. 57-67 - determines available IP and MAC addresses, per applicant's page 24, busy state is also the availability state).

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As per claim 106, Hrastar as modified by Ramer discloses the method of claim 92, but neither specifies that the a sponsor pays a higher price when background service policy enforcement is overridden. However, Ramer does consider costs and billing plans based on usage and sending messages to user about option that can reduce their costs (para. [0236]) as well as sponsor content priority (para. [0113]). Thus, it would have been obvious to a person having ordinary skill in the art to set costs based on certain usage patterns (of sponsors as well as users) and set higher costs discourage user from accessing undesirable levels of activity, thus freeing up more network resources.

As per claim 107, Hrastar as modified by Ramer discloses the method of claim 92, and Ramer further discloses that a sponsor server (para. [0113])) determines background classification state (para. [0191], [0205]) and determines whether to restrict communication (para. [0479]).

As per claims 108 and 109, Hrastar as modified by Ramer discloses the method of claim 92, and Ramer further discloses that a network element determines background state from a device API and a network API (para. [0273] - service API).

As per claim 110, Hrastar as modified by Ramer discloses the method of claim 92, and Hrastar further discloses that a network element determines background state from an NBS (Network Busy State) monitor (col. 17, ln. 17-22 - available bandwidth; col. 43, ln. 57-67 - determines available IP and MAC addresses, per applicant's page 24, busy state is also the availability state).

As per claim 111, Hrastar as modified by Ramer discloses the method of claim 92, but neither specifies that a sponsor price is increased if background policies are overridden by a sponsor network element. However, Ramer does consider costs and billing plans based on usage and sending messages to user about option that can reduce their costs (para. [0236]) as well as sponsor content priority (para. [0113]). Thus, it would have been obvious to a person having ordinary skill in the art to set costs based on certain usage patterns (of sponsors as well as users) and set higher costs discourage user from accessing undesirable levels of activity, thus freeing up more network resources.

As per claims 112 and 113, Hrastar as modified by Ramer discloses the method of claim 92, and Ramer further discloses that a background service state indication API (para. [0273]) on the device and on a network element makes background service state available to apps or network elements so they can decide when to communicate (para. [1057], can decide when to communicate and with which networks).

Claims 19-24 lack an inventive step under PCT Article 33(3) as being obvious over Hrastar in view of Robinson and Adamczyk.

As per claims 19 and 21, Hrastar discloses a system, comprising:
a processor of a communications device (col. 7, ln. 35-40 - processor for wireless network) configured to:
receive an request from a network service usage activity for wireless network access (col. 44, ln.10-12);
respond to the request from the network service usage activity (col. 14, ln. 51-59 - collection of activity, usage and connectivity patterns; col. 32, ln. 33-39 - in step 315 network usage activity is monitored); and
implement differential network access for the network service usage activity for protecting network capacity (col. 14, ln. 37-59 - classification of network usage and activity, discriminate between normal and abnormal activity, thereby protecting capacity, and identify policy violations), wherein the differential network access is based on association with the network service usage activity and a network busy state (col. 17, ln. 17-22 - available bandwidth; col. 43, ln. 57-67 - determines available IP and MAC addresses, per applicant's page 24, busy state is also the availability state); and
a memory coupled to the processor and configured to provide the processor with instructions (col. 29, ln. 13-33 - processor having a memory such as RAM or other storage options).
Hrastar does not disclose receiving an API request or respond ingto the API request, or
wherein the differential network access is based on a priority level associated with the network service usage activity and a network busy state.
However, Robinson discloses that the request in an API request (para. [0095], [0099] - network capacity is protected using a management software interface such as API).
Thus, it would have been obvious to a person having ordinary skill in the art to use API as taught by Robinson in the system of Hrastar to improve network capacity (Robinson: abstract).
Further, Adamczyk discloses that the differential network access is based on a priority level associated with the network service usage activity and a network busy state (para. [0473] - certain traffic receives priority, para. [0235] - busy/idle state of network).
Thus, it would have been obvious to a person having ordinary skill in the art to use the network access determining process of Adamczyk in the system of Hrastar as modified by Robinson to set up a user profile for special access to the network for each user, thus, optimizing the network capacity for all users.

---see continuation on supplemental page---

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 11/00937

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:
Box No. V.2. Citations and Explanations:

As per claims 20 and 22, Hrastar as modified by Robinson and Adamczyk discloses the system recited in claims 19 and 21, respectively, and Hrastar further discloses that a response to the API request includes providing one or more of the following to the network service usage activity:
a network busy state (col. 17, ln. 17-22 - available bandwidth; col. 43, ln. 57-67 - determines available IP and MAC addresses, per applicant's page 24, busy state is also the availability state),
whether the network service usage activity is allowed to access the network (col. 31, ln. 54-52),
which access network to which the network service usage activity is granted network access,
what traffic controls the network service usage activity is required to implement for network access,
when the network is available to the network service usage activity for access (col. 32, ln. 52-56),
a schedule for network access for the network service usage activity,
a reservation for network access for the network service usage activity with a specified performance level,
an instruction to transition to a dormant or power save state, and
an instruction to awake from a dormant or power save state.

As per claim 23, Hrastar as modified by Robinson and Adamczyk discloses the system recited in claim 21, and Robinson further discloses wherein the API is a network element API that is in secure communication with the communications device (para. [0155] - secure encrypted communication), and Hrastar further discloses wherein the communications device implements the differential network access, and the differential network access implementation is verified (col. 26, ln. 25-30 - access is verified).

As per claim 24, Hrastar as modified by Robinson and Adamczyk discloses the system recited in claim 21, and Hrastar further disclose swherein the busy state information is obtained from one or more network elements (elements such as computers 195A, FIG. 2A).

Claims 1-113 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

Google Exhibit 1006, Page 429 of 901

Electronic Acknowledgement Receipt

EFS ID:	12033674
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	69849
Filer:	Marc A. Sockol/Linda Brost
Filer Authorized By:	Marc A. Sockol
Attorney Docket Number:	26WV-160509 [RALEP032]
Receipt Date:	08-FEB-2012
Filing Date:	25-MAY-2011
Time Stamp:	19:44:56
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		160509-RALEP032-IDS-020812.pdf	912358 1b22014b448ffea4b4e1116 1f0991738c88b0d6f	yes	26

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	1
	Miscellaneous Incoming Letter	2	3
	Information Disclosure Statement (IDS) Form (SB08)	4	7
	Non Patent Literature	8	26
Warnings:			
Information:			
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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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PTO/SB/21 (07-09)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	26

Application Number	13/134,028
Filing Date	May 25, 2011
First Named Inventor	Gregory G. Raleigh, et al.
Art Unit	2447 Conf. No. 3250
Examiner Name	Joon H. Hwang
Attorney Docket Number	26WV-160509 [RALEP032]

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
- ☐ Fee Attached
- ☐ Amendment/Reply
- ☐ After Final
- ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☒ Information Disclosure Statement with PTO/SB/08a/b (6 pgs.)
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
- ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation, Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s)
- ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☒ Other Enclosure(s) (please Identify below):

  Copy of International Search Report and Written Opinion for PCT/US2011/000937 (19 pgs.)

Remarks

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Firm Name	Sheppard, Mullin, Richter & Hampton LLP Customer No. 69849		
Signature			
Printed name	Marc A. Sockol		
Date	February 8, 2012	Reg. No.	40,823

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Typed or printed name	Linda K. Brost	Date	February 8, 2012

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Gregory G. Raleigh, et al.	Joon H. Hwang
Serial No.: 13/134,028	Art Unit: 2447
Filed: May 25, 2011	Conf. No.: 3250

Title: Device Assisted Services for Protecting Network Capacity

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

INFORMATION DISCLOSURE STATEMENT PURSUANT TO 37 C.F.R. §§1.97(b)

Sir:

In accordance with the duty of disclosure under 37 CFR §1.56 and pursuant to 37 CFR §§1.97-1.98, Applicant hereby notifies the U.S. Patent and Trademark Office of the references listed on the enclosed Form PTO-SB/08A. Pursuant to the USPTO's waiver of the requirements under 37 CFR 1.98(a)(2)(i) for submitting a copy of each cited U.S. patent, we are not submitting copies of U.S. patents and/or patent publications cited.

The present Information Disclosure Statement is being filed more than three months after the filing date but before receiving the first Office Action. Accordingly, no fee or certification is needed.

The submission of the listed documents is not intended as an admission that any such document constitutes prior art against the claims of the present application. Applicant reserves the right to dispute any of the listed documents as prior art during examination. Furthermore, Applicant does not waive any right to take any action that would be appropriate to antedate or otherwise remove any listed document as a competent reference against the claims of the

Google Exhibit 1006, Page 433 of 901

present application. The submission of this Information Disclosure Statement is not to be construed as a representation that a search has been made or that no other material information may exist.

The Examiner is requested to initial the enclosed Form PTO/SB/08A and return a copy thereof to the undersigned.

No fee is believed to be due relative to this submission, but if for any reason an insufficient fee has been paid, please charge the insufficiency to Deposit Account No. **50-4561**.

Respectfully submitted,

Date: February 8, 2012

By: _____

Marc A. Sockol, Reg. No. 40,823
Attorney for Applicants
Customer Number 69849
Sheppard, Mullin, Richter & Hampton LLP
379 Lytton Avenue
Palo Alto, CA 94301-1432
Telephone: (650) 815-2600

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Date: February 8, 2012 By: Linda K. Brost
Linda K. Brost

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PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Gregory G. Raleigh
	Art Unit	2447
	Examiner Name	Joon H. Hwang
	Attorney Docket Number	26WV-160509 [RALEP032]

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	5794142		1998-08-11	VANTTILA et al.	
	2	5903845		1999-05-11	BUHRMANN et al.	
	3	5933778		1999-08-03	BUHRMANN et al.	
	4	6078953		2000-06-20	VAID et al.	
	5	6317584		2001-11-13	ABU-AMARA et al.	
	6	6829596		2004-12-07	FRAZEE, Steve	
	7	7024200		2006-04-04	McKENNA et al.	
	8	7174174		2007-02-06	BORIS et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Gregory G. Raleigh
	Art Unit	2447
	Examiner Name	Joon H. Hwang
	Attorney Docket Number	26WV-160509 [RALEP032]

	9	7620162		2009-11-17	AARON et al.	
	10	7797204		2010-09-14	BALENT, Bruce F.	
	11	7957511		2011-06-07	DRUDIS et al.	
	12	8023425		2011-09-20	RALEIGH, Gregory G.	

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	1	20030013434		2003-01-16	ROSENBERG et al.	
	2	20040249918		2004-12-09	SUNSHINE	
	3	20050048950		2005-03-03	MORPER	
	4	20060112016		2006-05-25	ISHIBASHI	
	5	20060258341		2006-11-16	MILLER et al.	

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	Filing Date	2011-05-25
	First Named Inventor	Gregory G. Raleigh
	Art Unit	2447
	Examiner Name	Joon H. Hwang
	Attorney Docket Number	26WV-160509 [RALEP032]

	6	20080010452		2008-01-10	HOLTZMAN et al.	
	7	20080060066		2008-03-06	WYNN et al.	
	8	20080062900		2008-03-13	RAO	
	9	20080164304		2008-07-10	NARASIMHAN	
	10	20080207167		2008-08-28	BUGENHAGEN	
	11	20080221951		2008-09-11	STANFORTH et al.	
	12	20080256593		2008-10-16	VINBERG	
	13	20080311885		2008-12-18	DAWSON et al.	
	14	20080319879		2008-12-25	CARROLL et al.	
	15	20090005005		2009-01-01	FORSTALL et al.	
	16	20090068984		2009-03-12	BURNETT	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Gregory G. Raleigh
	Art Unit	2447
	Examiner Name	Joon H. Hwang
	Attorney Docket Number	26WV-160509 [RALEP032]

	17	20090077622		2009-03-19	BAUM et al.	
	18	20090286507		2009-11-19	O'NEAL et al.	
	19	20090288140		2009-11-19	HUBER et al.	
	20	20100017506		2010-01-21	FADELL	
	21	20100042675		2010-02-18	FUJII	
	22	20100191576		2010-07-29	RALEIGH, Gregory G.	
	23	20100191612		2010-07-29	RALEIGH, Gregory G.	
	24	20100192212		2010-07-29	RALEIGH, Gregory G.	
	25	20100195503		2010-08-05	RALEIGH, Gregory G.	
	26	20100325420		2010-12-23	KANEKAR	

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	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Gregory G. Raleigh
	Art Unit	2447
	Examiner Name	Joon H. Hwang
	Attorney Docket Number	26WV-160509 [RALEP032]

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2010088413	WO		2010-08-05	Headwater Partners I LLC		☐

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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]
	1		☐

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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.

[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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Gregory G. Raleigh
	Art Unit	2447
	Examiner Name	Joon H. Hwang
	Attorney Docket Number	26WV-160509 [RALEP032]

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).

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☐ 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	/Marc A. Sockol/	Date (YYYY-MM-DD)	2012-05-10
Name/Print	Marc A. Sockol	Registration Number	40823

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.**

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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)).

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Electronic Acknowledgement Receipt

EFS ID:	12756874
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	69849
Filer:	Marc A. Sockol/Anne Collette
Filer Authorized By:	Marc A. Sockol
Attorney Docket Number:	26WV-160509 [RALEP032]
Receipt Date:	11-MAY-2012
Filing Date:	25-MAY-2011
Time Stamp:	12:39:49
Application Type:	Utility under 35 USC 111(a)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	26WV-160509_Transmittal.pdf	84973 41321a1cc06855a94973fc6a15d88db8c08d9ee8	no	1

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2	Information Disclosure Statement (IDS) Form (SB08)	26WV-160509_IDS.pdf	613270 81a3a0d46a29e9c2c900c28c2c9ad52ee034087c	no	7
Warnings:					
Information:					
3	Foreign Reference	F28-WO2010-088413A1.pdf	8105145 eaf404d7cb2a7b4a94c9dc61b6560fc490913e29	no	97
Warnings:					
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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

Doc Code: TRAN.LET

Document Description: Transmittal Letter

PTO/SB/21 (07-09)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	8*

Application Number	13/134,028
Filing Date	2011-05-25
First Named Inventor	Gregory G. Raleigh
Art Unit	2447
Examiner Name	Joon H. Hwang
Attorney Docket Number	26WV-160509 [RALEP032]

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☑ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☐ Other Enclosure(s) (please Identify below):

Remarks

*Total number of pages does not include foreign patents or non-patent literature references

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Sheppard, Mullin, Richter & Hampton LLP		
Signature			
Printed name	Marc A. Sockol		
Date	May 10, 2012	Reg. No.	40823

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature	Anne Collette		
Typed or printed name	Anne Collette	Date	5/10/12

This collection of information is required by 37 CFR 1.5. 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 and1.14. This collection is estimated to 2 hours 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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www.uspto.gov

SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
379 Lytton Avenue
Palo Alto CA 94301

MAILED

JUN 18 2012

OFFICE OF PETITIONS

In re Application of :
Raleigh et al. :
Application No. 13/134,028 : DECISION ON PETITION
Filed: May 25, 2011 : UNDER 37 C.F.R. § 1.78(A)(3)
Attorney Docket No.: 26WV- :
160509 [RALEP032] :
Title: DEVICE-ASSISTED SERVICES :
FOR PROTECTING NETWORK CAPACITY :

This is a decision on the petition pursuant to 37 C.F.R. § 1.78(a)(3), filed January 11, 2012 to accept an unintentionally delayed claim under 35 U.S.C. § 120 for the benefit of priority to a plurality of prior-filed U.S. applications set forth in an amendment to the specification, which was filed concurrently with this petition.

The petition is **DISMISSED**.

A petition for acceptance of a claim for late priority under 37 C.F.R. § 1.78(a)(3) is only applicable to those applications filed on or after November 29, 2000. Further, the petition is appropriate only after the expiration of the period specified in 37 C.F.R. 1.78(a)(2)(ii). In addition, the petition under 37 C.F.R. 1.78(a)(3) must be accompanied by:

(1) the reference required by 35 U.S.C. § 120 and 37 C.F.R. § 1.78(a)(2)(i) of the prior-filed application, unless previously submitted;
(2) the surcharge set forth in § 1.17(t); and
(3) a statement that the entire delay between the date the claim was due under 37 C.F.R. 1.78(a)(2)(ii) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional.

37 C.F.R. § 1.78(a)(3)(iii) requires a statement that the entire delay between the date the claim was due under paragraph (a)(2)(ii) of 37 C.F.R. § 1.78 and the date the claim was filed was unintentional. Since the statement contained in this petition varies from the language required by 37 C.F.R. § 1.78(a)(3)(iii), the statement contained in this petition is being construed as the statement required by 37 C.F.R. § 1.78(a)(3)(iii), and Petitioner must notify the Office if this is not a correct interpretation of the statement contained in this petition.

Requirements (2) and (3) above have been satisfied. The petition does not satisfy item (1) above.

Pursuant to Rule 1.78(a)(2)(iii), the required reference must be included in an application data sheet, or the specification must contain or be amended to contain such reference in the first sentence(s) following the title. Consequently, Petitioner has submitted an amendment to the specification, so as to present the required reference.

However, the amendment to the specification cannot be entered as the reference to add the prior-filed U.S. applications on pages one through nine of the specification is not acceptable as drafted since it improperly incorporates by reference the prior-filed U.S. applications. An incorporation by reference statement added after an application's filing date is not effective because no new matter can be added to an application after its filing date (see 35 U.S.C. § 132(a)). If an incorporation by reference statement is included in an amendment to the specification to add a benefit claim under 35 U.S.C. § 120 (or 35 U.S.C. § 365(c)) after the filing date of the application, the amendment would not be proper. When a benefit claim under 35 U.S.C. § 120 (or 35 U.S.C. § 365(c)) is submitted after the filing of an application, the reference to the prior application cannot include an incorporation by reference statement of the prior application. See Dart Industries v. Banner, 636 F.2d 684, 207 USPQ 273 (C.A.D.C. 1980). Note MPEP §§ 201.06(c) and 608.04(b).

Any renewed petition should indicate in a prominent manner that the attorney handling this matter is Paul Shanoski, and may be submitted by mail,[1] hand-delivery,[2] or facsimile.[3] Registered

1 Mail Stop Petition, Commissioner for Patents, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA, 22313-1450.
2 Customer Window, Randolph Building, 401 Dulaney Street, Alexandria, VA, 22314.
3 (571) 273-8300: please note this is a central facsimile number.

users of EFS-Web may alternatively submit a response to this decision via EFS-Web.[4]

If responding by mail, Petitioner is advised not to place the undersigned's name on the envelope. Only the information that appears in the footnote should be included - adding anything else to the address will delay the delivery of the response to the deciding official.

Telephone inquiries regarding *this decision* should be directed to Senior Attorney Paul Shanoski at (571) 272-3225.[5]

Anthony Knight
Director
Office of Petitions

4 https://sportal.uspto.gov/authenticate/authenticateuserlocalepf.html
5 Petitioner will note that all practice before the Office should be in writing, and the action of the Office will be based exclusively on the written record in the Office. See 37 C.F.R. § 1.2. As such, Petitioner is reminded that no telephone discussion may be controlling or considered authority for any further action(s) of Petitioner.

Doc Code: PET.POA.WDRW
Document Description: Petition to withdraw attorney or agent (SB83)

PTO/SB/83 (11-08)
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REQUEST FOR WITHDRAWAL AS ATTORNEY OR AGENT AND CHANGE OF CORRESPONDENCE ADDRESS

Application Number	13/134,028
Filing Date	2011-05-25
First Named Inventor	Gregory G. Raleigh
Art Unit	2447
Examiner Name	Joon H. Hwang
Attorney Docket Number	26WV-160509 [RALEP032]

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

Please withdraw me as attorney or agent for the above identified patent application, and

- ☐ all the practitioners of record;
- ☐ the practitioners (with registration numbers) of record listed on the attached paper(s); or
- ☑ the practitioners of record associated with Customer Number: 69849

NOTE: The immediately preceding box should only be marked when the practitioners were appointed using the listed Customer Number.

The reason(s) for this request are those described in 37 CFR :

☐ 10.40(b)(1)	☐ 10.40(b)(2)	☐ 10.40(b)(3)	☑ 10.40(b)(4)
☐ 10.40(c)(1)(i)	☐ 10.40(c)(1)(ii)	☐ 10.40(c)(1)(iii)	☐ 10.40(c)(1)(iv)
☐ 10.40(c)(1)(v)	☐ 10.40(c)(1)(vi)	☐ 10.40(c)(2)	☐ 10.40(c)(3)
☐ 10.40(c)(4)	☐ 10.40(c)(5)	☐ 10.40(c)(6) Please explain below:	

Practitioners have been discharged by the client.

Certifications

Check each box below that is factually correct. WARNING: If a box is left unchecked, the request will likely not be approved.

1. ☑ I/We have given reasonable notice to the client, prior to the expiration of the response period, that the practitioner(s) intend to withdraw from employment.

2. ☑ I/We have delivered to the client or a duly authorized representative of the client all papers and property (including funds) to which the client is entitled.

3. ☑ I/We have notified the client of any responses that may be due and the time frame within which the client must respond.

Please provide an explanation, if necessary:

This collection of information is required by 37 CFR 1.36. 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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REQUEST FOR WITHDRAWAL AS ATTORNEY OR AGENT AND CHANGE OF CORRESPONDENCE ADDRESS

Complete the following section only when the correspondence address will change. *Changes of address will only be accepted to an inventor or an assignee that has properly made itself of record pursuant to 37 CFR 3.71.*

Change the correspondence address and direct all future correspondence to:

A. [✓] The address of the inventor or assignee associated with Customer Number: 107265

OR

B. [ ] Inventor or Assignee name

Address			
City	State	Zip	Country
Telephone		Email	

I am authorized to sign on behalf of myself and all withdrawing practitioners.

Signature			
Name	Marc A. Sockol	Registration No.	40823
Address	Sheppard Mullin Richter & Hampton LLP, 379 Lytton Avenue		
City Palo Alto	State CA	Zip 94301-1479	Country US
Date	July 3, 2012	Telephone No.	650-815-2600

NOTE: ***Withdrawal is effective when approved rather than when received.***

This collection of information is required by 37 CFR 1.36. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

Electronic Acknowledgement Receipt	
EFS ID:	13175570
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	69849
Filer:	Marc A. Sockol/Anne Collette
Filer Authorized By:	Marc A. Sockol
Attorney Docket Number:	26WV-160509 [RALEP032]
Receipt Date:	03-JUL-2012
Filing Date:	25-MAY-2011
Time Stamp:	19:07:31
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		26WV-160509.pdf	273506 0cf6a59cb8efef6664bc496de0cb0315d9409593	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	1
	Petition to withdraw attorney or agent (SB83)	2	3
Warnings:			
Information:			
	Total Files Size (in bytes):	273506	

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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Doc Code: TRAN.LET

Document Description: Transmittal Letter

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TRANSMITTAL FORM

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Total Number of Pages in This Submission: 3

Application Number	13/134,028
Filing Date	2011-05-25
First Named Inventor	Gregory G. Raleigh
Art Unit	2447
Examiner Name	Joon H. Hwang
Attorney Docket Number	26WV-160509 [RALEP032]

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
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- ☐ Drawing(s)
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- ☐ Power of Attorney, Revocation Change of Correspondence Address
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- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☑ Other Enclosure(s) (please Identify below):

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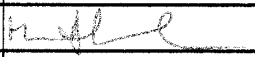
Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Sheppard, Mullin, Richter & Hampton LLP		
Signature			
Printed name	Marc A. Sockol		
Date	July 3, 2012	Reg. No.	40823

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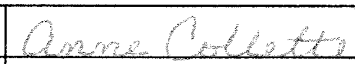
Signature			
Typed or printed name	Anne Collette	Date	July 3, 2012

This collection of information is required by 37 CFR 1.5. 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 and1.14. This collection is estimated to 2 hours 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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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: 107265

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: 107265

OR

☐ Firm or Individual Name			
Address			
City		State	Zip
Country			
Telephone		Email	

Assignee Name and Address:

Headwater Partners I LLC
350 Marine Parkway, Suite 300
Redwood City, CA 94065 U.S.A.

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	July 5, 2012
Name	Gregory G. Raleigh	Telephone	650-517-2781
Title	Manager		

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

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STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Gregory G. Raleigh et al.

Application No./Patent No.: 13/134,028 Filed/Issue Date: May 25, 2011

Entitled: Device-Assisted Services for Protecting Network Capacity

Headwater Partners I LLC (Name of Assignee), a limited liability company (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 _____ %)

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 026771, Frame 0395, or for which a copy therefore 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 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.

Signature — July 5, 2012 (Date)

Krista S. Jacobsen, Reg. No. 59,374 (Printed or Typed Name) — 650-517-2798 (Telephone Number)

Attorney of Record (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 1.11 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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Date:	July 5, 2012
Send To:	Commissioner for Patents
Fax No.:	571-273-8300
From:	Krista S. Jacobsen, Head Counsel, Headwater Partners I LLC
Phone Number:	650-517-2798

Total Pages Including Cover: 3

Fax

Sir:

Following this cover sheet, please find form SB/80, granting power of attorney to prosecute applications before the USPTO to practitioners associated with the Customer Number 107265, and form SB/96, a statement under 37 C.F.R. § 3.73(b) establishing the right of assignee Headwater Partners I LLC to take action in application number 13/134,028.

Please let me know if you need any additional information to complete the Customer Number change in the application.

Sincerely,

Krista S. Jacobsen
Head Counsel, Headwater Partners I LLC
Reg. No. 59,374

PAGE 1/3 * RCVD AT 7/5/2012 8:19:13 PM [Eastern Daylight Time] * SVR:W-PTOFAX-002/1 * DNIS:2738300 * CSID:16506108051 * DURATION (mm-ss):01-06

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Gregory G. Raleigh	Joon H. Hwang
Serial No.: 13/134,028	Art Unit: 2447
Filed: May 25, 2011	Conf. No.: 3250
Title: Device Assisted Services for Protecting Network Capacity	

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

RENEWED PETITION TO ACCEPT UNINTENTIONALLY DELAYED PRIORITY CLAIM PURSUANT TO 37 CFR §1.78(A)(3)

Dear Sir/Madam:

In response to the Decision on Petition Under 37 CFR §1.78(a)(3) mailed June 18, 2012, Applicant submits this renewed Petition and respectfully requests acceptance of an unintentionally delayed priority claim for the benefit of several priority applications.

Applicant has learned that the priority claim in the subject application as filed was non-compliant with 37 CFR §178(a)(2)(i) because it referenced the priority applications by publication number rather than by application serial number. In addition, Applicant did not set forth the entire chains of priority. Enclosed with this Petition is a preliminary amendment to correct the priority claim. The amendments to the specification therein are intended to replace the amendments to the specification in the preliminary amendment previously filed on January 11, 2012.

Applicant respectfully submits that the incorporation by reference of the priority applications in the subject application as filed is in accordance with 37 CFR §1.57(b) despite the omission of application serial numbers, as Applicant has expressed a clear intent to incorporate

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by reference by using the phrase "incorporates by reference" and has clearly identified the referenced applications by providing the publication number, title and filing date of each application. Thus, Applicant respectfully submits that the incorporation by reference in the subject application as originally filed is effective.

The entire delay from the date the priority claim was due (i.e., four months from May 25, 2011, or September 25, 2011) until the filing of a grantable petition was unintentional.

The $1,410 fee associated with the filing of this petition was previously charged to Deposit Account No. 50-4561. The Commissioner is hereby authorized to charge any additional fees and credit any overpayment to Deposit Account 50-4561.

Respectfully submitted,

Date: July 9, 2012 By: _____

Marc A. Sockol, Reg. No. 40,823
Attorney for Applicants
Customer Number 69849
Sheppard, Mullin, Richter & Hampton LLP
379 Lytton Avenue
Palo Alto, CA 94301-1432
Telephone: (650) 815-2602

Google Exhibit 1006, Page 457 of 901

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Gregory G. Raleigh	Joon H. Hwang
Serial No.: 13/134,028	Art Unit: 2447
Filed: May 25, 2011	Conf. No.: 3250

Title: Device Assisted Services for Protecting Network Capacity

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

PRELIMINARY AMENDMENT

Dear Sir/Madam:

Prior to examination of the above-referenced application, please enter the following amendments and consider the following remarks:

Amendments to the Specification start on Page 2.

Google Exhibit 1006, Page 458 of 901

AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0001] of the specification with the following amended paragraph:

[0001] This application is a continuation-in-part of and incorporates by reference the following published U.S. pending nonprovisional patent applications: U.S. application serial No. 12/380,759, published as U.S. publication No. 2010/0188975, filed March 2, 2009, entitled "Verifiable Device Assisted Service Policy Implementation," U.S. application serial No. 12/380,779, published as U.S. publication No. 2010/0192170, filed March 2, 2009, entitled "Device Assisted Service Profile Management with User Preference, Adaptive Policy, Network Neutrality, and User Privacy," U.S. application serial No. 12/380,758, published as U.S. publication No. 2010/0191612, filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Monitoring with Reporting, Synchronization, and Notification," U.S. application serial No. 12/380,778, published as U.S. publication No. 2010/0191576, filed March 2, 2009, entitled "Verifiable Device Assisted Service Usage Billing with Integrated Accounting, Mediation Accounting, and Multi-Account," U.S. application serial No. 12/380,768, published as U.S. publication No. 2010/0188991, filed March 2, 2009, entitled "Network Based Service Policy Implementation with Network Neutrality and User Privacy," U.S. application serial No. 12/380,767, published as U.S. publication No. 2010/0188990, filed March 2, 2009, entitled "Network Based Service Profile Management with User Preference, Adaptive Policy, Network Neutrality, and User Privacy," U.S. application serial No. 12/380,780, published as U.S. publication No. 2010/0192212, filed March 2, 2009, entitled "Automated Device Provisioning and Activation," U.S. application serial No. 12/380,755, published as U.S. publication No. 2010/0191604, filed March 2, 2009, entitled "Device Assisted Ambient Services," U.S. application serial No. 12/380,756, published as U.S. publication No. 2010/0191575, filed March 2, 2009, entitled "Network Based Ambient Services," U.S. application serial No. 12/380,770, published as U.S. publication No. 2010/0188993, filed March 2, 2009, entitled "Network Tools for Analysis, Design, Testing, and Production of Services," U.S. application serial No. 12/380,772, published as U.S. publication No. 2010/0190470, filed March 2, 2009, entitled "Roaming Services Network and Overlay Networks," U.S. application serial No. 12/380,782, published as U.S. publication No. 2010/0192120, filed March 2, 2009, entitled "Open

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Development System for Access Service Providers," U.S. application serial No. 12/380,783, published as U.S. publication No. 2010/0192207, filed March 2, 2009, entitled "Virtual Service Provider Systems," U.S. application serial No. 12/380,757, filed March 2, 2009, and entitled "Service Activation Tracking System," U.S. application serial No. 12/380,781, published as U.S. publication No. 2010/0191613, filed March 2, 2009, entitled "Open Transaction Central Billing System," U.S. application serial No. 12/380,774, published as U.S. publication No. 2010/0188995, filed March 2, 2009, entitled "Verifiable and Accurate Service Usage Monitoring for Intermediate Networking Devices," U.S. application serial No. 12/380,771, published as U.S. publication No. 2010/0188994, filed March 2, 2009, entitled "Verifiable Service Billing for Intermediate Networking Devices," U.S. application serial No. 12/380,773, published as U.S. publication No. 2010/0191846, filed March 2, 2009, entitled "Verifiable Service Policy Implementation for Intermediate Networking Devices," U.S. application serial No. 12/380,769, published as U.S. publication No. 2010/0188992, filed March 2, 2009, entitled "Service Profile Management with User Preference, Adaptive Policy, Network Neutrality and User Privacy for Intermediate Networking Devices," and U.S. application serial No. 12/380,777, published as U.S. publication No. 2010/0191847, filed March 2, 2009, entitled "Simplified Service Network Architecture," which applications claim priority to U.S. provisional application serial Nos. 61/207,739 filed February 13, 2009, 61/207,393 filed February 10, 2009, 61/206,944 filed February 4, 2009 and 61/206,354 filed January 28, 2009; U.S. application serial No. 12/695,019, published as U.S. publication No. 2010/0197266, filed January 27, 2010, entitled "Device Assisted CDR Creation, Aggregation, Mediation[[,]] and Billing," which claims priority to U.S. provisional application serial Nos. 61/264,126 filed November 24, 2009, 61/270,353 filed July 6, 2009, 61/207,739 filed February 13, 2009, 61/207,393 filed February 10, 2009, 61/206,944 filed February 4, 2009 and 61/206,354 filed January 28, 2009, and which is a continuation-in-part of above-referenced U.S. application serial Nos. 12/380,771 and 12/380,778; U.S. application serial No. 12/695,020, published as U.S. publication No. 2010/0198698, filed January 27, 2010, entitled "Adaptive Ambient Services," which claims priority to U.S. provisional application serial Nos. 61/237,753 filed August 28, 2009, 61/275,208 filed August 25, 2009, 61/207,739 filed February 13, 2009, 61/207,393 filed February 10, 2009, 61/206,944 filed February 4, 2009 and 61/206,354 filed January 28, 2009, and which is a continuation-in-part of above-referenced U.S. application serial No. 12/380,780; U.S. application serial No. 12/694,445, published as U.S.

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publication No. 2010/0199325, filed January 27, 2010, entitled "Security Techniques for Device Assisted Services," which claims priority to U.S. provisional application serial Nos. 61/252,151 filed October 15, 2009, 61/207,739 filed February 13, 2009, 61/207,393 filed February 10, 2009, 61/206,944 filed February 4, 2009 and 61/206,354 filed January 28, 2009, and which is a continuation-in-part of above-referenced U.S. application serial No. 12/380,780; U.S. application serial No. 12/694,451, published as U.S. publication No. 2010/0197267, filed January 27, 2010, entitled "Device Group Partitions and Settlement Platform," which claims priority to U.S. provisional application serial Nos. 61/252,153 filed October 15, 2009, 61/270,353 filed July 6, 2009, 61/207,739 filed February 13, 2009, 61/207,393 filed February 10, 2009, 61/206,944 filed February 4, 2009 and 61/206,354 filed January 28, 2009, and which is a continuation-in-part of above-referenced U.S. application serial No. 12/380,780; U.S. application serial No. 12/694,455, published as U.S. publication No. 2010/0198939, filed January 27, 2010, entitled "Device Assisted Services Install," which claims priority to U.S. provisional application serial Nos. 61/264,120 filed November 24, 2009, 61/207,739 filed February 13, 2009, 61/207,393 filed February 10, 2009, 61/206,944 filed February 4, 2009 and 61/206,354 filed January 28, 2009, and which is a continuation-in-part of above-referenced U.S. application serial No. 12/380,780; U.S. application serial no. 12/695,021, published as U.S. publication No. 2010/0195503, filed January 27, 2010, entitled "Quality of Service for Device Assisted Services," which claims priority to U.S. provisional application serial Nos. 61/252,153 filed October 15, 2009, 61/252,151 filed October 15, 2009, 61/207,739 filed February 13, 2009, 61/207,393 filed February 10, 2009, 61/206,944 filed February 4, 2009 and 61/206,354 filed January 28, 2009, and which is a continuation-in-part of above-referenced U.S. application serial No. 12/380,780; U.S. application serial No. 12/695,980, published as U.S. publication No. 2010/0197268, filed January 28, 2010, entitled "Enhanced Roaming Services and Converged Carrier Networks with Device Assisted Services and a Proxy," which claims priority to U.S. provisional application serial Nos. 61/270,353 filed July 6, 2009, 61/207,739 filed February 13, 2009, 61/207,393 filed February 10, 2009, 61/206,944 filed February 4, 2009 and 61/206,354 filed January 28, 2009, and which is a continuation-in-part of above-referenced U.S. application serial Nos. 12/695,021, 12/695,019 and 12/380,780; and U.S. application serial No. 13/134,005, published as U.S. publication No. 2011/0320588, filed May 25, 2011, [[and]] entitled "System and Method for Wireless Network Offloading."

Please replace paragraph [0003] of the specification with the following amended paragraph:

[0003] Further, this application incorporates by reference the following U.S. provisional patent applications, which are also included in paragraph [0001] above: U.S. provisional application serial No. 61/206,354, filed January 28, 2009, entitled "Services Policy Communication System and Method," U.S. provisional application serial No. 61/206,944, filed February 4, 2009, entitled "Services Policy Communication System and Method," U.S. provisional application serial No. 61/207,393, filed February 10, 2009, entitled "Services Policy Communication System and Method," U.S. provisional application serial No. 61/207,739, filed February 13, 2009, entitled "Services Policy Communication System and Method," U.S. provisional application serial No. 61/270,353, filed July 6, 2009, entitled "Device Assisted CDR Creation, Aggregation, Mediation and Billing," U.S. provisional application serial No. 61/275,208, filed August 25, 2009, entitled "Adaptive Ambient Services," U.S. provisional application serial No. 61/237,753, filed August 28, 2009, entitled "Adaptive Ambient Services," U.S. provisional application serial No. 61/252,151, filed October 15, 2009, entitled "Security Techniques for Device Assisted Services," U.S. provisional application serial No. 61/252,153, filed October 15, 2009, entitled "Device Group Partitions and Settlement Platform," U.S. provisional application serial No. 61/264,120, filed November 24, 2009, entitled "Device Assisted Services Install," and U.S. provisional application serial No. 61/264,126, filed November 24, 2009, entitled "Device Assisted Services Activity Map."

REMARKS

Applicant respectfully requests the entry of the amendments herein prior to examination of the subject application on the merits. No new matter has been added.

The Commissioner is authorized to charge any fee deficiency or credit any overpayment to Deposit Account 50-4561.

Respectfully submitted,

Date: July 9, 2012

By: _____

Marc A. Sockol
Reg. No. 40,823
Attorney for Applicants
Customer Number 69849
Sheppard, Mullin, Richter & Hampton LLP
379 Lytton Avenue
Palo Alto, CA 94301
Telephone: (650) 815-2600

Google Exhibit 1006, Page 463 of 901

Electronic Acknowledgement Receipt	
EFS ID:	13205940
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	69849
Filer:	Marc A. Sockol/Anne Collette
Filer Authorized By:	Marc A. Sockol
Attorney Docket Number:	26WV-160509 [RALEP032]
Receipt Date:	09-JUL-2012
Filing Date:	25-MAY-2011
Time Stamp:	17:00:53
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		26WV-160509.pdf	550682 e68be0cab7166724bdf32aff22ba8be94843a9b8	yes	9

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	1
	Petition for review by the Office of Petitions.	2	3
	Preliminary Amendment	4	4
	Specification	5	8
	Applicant Arguments/Remarks Made in an Amendment	9	9
Warnings:			
Information:			
	Total Files Size (in bytes):	550682	

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.

Doc Code: TRAN.LET

Document Description: Transmittal Letter

PTO/SB/21 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission: 9

Application Number	13/134,028
Filing Date	2011-05-25
First Named Inventor	Gregory G. Raleigh
Art Unit	2447
Examiner Name	Joon H. Hwang
Attorney Docket Number	26WV-160509 [RALEP032]

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☑ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☑ Other Enclosure(s) (please Identify below):
  Preliminary Amendment

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Sheppard, Mullin, Richter & Hampton LLP		
Signature			
Printed name	Marc A. Sockol		
Date	July 9, 2012	Reg. No.	40823

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being transmitted to the USPTO via EFS-Web or deposited with the US Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature			
Typed or printed name	Anne Collette	Date	July 9, 2012

This collection of information is required by 37 CFR 1.5. 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 and1.14. This collection is estimated to 2 hours 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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UNITED STATES DEPARTMENT OF COMMERCE
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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
13/134,028	05/25/2011	2447	4695	26WV-160509 [RALEP032]	115	14

CONFIRMATION NO. 3250

CORRECTED FILING RECEIPT

69849
SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
379 Lytton Avenue
Palo Alto, CA 94301

Date Mailed: 07/20/2012

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)

Gregory G. Raleigh, Woodside, CA;
Alireza Raissinia, Monte Sereno, CA;
James Lavine, Mill Valley, CA;

Power of Attorney: The patent practitioners associated with Customer Number 69849

Domestic Priority data as claimed by applicant

This application is a CIP of 12/380,759 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,779 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,758 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,779 03/02/2009

Google Exhibit 1006, Page 467 of 901

which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,778 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,768 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,767 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/207,393 02/10/2009
This application 13/134,028
is a CIP of 12/380,780 03/02/2009
which claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
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which claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application is a CIP of 12/380,756 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,770 03/02/2009 ABN
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

This application 13/134,028
is a CIP of 12/380,771 03/02/2009 PAT 8023425
which claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,772 03/02/2009
which claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
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which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
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and claims benefit of 61/207,393 02/10/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,781 03/02/2009 PAT 8229812
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,774 03/02/2009
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and claims benefit of 61/207,739 02/13/2009
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and claims benefit of 61/207,739 02/13/2009
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which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009

and claims benefit of 61/207,393 02/10/2009
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is a CIP of 12/380,777 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/695,019 01/27/2010
which is a CIP of 12/380,778 03/02/2009
and is a CIP of 12/380,771 03/02/2009 PAT 8023425
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/264,126 11/24/2009
This application 13/134,028
is a CIP of 12/695,020 01/27/2010
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/275,208 08/25/2009
and claims benefit of 61/237,753 08/28/2009
This application 13/134,028
is a CIP of 12/694,445 01/27/2010
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/252,151 10/15/2009
This application 13/134,028
is a CIP of 12/694,451 01/27/2010
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/252,153 10/15/2009
This application 13/134,028
is a CIP of 12/694,455 01/27/2010
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

and claims benefit of 61/264,120 11/24/2009
This application 13/134,028
is a CIP of 12/695,021 01/27/2010
and said 12/695,021 01/27/2010
is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/252,151 10/15/2009
and claims benefit of 61/252,153 10/15/2009
This application 13/134,028
is a CIP of 12/695,980 01/28/2010
which is a CIP of 12/380,780 03/02/2009
and is a CIP of 12/695,019 01/27/2010
and is a CIP of 12/695,021 01/27/2010
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
This application 13/134,028
is a CIP of 13/134,005 05/25/2011
which claims benefit of 61/348,022 05/25/2010
and claims benefit of 61/381,159 09/09/2010
and claims benefit of 61/381,162 09/09/2010
and claims benefit of 61/384,456 09/20/2010
and claims benefit of 61/389,547 10/04/2010
and claims benefit of 61/385,020 09/21/2010
and claims benefit of 61/387,243 09/28/2010
and claims benefit of 61/387,247 09/28/2010
and claims benefit of 61/407,358 10/27/2010
and claims benefit of 61/418,507 12/01/2010
and claims benefit of 61/418,509 12/01/2010
and claims benefit of 61/420,727 12/07/2010
and claims benefit of 61/422,565 12/13/2010
and claims benefit of 61/422,572 12/13/2010
and claims benefit of 61/422,574 12/13/2010
and claims benefit of 61/435,564 01/24/2011
and claims benefit of 61/472,606 04/06/2011
This application 13/134,028
claims benefit of 61/348,022 05/25/2010
and claims benefit of 61/381,159 09/09/2010
and claims benefit of 61/381,162 09/09/2010
and claims benefit of 61/384,456 09/20/2010
and claims benefit of 61/385,020 09/21/2010
and claims benefit of 61/387,243 09/28/2010
and claims benefit of 61/387,247 09/28/2010
and claims benefit of 61/389,547 10/04/2010
and claims benefit of 61/407,358 10/27/2010
and claims benefit of 61/418,507 12/01/2010

and claims benefit of 61/418,509 12/01/2010
and claims benefit of 61/420,727 12/07/2010
and claims benefit of 61/422,565 12/13/2010
and claims benefit of 61/422,572 12/13/2010
and claims benefit of 61/422,574 12/13/2010
and claims benefit of 61/435,564 01/24/2011
This appln claims benefit of 61/472,606 04/06/2011

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The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/134,028**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Device-assisted services for protecting network capacity

Preliminary Class

709

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.

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Google Exhibit 1006, Page 472 of 901

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.

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United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/134,028	05/25/2011	Gregory G. Raleigh	26WV-160509 [RALEP032]

CONFIRMATION NO. 3250

107265
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

POA ACCEPTANCE LETTER

OC000000055525211

Date Mailed: 07/25/2012

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/05/2012.

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.

/vvan/

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

Google Exhibit 1006, Page 475 of 901

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/134,028	05/25/2011	Gregory G. Raleigh	26WV-160509 [RALEP032]

CONFIRMATION NO. 3250

69849
SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
379 Lytton Avenue
Palo Alto, CA 94301

POWER OF ATTORNEY NOTICE

OC000000055525210

Date Mailed: 07/25/2012

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/05/2012.

- 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).

/vvan/

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

Google Exhibit 1006, Page 476 of 901

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

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

Application Number	13134028
Filing Date	2011-05-25
First Named Inventor	Raleigh, Gregory G.
Art Unit	2447
Examiner Name	Rudy, Andrew J
Attorney Docket Number	RALEP032

U.S.PATENTS

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	6418147		2002-07-09	Wiederman, Robert A	
	2	6574465		2003-06-03	Marsh, William et al.	
	3	6765864		2004-07-20	Natarajan, Shankar et al.	
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	5	7388950		2008-06-17	Elsey, Nicholas J. et al.	
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	8	7610328		2009-10-27	Haase, Oliver et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	2447
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP032

	9	7650137		2010-01-19	Jobs, Steven P. et al.	
	10	7693720		2010-04-06	Kennewick, Robert A. et al.	
	11	7734784		2010-06-08	Araujo, Wladimir et al.	
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	18	8099077		2012-01-17	Chowdhury, Amor et al.	
	19	8099517		2012-01-17	Jia, Lujun R. et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	2447
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP032

	20	8170553		2012-05-01	Bennett, James D.	
	21	7984130		2011-07-19	Bogineni, Kalyani et al.	
	22	8019687		2011-09-13	Wang, Feng Chi et al.	
	23	8144591		2012-03-27	Ghai, Rajat et al.	
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	25	8194549		2012-06-05	Huber, Kurt Donald et al.	
	26	6606744		2003-08-12	Mikurak, Michael G.	
	27	8190675		2012-05-29	Tribbett, David	
	28	8200775		2012-06-12	Moore, James F.	
	29	7069248		2006-06-27	Huber, Adriano	
If you wish to add additional U.S. Patent citation information please click the Add button.						
U.S.PATENT APPLICATION PUBLICATIONS						

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	2447
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP032

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20030018524		2003-01-23	Fishman, Dan et al.	
	2	20030046396		2003-03-06	Richter, Roger K.	
	3	20030220984		2003-11-27	Jones, Paul David et al.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	2447
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP032

	11	20110126141		2011-05-26	King, Bennett M. et al.	
	12	20100227632		2010-09-09	Bell, Kris M. et al.	
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	15	20080005285		2008-01-03	Robinson, James David et al.	
	16	20090113514		2009-04-30	Hu, Q. James	

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FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							☐

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NON-PATENT LITERATURE DOCUMENTS

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	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	2447
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP032

	1		☐

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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.

[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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	2447
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP032

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).

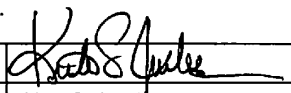
☐ See attached certification statement.

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

☒ None

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		Date (YYYY-MM-DD)	2012-08-13
Name/Print	Krista S. Jacobsen	Registration Number	59,374

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.**

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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.

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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.

Doc Code: TRAN.LET

Document Description: Transmittal Letter

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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	13/134,028
Filing Date	2011-05-25
First Named Inventor	Gregory G. Raleigh
Art Unit	3687 Conf.: 3250
Examiner Name	Rudy, Andrew J
Attorney Docket Number	RALEP032

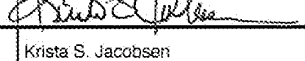
ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☑ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation
- ☐ Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☐ Other Enclosure(s) (please identify below):

Remarks

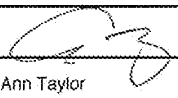
You are hereby authorized to charge any additional fee required or credit any overpayment to Deposit Account No. 50-5876.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Headwater Partners I LLC		
Signature			
Printed name	Krista S. Jacobsen		
Date	August 13, 2012	Reg. No.	59,374

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature			
Typed or printed name	Ann Taylor	Date	August 13, 2012

This collection of information is required by 37 CFR 1.5. 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 and1.14. This collection is estimated to 2 hours 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:	13487924
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	Krista Susan Jacobsen/Ann Taylor
Filer Authorized By:	Krista Susan Jacobsen
Attorney Docket Number:	RALEP032 [26WV-160509]
Receipt Date:	13-AUG-2012
Filing Date:	25-MAY-2011
Time Stamp:	23:48:48
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	Information Disclosure Statement (IDS) Form (SB08)	IDS.pdf	1088483 b4c08901d59c22352cc4a3a94bb2b71341b90d46	no	8

Warnings:
Information:

This is not an USPTO supplied IDS fillable form					
2	Transmittal Letter	Trans.pdf	378611 f137db1422fc64fade627fdef771ec97d01bd307	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	1467094	

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/134,028	05/25/2011	Gregory G. Raleigh	RALEP032 [26WV-160509]	3250

107265 7590 09/06/2012

Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

EXAMINER	
RUDY, ANDREW J	

ART UNIT	PAPER NUMBER
3687	

NOTIFICATION DATE	DELIVERY MODE
09/06/2012	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):

patent@headwaterllc.com

Office Action Summary	Application No.	Applicant(s)	
	13/134,028	RALEIGH ET AL.	
	Examiner	Art Unit	
	ANDREW JOSEPH RUDY	3687	

-- 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 *1* 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 *17 August 2011*.

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

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

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-81 and 83-114* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☐ Claim(s) _____ is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☒ Claim(s) *1-81 and 83-114* are subject to restriction and/or election requirement.

Application Papers

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

11)☐ 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).

12)☐ 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

13)☐ 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) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   I. Claims 1-50, drawn to a system, classified in class 709, subclass 203.

   II. Claims 51, 53-82 and 84-114, drawn to a method, classified in class 705, subclass 34.

   III. Claim 52, drawn to a computer program product, classified in class 711, subclass 100.

2. The inventions are distinct, each from the other because of the following reasons:

Inventions Group II and Groups I, III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the method may be practiced by hand.

3. Inventions Group I and Group III are directed to related products. The related inventions are distinct if: (1) the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect; (2) the inventions do not overlap in scope, i.e., are mutually exclusive; and (3) the inventions as claimed are not obvious variants. See MPEP § 806.05(j). In the instant

case, the inventions as claimed have a materially different design. Furthermore, the inventions as claimed do not encompass overlapping subject matter and there is nothing of record to show them to be obvious variants.

4. Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and/or examination burden if restriction were not required because at least the following reason(s) apply:

Further search and/or consideration is required to search each inventive concept.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected invention**.

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

5. This application contains claims directed to the following patentably distinct species associated with independent Claims 1, 2, 5, 14, 17, 19, 21, 25, 28, 30, 51 and 53. The species are independent or distinct because each has features not presented from the other claims. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species, or a single grouping of patentably indistinct species, for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims is generic.

There is a search and/or examination burden for the patentably distinct species as set forth above because at least the following reason(s) apply:

Further search and/or consideration is required to search each inventive concept.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or a grouping of patentably indistinct species to be examined even though the requirement may be traversed (37 CFR 1.143) **and**

(ii) identification of the claims encompassing the elected species or grouping of patentably indistinct species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

The election may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected species or grouping of patentably indistinct species.

Should applicant traverse on the ground that the species, or groupings of patentably indistinct species from which election is required, are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing them to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other species.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

6. A telephone call was made to Krista Jacobsen (Reg. No. 59,734) on August 30, 2012 to request an oral election to the above restriction requirement, but did not result in an election being made.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The examiner has required restriction between product or apparatus claims and process claims. Where applicant elects claims directed to the product/apparatus, and all product/apparatus claims are subsequently found allowable, withdrawn process claims that include all the limitations of the allowable product/apparatus claims should be considered for rejoinder. All claims directed to a nonelected process invention must include all the limitations of an allowable product/apparatus claim for that process invention to be rejoined.

8. In the event of rejoinder, the requirement for restriction between the product/apparatus claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for

patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product/apparatus are found allowable, an otherwise proper restriction requirement between product/apparatus claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product/apparatus claim will not be rejoined. See MPEP § 821.04. Additionally, in order for rejoinder to occur, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product/apparatus claims. **Failure to do so may result in no rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

9. It is noted Applicant cancelled claim 82.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW JOSEPH RUDY whose telephone number is (571)272-6789. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Gart can be reached on 571-272-3955. 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.

/ANDREW JOSEPH RUDY/

Primary Examiner, Art Unit 3687

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BIB DATA SHEET

CONFIRMATION NO. 3250

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
13/134,028	05/25/2011	705	3687	RALEP032 [26WV-160509]

APPLICANTS

Gregory G. Raleigh, Woodside, CA;
Alireza Raissinia, Monte Sereno, CA;
James Lavine, Mill Valley, CA;

**** CONTINUING DATA ***************************

This application is a CIP of 12/380,759 03/02/2009 PAT 8,270,310
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

This application 13/134,028 05/25/2011
is a CIP of 12/380,779 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

This application 13/134,028 05/25/2011
is a CIP of 12/380,758 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

This application 13/134,028 05/25/2011
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

This application 13/134,028 05/25/2011
is a CIP of 12/380,768 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009

Google Exhibit 1006, Page 497 of 901

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination
	13/134,028	RALEIGH ET AL.
	Examiner	Art Unit
	ANDREW JOSEPH RUDY	3687

SEARCHED			
Class	Subclass	Date	Examiner

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Continuity data reviewed.	8/30/2012	AJR
Inventor name search conducted.	8/30/2012	AJR
Bibliographic data sheet updated.	8/30/2012	AJR

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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
13/134,028	05/25/2011	3687	4695	RALEP032 [26WV-160509]	115	14

CONFIRMATION NO. 3250

CORRECTED FILING RECEIPT

107265
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

Date Mailed: 09/07/2012

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)

Gregory G. Raleigh, Woodside, CA;
Alireza Raissinia, Monte Sereno, CA;
James Lavine, Mill Valley, CA;

Power of Attorney: The patent practitioners associated with Customer Number 107265

Domestic Priority data as claimed by applicant

This application is a CIP of 12/380,759 03/02/2009 PAT 8270310
and claims benefit of 61/472,606 04/06/2011
and claims benefit of 61/435,564 01/24/2011
and claims benefit of 61/422,574 12/13/2010
and claims benefit of 61/422,572 12/13/2010
and claims benefit of 61/422,565 12/13/2010
and claims benefit of 61/420,727 12/07/2010
and claims benefit of 61/418,509 12/01/2010
and claims benefit of 61/418,507 12/01/2010
and claims benefit of 61/407,358 10/27/2010
and claims benefit of 61/389,547 10/04/2010
and claims benefit of 61/387,247 09/28/2010
and claims benefit of 61/387,243 09/28/2010
and claims benefit of 61/385,020 09/21/2010
and claims benefit of 61/384,456 09/20/2010
and claims benefit of 61/381,162 09/09/2010
and claims benefit of 61/381,159 09/09/2010
and claims benefit of 61/348,022 05/25/2010
and is a CIP of 13/134,005 05/25/2011

Google Exhibit 1006, Page 499 of 901

which is a CIP of 12/380,759 03/02/2009 PAT 8270310
and is a CIP of 12/380,779 03/02/2009
and is a CIP of 12/380,758 03/02/2009
and is a CIP of 12/380,778 03/02/2009
and is a CIP of 12/380,768 03/02/2009
and is a CIP of 12/380,767 03/02/2009
and is a CIP of 12/380,780 03/02/2009
and is a CIP of 12/380,755 03/02/2009
and is a CIP of 12/380,756 03/02/2009 PAT 8250207
and is a CIP of 12/380,782 03/02/2009 PAT 8270952
and is a CIP of 12/380,770 03/02/2009 ABN
and is a CIP of 12/380,772 03/02/2009
and is a CIP of 12/380,783 03/02/2009
and is a CIP of 12/380,757 03/02/2009
and is a CIP of 12/380,781 03/02/2009 PAT 8229812
and is a CIP of 12/380,774 03/02/2009
and is a CIP of 12/380,771 03/02/2009 PAT 8023425
and is a CIP of 12/380,773 03/02/2009
and is a CIP of 12/380,769 03/02/2009
and is a CIP of 12/380,777 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and said 13/134,005 05/25/2011
is a CIP of 12/695,019 01/27/2010 PAT 8275830
which is a CIP of 12/380,778 03/02/2009
and is a CIP of 12/380,771 03/02/2009 PAT 8023425
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and said 12/695,019 01/27/2010
claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/264,126 11/24/2009
and said 13/134,005 01/27/2010
is a CIP of 12/695,020 01/27/2010
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/275,208 08/25/2009
and claims benefit of 61/237,753 08/28/2009
and said 13/134,005 01/27/2010
is a CIP of 12/694,445 01/27/2010
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

and claims benefit of 61/252,151 10/15/2009
and said 13/134,005 01/27/2010
is a CIP of 12/694,451 01/27/2010
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/252,153 10/15/2009
and said 13/134,005 01/27/2010
is a CIP of 12/694,455 01/27/2010
which is a CIP of 12/380,780 03/02/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/264,120 11/24/2009
and said 13/134,005 01/27/2010
is a CIP of 12/695,021 01/27/2010
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/252,151 10/15/2009
and claims benefit of 61/252,153 10/15/2009
and said 13/134,005 01/27/2010
is a CIP of 12/695,980 01/28/2010
which is a CIP of 12/380,780 03/02/2009
and is a CIP of 12/695,019 01/27/2010 PAT 8275830
and is a CIP of 12/695,021 01/27/2010
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
This application 13/134,028
is a CIP of 12/695,980 01/28/2010
and said 12/695,980
is a CIP of 12/380,780 03/02/2009
and is a CIP of 12/695,019 01/27/2010 PAT 8275830
and is a CIP of 12/695,021 01/27/2010
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
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This application 13/134,028
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which is a CIP of 12/380,780 03/02/2009

and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
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This application 13/134,028
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This application 13/134,028
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and claims benefit of 61/206,944 02/04/2009
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and claims benefit of 61/275,208 08/25/2009
and claims benefit of 61/237,753 08/28/2009
This application 13/134,028
is a CIP of 12/695,019 01/27/2010 PAT 8275830
which is a CIP of 12/380,778 03/02/2009
and is a CIP of 12/380,771 03/02/2009 PAT 8023425
and claims benefit of 61/206,354 01/28/2009
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claims benefit of 61/206,944 02/04/2009
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and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/264,126 11/24/2009

This application 13/134,028
is a CIP of 12/380,777 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,769 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,773 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,774 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,781 03/02/2009 PAT 8229812
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,757 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,783 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,782 03/02/2009 PAT 8270952
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,772 03/02/2009
which claims benefit of 61/206,354 01/28/2009

and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application is a CIP of 12/380,771 03/02/2009 PAT 8023425
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,770 03/02/2009 ABN
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and said 12/380,759
is a CIP of 12/380,756 03/02/2009 PAT 8250207
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,755 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,780 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,767 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/207,393 02/10/2009
This application 13/134,028
is a CIP of 12/380,768 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
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which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028

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is a CIP of 12/380,758 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,779 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and said 12/380,759
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

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.)
GERMANY 10 2009 030 492.4 06/24/2009

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If Required, Foreign Filing License Granted: 06/15/2011

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/134,028**

Projected Publication Date: Not Applicable

Non-Publication Request: No

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

Device-assisted services for protecting network capacity

Preliminary Class

705

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.

Google Exhibit 1006, Page 505 of 901

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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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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

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NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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www.uspto.gov

SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
379 Lytton Avenue
Palo Alto CA 94301

MAILED
SEP 10 2012
OFFICE OF PETITIONS

In re Application of :
Raleigh et al. :
Application No. 13/134,028 : DECISION ON RENEWED PETITION
Filed: May 25, 2011 : UNDER 37 C.F.R. § 1.78(A)(3)
Attorney Docket No.: 26WV- :
160509 [RALEP032] :
Title: DEVICE-ASSISTED SERVICES :
FOR PROTECTING NETWORK CAPACITY :

This is a decision on the renewed petition pursuant to 37 C.F.R. § 1.78(a)(3), filed July 9, 2012 to accept an unintentionally delayed claim under 35 U.S.C. § 120 for the benefit of priority to a plurality of prior-filed U.S. applications set forth in an amendment to the specification, which was filed concurrently with this renewed petition.

This petition is **GRANTED**.

A petition for acceptance of a claim for late priority under 37 C.F.R. § 1.78(a)(3) is only applicable to those applications filed on or after November 29, 2000. Further, the petition is appropriate only after the expiration of the period specified in 37 C.F.R. 1.78(a)(2)(ii). In addition, the petition under 37 C.F.R. 1.78(a)(3) must be accompanied by:

(1) the reference required by 35 U.S.C. § 120 and 37 C.F.R. § 1.78(a)(2)(i) of the prior-filed application, unless previously submitted;
(2) the surcharge set forth in § 1.17(t); and
(3) a statement that the entire delay between the date the claim was due under 37 C.F.R. § 1.78(a)(2)(ii) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional.

37 C.F.R. § 1.78(a)(3)(iii) requires a statement that the entire delay between the date the claim was due under paragraph (a)(2)(ii) of 37 C.F.R. § 1.78 and the date the claim was filed was unintentional. Since the statements contained in both the original and this renewed petition vary from the language required by 37 C.F.R. § 1.78(a)(3)(iii), the statements contained in these two petitions are being construed as the statement required by 37 C.F.R. § 1.78(a)(3)(iii), and Petitioner must notify the Office if this is not a correct interpretation of the statements contained in each of these petitions.

An original petition pursuant to 37 C.F.R. § 1.78(a)(3) was filed on January 11, 2012 along with, *inter alia*, the surcharge, and a statement that is being construed as the proper statement of unintentional delay. The original petition pursuant to 37 C.F.R. § 1.78(a)(3) was dismissed via the mailing of a decision on June 18, 2012, which indicated that the second and third requirements of 37 C.F.R. § 1.78(a)(3) have each been satisfied.

With this renewed petition, Petitioner has included a benefit claim. The Office has determined that the first requirement of 37 C.F.R. § 1.78(a)(3) has been satisfied with this renewed petition.

All of the above requirements having been satisfied, the late claim for priority pursuant to 35 U.S.C. § 120 is accepted as being unintentionally delayed.

The granting of this renewed petition to accept the delayed benefit claim to the prior-filed applications pursuant to 37 C.F.R. § 1.78(a)(3) should not be construed as meaning that this application is entitled to the benefit of the prior-filed applications. In order for this application to be entitled to the benefit of the prior-filed applications, all other requirements under 35 U.S.C. § 120 and 37 C.F.R. §§ 1.78(a)(1) and (a)(2) must be met. Similarly, the fact that the corrected Filing Receipt accompanying this decision on renewed petition includes the prior-filed applications should not be construed as meaning that Applicant is entitled to the claim for benefit of priority to the prior-filed applications noted thereon. Accordingly, the Examiner will, in due course, consider this benefit claim and determine whether the application is entitled to the benefit of the earlier filing date.

A corrected Filing Receipt, which includes the priority claim to the prior-filed nonprovisional applications, accompanies this decision on petition.

This application is being forwarded to Technology Center Art Unit 3687 for consideration by the examiner of Applicant's entitlement to claim benefit of priority under 35 U.S.C. § 120 to the prior-filed applications.

Telephone inquiries regarding this decision should be directed to Senior Attorney Paul Shanoski at (571) 272-3225.[1]

Anthony Knight
Director
Office of Petitions/
Petitions Officer

Encl. Corrected Filing Receipt

1 Petitioner will note that all practice before the Office should be in writing, and the action of the Office will be based exclusively on the written record in the Office. See 37 C.F.R. § 1.2. As such, Petitioner is reminded that no telephone discussion may be controlling or considered authority for any further action(s) of Petitioner.

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/134,028	05/25/2011	3687	4695	RALEP032 [26WV-160509]	115	14

CONFIRMATION NO. 3250

107265
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

CORRECTED FILING RECEIPT

Date Mailed: 09/07/2012

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)

Gregory G. Raleigh, Woodside, CA;
Alireza Raissinia, Monte Sereno, CA;
James Lavine, Mill Valley, CA;

Power of Attorney: The patent practitioners associated with Customer Number 107265

Domestic Priority data as claimed by applicant

This application is a CIP of 12/380,759 03/02/2009 PAT 8270310
and claims benefit of 61/472,606 04/06/2011
and claims benefit of 61/435,564 01/24/2011
and claims benefit of 61/422,574 12/13/2010
and claims benefit of 61/422,572 12/13/2010
and claims benefit of 61/422,565 12/13/2010
and claims benefit of 61/420,727 12/07/2010
and claims benefit of 61/418,509 12/01/2010
and claims benefit of 61/418,507 12/01/2010
and claims benefit of 61/407,358 10/27/2010
and claims benefit of 61/389,547 10/04/2010
and claims benefit of 61/387,247 09/28/2010
and claims benefit of 61/387,243 09/28/2010
and claims benefit of 61/385,020 09/21/2010
and claims benefit of 61/384,456 09/20/2010
and claims benefit of 61/381,162 09/09/2010
and claims benefit of 61/381,159 09/09/2010
and claims benefit of 61/348,022 05/25/2010
and is a CIP of 13/134,005 05/25/2011

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which is a CIP of 12/380,759 03/02/2009 PAT 8270310
and is a CIP of 12/380,779 03/02/2009
and is a CIP of 12/380,758 03/02/2009
and is a CIP of 12/380,778 03/02/2009
and is a CIP of 12/380,768 03/02/2009
and is a CIP of 12/380,767 03/02/2009
and is a CIP of 12/380,780 03/02/2009
and is a CIP of 12/380,755 03/02/2009
and is a CIP of 12/380,756 03/02/2009 PAT 8250207
and is a CIP of 12/380,782 03/02/2009 PAT 8270952
and is a CIP of 12/380,770 03/02/2009 ABN
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and is a CIP of 12/380,757 03/02/2009
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and claims benefit of 61/264,120 11/24/2009
and said 13/134,005 01/27/2010
is a CIP of 12/695,021 01/27/2010
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/252,151 10/15/2009
and claims benefit of 61/252,153 10/15/2009
and said 13/134,005 01/27/2010
is a CIP of 12/695,980 01/28/2010
which is a CIP of 12/380,780 03/02/2009
and is a CIP of 12/695,019 01/27/2010 PAT 8275830
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and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
This application 13/134,028
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and is a CIP of 12/695,019 01/27/2010 PAT 8275830
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This application 13/134,028
is a CIP of 12/695,021 01/27/2010
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and claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
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This application 13/134,028
is a CIP of 12/694,455 01/27/2010
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and claims benefit of 61/206,354 01/28/2009
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This application 13/134,028
is a CIP of 12/695,020 01/27/2010
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
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This application 13/134,028
is a CIP of 12/695,019 01/27/2010 PAT 8275830
which is a CIP of 12/380,778 03/02/2009
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and claims benefit of 61/206,354 01/28/2009
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This application 13/134,028
is a CIP of 12/380,777 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
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This application 13/134,028
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which claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,773 03/02/2009
which claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,774 03/02/2009
which claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
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This application 13/134,028
is a CIP of 12/380,781 03/02/2009 PAT 8229812
which claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
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This application 13/134,028
is a CIP of 12/380,757 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,783 03/02/2009
which claims benefit of 61/206,354 01/28/2009
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is a CIP of 12/380,782 03/02/2009 PAT 8270952
which claims benefit of 61/206,354 01/28/2009
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This application 13/134,028
is a CIP of 12/380,772 03/02/2009
which claims benefit of 61/206,354 01/28/2009

Google Exhibit 1006, Page 515 of 901

and claims benefit of 61/206,944 02/04/2009
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is a CIP of 12/380,770 03/02/2009 ABN
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
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and said 12/380,759
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and claims benefit of 61/207,393 02/10/2009
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This application 13/134,028
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which claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
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Google Exhibit 1006, Page 516 of 901

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which claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and said 12/380,759
claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

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.)
GERMANY 10 2009 030 492.4 06/24/2009

Permission to Access - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 06/15/2011

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/134,028**

Projected Publication Date: Not Applicable

Non-Publication Request: No

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

Device-assisted services for protecting network capacity

Preliminary Class

705

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.

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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NOT GRANTED

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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/134,028	05/25/2011	Gregory G. Raleigh	RALEP032 [26WV-160509]

CONFIRMATION NO. 3250

107265
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

PUB REQUEST ACCEPTANCE LETTER

OC000000056525107

Date Mailed: 09/14/2012

NOTICE OF ACCEPTANCE OF PUBLICATION REQUEST

The request for voluntary publication, amended publication, early publication, redacted publication, republication, corrected publication or revised publication has been received for this application. The request, including payment of any necessary fee(s), is in compliance with 37 CFR 1.215, 1.217, 1.219 or 1.221.

The projected publication date is 12/20/2012.

/dterry/

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

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P.O. Box 1450
Alexandria, VA 22313-1450
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SHEPPARD, MULLIN, RICHTER & HAMPTON, LLP
379 LYNN AVENUE
PALO ALTO, CA 94301

MAILED
SEP 19 2012
OFFICE OF PETITIONS

In re Application of
Gregory G. Raleigh, et al.
Application No. 13/134,028
Filed: May 25, 2011
Attorney Docket No. 26WV-160509 [RALEP032]

DECISION ON PETITION
TO WITHDRAW
FROM RECORD

This is a decision on the Request to Withdraw as attorney or agent of record under 37 C.F.R. § 1.36(b), filed July 3, 2012.

The request is **DISMISSED** as moot.

A review of the file record indicates that the power of attorney to Sheppard, Mullin, Richter & Hampton, LLP. has been revoked by the applicant of the patent application on July 5, 2012. Accordingly, the request to withdraw under 37 C.F.R. § 1.36(b) is moot.

All future communications from the Office will continue to be directed to the below-listed address until otherwise notified by applicant.

Telephone inquires concerning this decision should be directed to undersigned at 571-272-1642.

/AMW/
April M. Wise
Petitions Examiner
Office of Petitions

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Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

Courtesy Reminder for
Application Serial No: 13/134,028

Attorney Docket No: RALEP032
[26WV-160509]
Customer Number: 107265
Date of Electronic Notification: 09/14/2012

This is a courtesy reminder that new correspondence is available for this application. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

An email notification regarding the correspondence was sent to the following email address(es) associated with your customer number:

patent@headwaterllc.com

Please verify that these email addresses are correct.

To view your correspondence online or update your email addresses, please visit us anytime at **https://sportal.uspto.gov/secure/myportal/privatepair.** If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov or call 1-866-217-9197.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Raleigh et al.	Examiner:	RUDY, Andrew J.
Serial No.:	13/134,028	Art Unit:	3687
Filed:	May 25, 2011	Conf. No.:	3250
Title:	Device-Assisted Services for Protecting Network Capacity		

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

RESPONSE TO RESTRICTION REQUIREMENT

Sir:

In response to the restriction requirement dated September 6, 2012, the deadline for response ending on October 6, 2102, Applicants respond as follows.

Amendments to the Claims begin on page 2.

Remarks begin on page 23.

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AMENDMENTS TO THE CLAIMS

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

1. (Withdrawn) A system, comprising:

a processor of a communications device configured to:

monitor a network service usage activity of the communications device in network communication;

classify the network service usage activity for differential network access control for protecting network capacity; and

associate the network service usage activity with a service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity; and

a memory coupled to the processor and configured to provide the processor with instructions.

2. (Withdrawn) A system, comprising:

a processor of a communications device configured to:

monitor a network service usage activity of the communications device in wireless network communication;

report the network service usage activity of the communications device to a network element, wherein the network element performs statistical analysis of a plurality of reported network service usage activities across a plurality of devices;

receive a network service usage activity classification list from the network element; and

classify the network service usage activity based on the network service usage activity classification list for differential network access control for protecting network capacity; and

a memory coupled to the processor and configured to provide the processor with instructions.

3. (Withdrawn) The system recited in claim 2, wherein the processor of the communications device is further configured to:

associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity.

4. (Withdrawn) The system recited in claim 2, wherein the processor of the communications device is further configured to:

associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity; and

differentially control the network service usage activity based on the network service usage activity classification list, wherein the network service usage activity is a network capacity controlled service.

5. (Withdrawn) A system, comprising:

a processor of a network device configured to:

receive a first report of network service usage activities of a first device from the first device;

receive a second report of network service usage activities of a second device from the second device;

perform a statistical analysis of a plurality of reported service usage activities across a plurality of devices, including the first device and the second device; and

send a network service usage activity classification list to the first device and the second device for classifying network service usage activities based on the service usage activity classification list for differential network access control for protecting network capacity; and

a memory coupled to the processor and configured to provide the processor with instructions.

6. (Withdrawn) The system recited in claim 5, wherein the processor of the network device is further configured to:

associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity.

7. (Withdrawn) The system recited in claim 5, wherein the processor of the network device is further configured to:

associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity; and

differentially control the network service usage activity based on the service usage activity classification list for protecting network capacity.

8. (Withdrawn) A system, comprising:

a processor of a communications device configured to:

associate a network service usage activity of the communications device with a network service usage control policy based on a classification of the network service usage activity for differential network access control for protecting network capacity; and

generate a user notification based on the network service usage control policy; and

a memory coupled to the processor and configured to provide the processor with instructions.

9. (Withdrawn) The system recited in claim 8, wherein the network service usage control policy includes a network service usage notification policy.

10. (Withdrawn) The system recited in claim 8, wherein the user notification includes one or more of the following: one or more service activities classified as network capacity controlled services, type of network service policy in effect for one or more network capacity controlled services, notification that a network service activity belongs to a network capacity controlled services classification, notification that a service activity that is classified as network capacity controlled services classification can have the classification changed, notification that if the service class is changed for the network service activity that the associated network service usage charges will change, a service plan upgrade/downgrade offer, and an offer for a service plan that provides discounts and/or incentives for responding to one or more user notifications for protecting network capacity.

11. (Withdrawn) The system recited in claim 8, wherein the user notification includes a user preference selection, including one or more of the following: a provision to associate a network service usage control policy with the network service usage activity, an over-ride option for selecting the network service usage control policy, a modify option to select the service usage control policy, and a select option to select a new service plan.

12. (Withdrawn) The system recited in claim 8, wherein the user notification occurs after one or more of the following: an attempt to download or load an application onto the communications device, an attempt to execute the network service activity or the network service usage activity attempts to access the network, a network service usage activity meets or exceeds a network service usage threshold, a network service usage activity attempts a network service usage that satisfies a pre-condition, an update to a network capacity controlled service activity classification list, an update to a network capacity controlled services policy, and a network message is sent to the device triggering the notification.

13. (Withdrawn) The system recited in claim 8, wherein the user notification includes one or more of the following: network service usage activity information for one or more network capacity controlled services, predicted network service usage activity information for one or more network capacity controlled services, an option for obtaining more information about the

network service usage of the network service usage activity, a message that the network service usage activity may result in network service usage that exceeds a threshold for a service plan associated with the device, an option to review or select an alternative service plan, an acknowledgement request, and an option to submit the acknowledgement request.

14. (Withdrawn) A system, comprising:

a processor of a communications device configured to:

determine a network busy state of a wireless network; and

classify a network service usage activity of the communications device based on the network busy state to facilitate differential network access control for protecting network capacity of the wireless networks; and

a memory coupled to the processor and configured to provide the processor with instructions.

15. (Withdrawn) The system recited in claim 14, wherein the network busy state is based on one or more of the following: network performance, network congestion, network availability, network resource availability, network capacity, and a time based criteria.

16. (Withdrawn) The system recited in claim 14, wherein protecting network capacity of the wireless network includes protecting network capacity of a last edge segment of the wireless network, and the processor is further configured to:

send the network busy state to a network element.

17. (Withdrawn) A system, comprising:

a processor of a communications device configured to:

monitor a network service usage activity of a device in wireless network communication;

classify the network service usage activity to facilitate differential network access control for protecting network capacity; and

account for the network service usage activity based on a classification of the network service usage activity for differential network service usage accounting; and

a memory coupled to the processor and configured to provide the processor with instructions.

18. (Withdrawn) The system recited in claim 17, wherein the processor of the communications device is further configured to:

charge for the network service usage activity based on the classification of the network service usage activity for differential network service usage charging, wherein charging for the network service usage activity includes mediating CDR/IPDR charging records for network capacity controlled services and non-capacity controlled services.

19. (Withdrawn) A system, comprising:

a processor of a communications device configured to:

receive an API request from a network service usage activity for wireless network access;

respond to the API request from the network service usage activity; and

implement differential network access for the network service usage activity for protecting network capacity, wherein the differential network access is based on a priority level associated with the network service usage activity and a network busy state; and

a memory coupled to the processor and configured to provide the processor with instructions.

20. (Withdrawn) The system recited in claim 19, wherein a response to the API request includes providing one or more of the following to the network service usage activity: a network busy state, whether the network service usage activity is allowed to access the network, which access network to which the network service usage activity is granted network access, what traffic controls the network service usage activity is required to implement for network access, when the network is available to the network service usage activity for access, a schedule for network access for the network service usage activity, a reservation for network access for the network

service usage activity with a specified performance level, an instruction to transition to a dormant or power save state, and an instruction to awake from a dormant or power save state.

21. (Withdrawn) A system, comprising:

a processor of a network device configured to:

receive an API request from a network service usage activity of a communications device for wireless network access; and

respond to the API request from the network service usage activity for implementing differential network access for protecting network capacity;

wherein the differential network access is based on a priority level associated with the network service usage activity and a network busy state; and

a memory coupled to the processor and configured to provide the processor with instructions.

22. (Withdrawn) The system recited in claim 21, wherein a response to the API request includes providing one or more of the following to the network service usage activity: a network busy state, whether the network service usage activity is allowed to access the network, which access network to which the network service usage activity is granted network access, what traffic controls the network service usage activity is required to implement for network access, when the network is available to the network service usage activity for access, a schedule for network access for the network service usage activity, a reservation for network access for the network service usage activity with a specified performance level, an instruction to transition to a dormant or power save state, and an instruction to awake from a dormant or power save state.

23. (Withdrawn) The system recited in claim 21, wherein the API is a network element API that is in secure communication with the communications device, and wherein the communications device implements the differential network access, and the differential network access implementation is verified.

24. (Withdrawn) The system recited in claim 21, wherein the busy state information is obtained from one or more network elements.

25. (Withdrawn) A system, comprising:

a processor of a communications device configured to:

monitor a plurality of network service usage activities of the communications device;

determine a network busy state based on the monitored plurality of network service usage activities; and

send a network busy state report to a network element; and

a memory coupled to the processor and configured to provide the processor with instructions.

26. (Withdrawn) The system recited in claim 25, wherein the communications device includes a verified service processor, and wherein the verified service processor monitors the plurality of network service usage activities of the communications device and determines the network busy state based on the monitored plurality of network service usage activities.

27. (Withdrawn) The system recited in claim 25, wherein determining the network busy state includes one or more of the following: data rate, latency, jitter, bit error rate, packet error rate, number of network access attempts, number of network access successes, number of network access failures, QoS level availability, QoS level performance, and variability in any of the preceding parameters.

28. (Withdrawn) A system, comprising:

a processor of a network device configured to:

collect network busy state information for one or more access networks for a plurality of communications devices; and

implement differential network access for one or more network capacity controlled services for the plurality of communications devices based on the network busy state

information associated with each of the one or more access networks for protecting network capacity; and

a memory coupled to the processor and configured to provide the processor with instructions.

29. (Withdrawn) The system recited in claim 28, wherein the network busy state information is collected from a plurality of network based measures transmitted to the network device, wherein the network based measures are received from one or more of the following: a base station, a base station monitor, an airwave monitor, and a base station controller.

30. (Withdrawn) A system, comprising:

a processor of a communications device configured to:

monitor a network service usage activity of the communications device in network communication;

classify the network service usage activity for differential network access control for protecting network capacity; and

associate the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity; and

a memory coupled to the processor and configured to provide the processor with instructions.

31. (Withdrawn) The system recited in claim 30, wherein the communications device is a mobile communications device, and the service includes one or more Internet based services, and wherein the mobile communications device includes one or more of the following: a mobile phone, a PDA, an eBook reader, a music device, an entertainment/gaming device, a computer, laptop, a net book, a tablet, and a home networking system.

32. (Withdrawn) The system recited in claim 30, wherein the processor of the communications device is further configured to:

implement differential network access for the network service usage activity for protecting network capacity; and

verify implementation of the differential network access for the network service usage activity.

33. (Withdrawn) The system recited in claim 30, wherein the processor of the communications device is further configured to:

implement differential network access for the network service usage activity for protecting network capacity using a verified service processor.

34. (Withdrawn) The system recited in claim 30, wherein the processor of the communications device is further configured to:

implement differential network access for the network service usage activity for protecting network capacity using an emulated network access API.

35. (Withdrawn) The system recited in claim 30, wherein the processor of the communications device is further configured to:

monitor the network service usage activity based on a service profile; and

determine that the network service usage activity is a network capacity controlled service based on the monitored use of the network service usage activity based on the service profile using a verified service processor.

36. (Withdrawn) The system recited in claim 30, wherein the processor of the communications device is further configured to:

determine if network access for the network service usage activity is authorized based on a service plan associated with the communications device, a network capacity controlled service priority level associated with the network service usage activity, and a network busy state.

37. (Withdrawn) The system recited in claim 30, wherein the processor is further configured to:

execute a router for dynamically managing one or more network capacity controlled services and/or QoS sessions for the communications device.

38. (Withdrawn) The system recited in claim 30, wherein the processor is further configured to:

execute a router for dynamically managing one or more network capacity controlled services and/or QoS sessions for the communications device; and

send network busy state information to a service controller, wherein the service controller provides a policy decision point for management for a plurality of communications devices in communication with one or more base stations.

39. (Withdrawn) The system recited in claim 30, wherein the processor is further configured to:

execute a router for dynamically managing one or more network capacity controlled services and/or QoS sessions for the communications device;

send network busy state information to a service controller, wherein the service controller provides a policy decision point for management for a plurality of communications devices in communication with one or more base stations; and

receive router traffic control instructions from the service controller, wherein the service controller provides the router traffic control instructions to assist in dynamically managing network capacity usage for the plurality of communications devices in communication with the one or more base stations for protecting network capacity of one or more access networks.

40. (Withdrawn) The system recited in claim 30, wherein the classifying is based on a current access network and/or the network service usage control policy is based on a current access network.

41. (Withdrawn) The system recited in claim 30, wherein classifying includes dynamically assigning a network capacity controlled services priority level based on a network busy state.

42. (Withdrawn) The system recited in claim 30, wherein classifying includes querying a network element for determining a network capacity controlled services classification and/or

associating includes querying a network element for determining an association with the network service usage control policy.

43. (Withdrawn) The system recited in claim 30, wherein the network service usage control policy includes one or more of the following: block/allow settings, throttle settings, adaptive throttle settings, QoS class settings, packet error rate, jitter and delay settings, queue settings, and tag settings.

44. (Withdrawn) The system recited in claim 30, wherein the network service usage control policy includes traffic control policy filters.

45. (Withdrawn) The system recited in claim 30, wherein the network service usage control policy includes traffic control policy filters implemented as cascading filters.

46. (Withdrawn) The system recited in claim 30, wherein the network service usage control policy includes traffic control policy filters using a network busy state and/or a time of day as an index into a traffic control setting.

47. (Withdrawn) The system recited in claim 30, wherein the processor is further configured to:

differentially control the network service usage activity based on the network service usage control policy based on a network busy state, wherein the network service usage activity is classified as a network capacity controlled service.

48. (Withdrawn) The system recited in claim 30, wherein the processor is further configured to:

differentially control the network service usage activity based on the network service usage control policy based on a user input and/or a current access network, wherein the network service usage activity is classified as a network capacity controlled service.

49. (Withdrawn) The system recited in claim 30, wherein the processor is further configured to:

modify or replace a network stack interface of the communications device to provide for intercept or discontinuance of network access messaging for implementing traffic control for network capacity controlled services for protecting network capacity.

50. (Withdrawn) The system recited in claim 30, wherein the processor is further configured to:

store a network capacity controlled service list, wherein the network capacity controlled service list is periodically updated based on monitored network service usage activities.

51. (Withdrawn) A method, comprising:

monitoring a network service usage activity of the communications device in network communication;

classifying the network service usage activity for differential network access control for protecting network capacity; and

associating the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity.

52. (Withdrawn) A computer program product, the computer program product being embodied in a computer readable storage medium and comprising computer instructions for:

monitoring a network service usage activity of the communications device in network communication;

classifying the network service usage activity for differential network access control for protecting network capacity; and

associating the network service usage activity with a network service usage control policy based on a classification of the network service usage activity to facilitate differential network access control for protecting network capacity.

53. (Previously presented) A method comprising:

examining a particular service usage activity to determine if the particular service usage activity fits a set of one or more classification rules that define the particular service usage activity as a background service usage activity;

determining whether a condition is satisfied, the condition including a finding that the particular service usage activity is determined to be a background service usage activity; and

when the condition is satisfied, restricting network access of the particular service usage activity.

54. (Previously presented) The method of claim 53, wherein the set of one or more classification rules examines at least one of network type, time of day, connection cost, whether home or roaming, network busy state, QoS, and whether the particular service usage activity is in foreground of user interaction or in the background of user interaction.

55. (Previously presented) The method of claim 53, wherein the set of one or more classification rules includes examining if one or more of the following has taken place within a specified period of time: user has interacted with the device, user has interacted with the service usage activity, user has picked up the device, service usage activity UI content is in the foreground of the device UI, audio or video information is being played by the service usage activity, a certain amount of data has been communicated by the service usage activity, service usage activity is or is not on a foreground or background service list.

56. (Previously presented) The method of claim 53, further comprising obtaining user selection of rules that define which service usage activities to classify as background service usage activities.

57. (Previously presented) The method of claim 56, wherein the user selection of classification rules includes user selection of specific service usage activities to classify as background service usage activities.

58. (Previously presented) The method of claim 56, further comprising obtaining user selection of rules that define more than one level of service background class for the user to choose from.

59. (Previously presented) The method of claim 56, wherein the obtaining user selection includes presenting usage information for service usage activities to aid in determining which to define as background service usage activities.

60. (Previously presented) The method of claim 56, wherein the obtaining user selection includes presenting cost information for service usage activities to aid in determining which to define as background service usage activities.

61. (Previously presented) The method of claim 53, wherein the condition includes enabling the user to select a network for background service usage activities.

62. (Previously presented) The method of claim 61, wherein the selection of the network is based on the time of day.

63. (Previously presented) The method of claim 61, wherein the selection of the network is based on connection cost.

64. (Previously presented) The method of claim 53, wherein the user can modify the set of one or more classification rules.

65. (Previously presented) The method of claim 53, wherein the condition includes
detecting when the service usage activity was initiated or attempted to be initiated;
notifying the user that this is a background service usage activity; and
provides the user with an option to implement the step of restricting.

66. (Previously presented) The method of claim 65, further comprising
informing the user of what the restriction options are;

implementing the restriction if the user chooses to implement a restriction option; and disabling the restriction if the user chooses to proceed.

67. (Previously presented) The method of claim 66, wherein a network element sets the classification rules.

68. (Previously presented) The method of claim 67, wherein the setting of the set of one or more classification rules is based on network manager input.

69. (Previously presented) The method of claim 67, wherein the setting the set of one or more classification rules is based on characterizing application usage behavior.

70. (Previously presented) The method of claim 66, wherein the setting the set of one or more classification rules is based on a policy instruction provided from a network element to the device.

71. (Previously presented) The method of claim 53, wherein the examining takes place on the device.

72. (Previously presented) The method of claim 53, wherein the set of one or more classification rules includes determining if an app is an OS function, client/server data sharing/update function, software update or download, background file download, email or calendar or contact update or synch function.

73. (Previously presented) The method of claim 53, wherein the restricting includes one or more of: blocking, delaying, implementing a time window, aggregating/holding/transmitting, throttling, restricting to a range of NBS level, restricting to certain network types, restricting based on whether home or roaming, restricting to a certain time period, waiting for lower cost condition, waiting for specified network, waiting for home network, waiting for time of day, and waiting for network background state.

74. (Previously presented) The method of claim 53, wherein the background service usage activity data that needs to be communicated via the device is cached until the condition is modified, reduced or removed.

75. (Previously presented) The method of claim 74, wherein the cached data is prioritized so that most important data is communicated first when the condition is modified, reduced or removed.

76. (Previously presented) The method of claim 53, wherein the restricting occurs on the device, and the app is unaware that it might be subjected to background service restrictions.

77. (Previously presented) The method of claim 53, further comprising modifying or repressing app notification messages about lack of network connectivity.

77. (Canceled)

78. (Previously presented) The method of claim 53, wherein an app is made aware that it might be subjected to background service restrictions.

79. (Previously presented) The method of claim 78, wherein the awareness is provided via a background service API.

80. (Previously presented) The method of claim 53, wherein an app has rules defining in which background states it should transmit.

81. (Previously presented) The method of claim 53, wherein an app has a capability to override background service rules for high priority data.

82. (Previously presented) The method of claim 53, wherein an app background service status API indicates one or more of: background transmission permission status, background class or classes allowed to transmit, NBS, QoS, apps allowed to transmit, service classes allowed to transmit, type of network, time of day, geography, and whether home or roaming.

83. (Previously presented) The method of claim 53, wherein the user is charged less for background services that are implemented with background service policy controls.

84. (Previously presented) The method of claim 53, wherein the user can override background service policy enforcement for high priority communication.

85. (Previously presented) The method of claim 53, wherein the user pays a higher price when background service policy enforcement is overridden.

86. (Previously presented) The method of claim 53, wherein a sponsored service partner is charged less for background services that are implemented with background service policy controls.

87. (Previously presented) The method of claim 53, wherein a sponsor can override background service policy enforcement for high priority communication.

88. (Previously presented) The method of claim 53, wherein a sponsor programs override decision conditions into an app.

89. (Previously presented) The method of claim 53, wherein a sponsor programs override decision conditions into a network element.

90. (Previously presented) The method of claim 53, wherein a sponsor app or network element can override background service policy.

91. (Previously presented) The method of claim 53, wherein a sponsor pays a higher price when background service policy enforcement is overridden.

92. (Previously presented) The method of claim 53, wherein a restriction occurs in the network.

93. (Previously presented) The method of claim 92, wherein an app is not aware that it might be subjected to background service restrictions.

94. (Previously presented) The method of claim 92, further comprising modifying or repressing app notification messages about lack of network connectivity.

95. (Previously presented) The method of claim 92, further comprising providing an app with network state indications that are differential for different apps according to app background class or priority.

96. (Previously presented) The method of claim 92, further comprising informing an app that it might be subjected to background service restrictions.

97. (Previously presented) The method of claim 96, wherein a background service API performs the informing.

98. (Previously presented) The method of claim 92, wherein an app has rules for which background states it should transmit.

99. (Previously presented) The method of claim 92, wherein an app has a capability to override background service rules for high priority data.

100. (Previously presented) The method of claim 92, wherein an app background service status API indicates one or more of: background transmission permission status, background class or

classes allowed to transmit, NBS, QoS, apps allowed to transmit, service classes allowed to transmit, type of network, time of day, geography, and whether home or roaming.

101. (Previously presented) The method of claim 92, wherein the price for a sponsored service for background service usage activities is reduced when background service policies are followed.

102. (Previously presented) The method of claim 92, wherein a sponsor device app determines background classification state and determines whether or not to restrict communication.

103. (Previously presented) The method of claim 92, wherein an app determines background state from a device API.

104. (Previously presented) The method of claim 92, wherein an app determines background state from a network API.

105. (Previously presented) The method of claim 92, wherein an app determines background state from an NBS monitor.

106. (Previously presented) The method of claim 92, wherein a sponsor price is increased if background policies are overridden by a sponsor app.

107. (Previously presented) The method of claim 92, wherein a sponsor server determines background classification state and determines whether to restrict communication.

108. (Previously presented) The method of claim 92, wherein a network element determines background state from a device API.

109. (Previously presented) The method of claim 92, wherein a network element determines background state from a network API.

110. (Previously presented) The method of claim 92, wherein a network element determines background state from an NBS monitor.

111. (Previously presented) The method of claim 92, wherein a sponsor price is increased if background policies are overridden by a sponsor network element.

112. (Previously presented) The method of claim 92, wherein a background service state indication API on the device makes background service state available to apps or network elements so they can decide when to communicate.

113. (Previously presented) The method of claim 92, wherein a background service state indication API on a network element provides API background service state information to device apps or partner servers so they can decide when to communicate.

114. (Previously presented) The method of claim 53, wherein the restricting allows a minimum connectivity for background services.

115. (New) The method of claim 53, wherein an app is provided with network state indications that are differential for different apps according to app background class or priority.

REMARKS

Claims 1-114 are pending. Claim 115 is being added. No new matter is being added.

The Office Action dated September 6, 2012 imposed a restriction requirement on claims 1-114, stating that claims 1-50 (Group I) are directed to a first invention; claims 51, 53-82, and 84-114 (Group II) are directed to a second invention; and claim 52 (Group III) is directed to a third invention. The Office Action also stated that the application contains claims directed to patentably distinct species associated with independent claims 1, 2, 5, 14, 17, 19, 21, 25, 28, 30, 51, and 53, and that Applicants are required to elect a single disclosed species.

Applicants respectfully note that claim 83 is also pending. The originally-filed claim set included two claims numbered "82." In a preliminary amendment filed on August 17, 2011, Applicants canceled the second instance of claim 82, leaving only one claim numbered "82," and added the content of the canceled claim as new claim 114. Claim 83, in contrast, was not canceled. Applicants believe that claim 83, which depends directly from claim 53, is also included in Group II. Thus, Applicants respectfully submit that Group II includes claims 51 and 53-114.

Between the filing of the preliminary amendment on August 17, 2011 and the preparation of this Office Action response, Applicants realized that the as-filed claim set included not only two claims numbered "82," but also two claims numbered "77." The preliminary amendment filed on August 17, 2011 canceled the second instance of claim 82, but it did not cancel the second instance of claim 77. Consequently, Applicants herein are cancelling the second instance of claim 77, leaving only one claim numbered "77." The content of the now-canceled second instance of claim 77 is being added as new claim 115. Applicants respectfully submit that Group II also includes new claim 115, which depends directly from claim 53.

Applicants elect independent claim 53 and all claims depending from claim 53, namely, claims 53-115, without traverse, for further prosecution. Claims 1-52 are being withdrawn.

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CONCLUSION

Applicants elect independent claim 53 and all claims depending from claim 53, namely, claims 53-115, without traverse, for further prosecution. Claims 1-52 are being withdrawn.

If the Examiner has any questions or needs any additional information, the Examiner is invited to contact the undersigned. The Commissioner is authorized to charge any fee deficiency or credit any overpayment to Deposit Account 50-5876.

Respectfully submitted,

Date: September 27, 2012 By: _____

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CERTIFICATE OF ELECTRONIC TRANSMISSION

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Google Exhibit 1006, Page 546 of 901

Electronic Acknowledgement Receipt	
EFS ID:	13860719
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	Krista Susan Jacobsen/Ann Taylor
Filer Authorized By:	Krista Susan Jacobsen
Attorney Docket Number:	RALEP032 [26WV-160509]
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Filing Date:	25-MAY-2011
Time Stamp:	22:17:37
Application Type:	Utility under 35 USC 111(a)

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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	P032Trans.pdf	322759 fa0b1fda163020788998ea533b4898563bad7978	no	1
Warnings:					
Information:					

2		P032Resp.pdf	5590441 30742b747f4b5de7f2407f1f4c3b3316ba997348	yes	24

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Response to Election / Restriction Filed	1	1
Claims	2	22
Applicant Arguments/Remarks Made in an Amendment	23	24

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PTO/SB/21 (07-09)
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(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	25

Application Number	13/134,028
Filing Date	May 25, 2011
First Named Inventor	Gregory G. Raleigh
Art Unit	3687 Conf. No.: 3250
Examiner Name	Andrew J. Rudy
Attorney Docket Number	RALEP032

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
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- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
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- ☐ Petition to Convert to a Provisional Application
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- ☐ Terminal Disclaimer
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- ☐ Proprietary Information
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- ☑ Other Enclosure(s) (please Identify below):
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Remarks

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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

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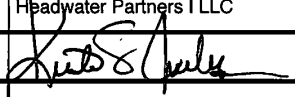
Signature			
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Date	September 27, 2012	Reg. No.	59374

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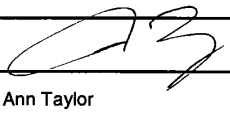
Signature			
Typed or printed name	Ann Taylor	Date	September 27, 2012

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
13/134,028	05/25/2011	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ 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 $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $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).						
☐ 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

AMENDMENT	09/27/2012	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 114	Minus	** 115	= 0	X $30 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 14	Minus	***14	= 0	X $125 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

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Legal Instrument Examiner:
/WANDA MITCHELL/

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

Application Number	13134028
Filing Date	2011-05-25
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP032

U.S.PATENTS

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	6502131		2002-12-31	Vaid, Aseem et al.	
	2	6505114		2003-01-07	Luciani, Sergio	
	3	6763000		2004-07-13	Walsh, Peter J.	
	4	6967958		2005-11-22	Ono, Yoshiyuki et al.	
	5	7644267		2010-01-05	Ylikoski, Martti et al.	
	6	7710932		2010-05-04	Muthuswamy, Sivakumar et al.	
	7	7881199		2011-02-01	Krstulich, Zlatko	
	8	7886047		2011-02-08	Potluri, Dora	

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	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

	9	7911975		2011-03-22	Droz, Patrick et al.	
	10	8050275		2011-11-01	Iyer, Jayaraman R.	
	11	8194553		2012-06-05	Liang, Zhi Yong et al.	
	12	8239520		2012-08-07	Grah, Adrian et al.	
	13	7890084		2011-02-15	Dudziak, Thaddeus Jude et al.	
	14	7890111		2011-02-15	Bugenhagen, Michael K.|	
	15	6226277		2001-05-01	Chuah, Mooi Choo	
	16	6839340		2005-01-04	Voit, Eric A. et al.	
	17	6922562		2005-07-26	Ward, Stephen L. et al.	
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	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

	20	7792538		2010-09-07	Kozisek, Steven E.	
	21	7801523		2010-09-21	Kenderov, Stoyan	
	22	7877090		2011-01-25	Maes, Stephane H.	
	23	7912025		2011-03-22	Pattenden, Christopher E. S. et al.	
	24	7948968		2011-05-24	Voit, Eric A. et al.	
	25	7970426		2011-06-28	Poe, Brian R. et al.	
	26	8185158		2012-05-22	Tamura, Motoshi et al.	
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	28	7418257		2008-08-26	Kim, Myong-Ju	
	29	8126123		2012-02-28	Cai, Yigang et al.	
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	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

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	32	8238287		2012-08-07	Gopi, Paramesh et al.	
	33	7113997		2006-09-26	Jayapalan, Jay et al.	
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	35	8244241		2012-08-14	Montemurro, Michael	
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	38	6678516		2004-01-13	Nordman, Ian et al.	
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	40	6038452		2000-03-14	Strawczynski, Leo et al.	
	41	8160015		2012-04-17	Rashid, Mohammed H. et al.	

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	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

	42	8108520		2012-01-31	Ruutu, Jussi et al.	
	43	7778643		2010-08-17	Laroia, Rajiv et al.	
	44	7668176		2010-02-23	Chuah, Mooi Choo	
	45	7515608		2009-04-07	Yuan, Yuan et al.	
	46	7251218		2007-07-31	Jorgensen, Jacob W.	
	47	7002920		2006-02-21	Ayyagari, Deepak et al.	
	48	7685131		2010-03-23	Batra, Vishal Singh et al.	
	49	7283561		2007-10-16	Picher-Dempsey, Heidi	
	50	7212491		2007-05-01	Koga, Takahiro	
	51	6683853		2004-01-27	Kannas, Chris et al.	
	52	8135392		2012-03-13	Marcellino, Chris et al.	

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	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

	53	7953808		2011-05-31	Sharp, Christopher Brooke et al.	
	54	8064896		2011-11-22	Bell, Kris M. et al.	
	55	8275830		2012-09-25	Raleigh, Gregory G.	

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20100144310		2010-06-10	Bedingfield Sr., James Carlton, et al.	
	2	20080132201		2008-06-05	Karlberg, Johan	
	3	20080081606		2008-04-03	Cole, Terry L.	
	4	20090248883		2009-10-01	Suryanarayana, Lalitha et al.	

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	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

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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).

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☒ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

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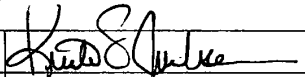
Signature		Date (YYYY-MM-DD)	2012-10-09
Name/Print	Krista S. Jacobsen	Registration Number	59374

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Electronic Patent Application Fee Transmittal	
Application Number:	13134028
Filing Date:	25-May-2011
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP032 [26WV-160509]
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($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt	
EFS ID:	13946770
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	Krista Susan Jacobsen/Ann Taylor
Filer Authorized By:	Krista Susan Jacobsen
Attorney Docket Number:	RALEP032 [26WV-160509]
Receipt Date:	10-OCT-2012
Filing Date:	25-MAY-2011
Time Stamp:	01:15:34
Application Type:	Utility under 35 USC 111(a)

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1	Transmittal Letter	P032TRANS.pdf	320849 b18ac0dbfe9373bfb6eabd5ab1dbe881d22a5ef6	no	1
Warnings:					
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2	Information Disclosure Statement (IDS) Form (SB08)	P032IDS.pdf	1609336 03cec50170097a12139d87b52978090b59e5d409	no	8
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3	Fee Worksheet (SB06)	fee-info.pdf	30567 485644680ced2085e2cb493ae8aaaf13d3158c7e	no	2
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TRANSMITTAL FORM

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Total Number of Pages in This Submission	10

Application Number	13/134028
Filing Date	May 25, 2011
First Named Inventor	Gregory G. Raleigh
Art Unit	3687 Conf. 3250
Examiner Name	Andrew J. Rudy
Attorney Docket Number	RALEP032

ENCLOSURES *(Check all that apply)*

- [x] Fee Transmittal Form
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- [ ] Amendment/Reply
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  - [ ] Affidavits/declaration(s)
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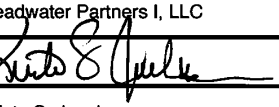
Signature			
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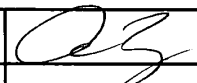
Signature			
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	13134028
Filing Date	2011-05-25
First Named Inventor	RALEIGH, Gregory G.
Art Unit	2447
Examiner Name	Not Yet Assigned
Attorney Docket Number	26WV-160509 [RALEP032]

U.S.PATENTS						
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	7747240		2010-06-29	BRISCOE et al	
	2	6952428		2005-10-04	NECKA et al	
	3	6684244		2004-01-27	GOLDMAN et al	
	4	5577100		1996-11-19	McGREGOR et al	
	5	6198915		2001-03-06	McGREGOR et al	
	6	6650887		2003-11-18	McGREGOR et al	
	7	7245901		2007-07-17	McGREGOR et al	
	8	7373136		2008-05-13	WATLER et al	

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	26WV-160509 [RALEP032]

	9	6725031		2004-04-20	WATLER et al	
	10	6532579		2003-03-11	SATO et al	
	11	6651101		2003-11-18	GAI et al	
	12	7290283		2007-10-30	COPELAND III, John A.	
	13	7401338		2008-07-15	BOWEN et al	
	14	7197321		2007-03-27	ERSKINE et al	
	15	7516219		2009-04-07	MOGHADDAM et al	
	16	7647047		2010-01-12	MOGHADDAM et al	
	17	7929960		2011-04-19	MARTIN et al	
	18	7937069		2011-05-03	RASSAM, Frederic	
	19	6563806		2003-05-13	YANO et al	

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	Examiner Name	Not Yet Assigned
	Attorney Docket Number	26WV-160509 [RALEP032]

	20	6532235		2003-03-11	BENSON et al	
	21	7280816		2007-10-09	FRATTI et al	

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20030088671		2003-05-08	KLINKER et al	
	2	20070248100		2007-10-25	ZUBERI et al	
	3	20080130534		2005-06-28	TOMIOKA, Tazuko	
	4	20060236095		2006-10-19	SMITH et al	
	5	20090054030		2009-02-26	GOLDS	
	6	20100043068		2010-02-18	VARADHAN et al	
	7	20100071053		2010-03-18	ANSARI et al	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	26WV-160509 [RALEP032]

	8	20030005112		2003-01-03	KRAUTKREMER	
	9	20060045245		2006-03-02	AARON et al	
	10	20070076616		2007-04-05	NGO et al	
	11	20060190314		2006-08-24	HERNANDEZ	
	12	20090271514		2009-10-29	THOMAS et al	
	13	20050055291		2005-03-10	BEVENTE et al	
	14	20060019632		2006-01-26	CUNNINGHAM et al	
	15	20050238046		2005-10-27	HASSAN et al	
	16	20020022472		2002-02-21	WATLER et al	
	17	20090125619		2009-05-14	ANTANI, Snehal S.	
	18	20080212470		2008-09-04	CASTANEDA et al	

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	26WV-160509 [RALEP032]

	19	20080183812		2008-07-31	PAUL, et al	
	20	20060178918		2006-08-10	MIKURAK	
	21	20040103193		2004-05-27	PANDYA et al	
	22	20050183143		2005-08-18	ANDERHOLM et al	
	23	20070294395		2007-12-20	STRUB et al	
	24	20090287921		2009-11-19	ZHU et al	
	25	20060085543		2006-04-01	HRASTAR et al	
	26	20080059474		2008-03-01	LIM, Keng	
	27	20080066149		2008-03-01	LIM, Keng	
	28	20080066150		2008-03-01	LIM, Keng	
	29	20080167033		2008-07-10	BECKERS, Michel	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
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	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	26WV-160509 [RALEP032]

	30	20070298764		2007-12-27	CLAYTON	

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	WO1999/065185	WO		1999-12-16	British Telecommunications Public Limited Company		☐
	2	WO2007/018363	WO		2006-08-02	Upresto, Inc.		☐

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS

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]
	1	Author Unknown, "Data Roaming Tariffs - Transparency Measures." EUROPA - Europe's Information Society Thematic Portal website, date unknown.	☐

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/Andrew Joseph Rudy/	Date Considered	12/17/2012

*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.

[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.

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99**)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

U.S.PATENTS						
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	7609700		2009-10-27	Ying, Wen-Ping et al.	
	2	8255515		2012-08-28	Melman, David et al.	
	3	7945240		2011-05-17	Klock, Jacqueline et al.	
	4	7912056		2011-03-22	Brassem, Wayne	
	5	7920529		2011-04-05	Mahler, Roger et al.	
	6	8184530		2012-05-22	Swan, Tim L. et al.	
	7	8213363		2012-07-03	Ying, Wen-Ping et al.	
	8	8214536		2012-07-03	Zhao, Wen	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

	9	8255689		2012-08-28	Kim, Eun Ah et al.	
	10	7746854		2010-06-29	Ambe, Shekhar et al.	
	11	7068600		2006-06-27	Cain, Joseph Bibb	
	12	6876653		2005-04-05	Ambe, Shekhar et al.	
	13	6631122		2003-10-07	Arunachalam, Vaidhyanathan et al.	
	14	7599288		2009-10-06	Cole, Raymond E. et al.	
	15	7546629		2009-06-09	Albert, Anthony et al.	
	16	7747730		2010-06-29	Harlow, James D.	
	17	7609650		2009-10-27	Roskowski, Steve et al.	
	18	6581092		2003-06-17	Motoyama, Tetsuro et al.	
	19	7283963		2007-10-16	Fitzpatrick, John E. et al.	

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	Application Number	13134028
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	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

	20	8271049		2012-09-18	Silver, Andrew et al.	
	21	7644151		2010-01-05	Jerrim, John et al.	

If you wish to add additional U.S. Patent citation information please click the Add button.

U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20080085707		2008-04-10	Fadell, Tony	
	2	20090046723		2009-02-19	Rahman, Reshad A. et al.	
	3	20080219268		2008-09-11	Dennison, Larry R.	
	4	20080005285		2008-01-03	Robinson, James David et al.	
	5	20090315735		2009-12-24	Bhavani, Neeraj S. et al.	
	6	20090219170		2009-09-03	Clark, Ryan C. et al.	
	7	20090067372		2009-03-12	Shah, Keyur C. et al.	

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	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

	8	20080262798		2008-10-23	KIM, Eun Ah et al.	
	9	20100103820		2010-04-29	FULLER, Randy et al.	
	10	20100153781		2010-06-17	HANNA, Stephen R.	
	11	20120029718		2012-02-02	DAVIS, Edward L.	
	12	20110241624		2011-10-06	PARK, Jun-seok et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							☐

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NON-PATENT LITERATURE DOCUMENTS

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]
	1		☐

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

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.

[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.

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	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

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).

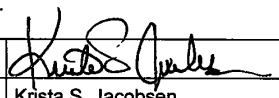
☐ See attached certification statement.

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

☐ None

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		Date (YYYY-MM-DD)	2012-12-04
Name/Print	Krista S. Jacobsen	Registration Number	59374

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.**

Electronic Acknowledgement Receipt

EFS ID:	14384324
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	Krista Susan Jacobsen/Ann Taylor
Filer Authorized By:	Krista Susan Jacobsen
Attorney Docket Number:	RALEP032 [26WV-160509]
Receipt Date:	04-DEC-2012
Filing Date:	25-MAY-2011
Time Stamp:	21:03:41
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	Information Disclosure Statement (IDS) Form (SB08)	P032IDS.pdf	1132907 c2dc156d53ad6f20ae7e2b03f7f85758ec50f698	no	6

Warnings:	
Information:	

This is not an USPTO supplied IDS fillable form	
Total Files Size (in bytes):	1132907

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/134,028	05/25/2011	Gregory G. Raleigh	RALEP032 [26WV-160509]

CONFIRMATION NO. 3250

107265
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

PUBLICATION NOTICE

Title: Device-assisted services for protecting network capacity

Publication No.US-2012-0324091-A9
Publication Date:12/20/2012

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/134,028	05/25/2011	Gregory G. Raleigh	RALEP032 [26WV-160509]	3250

107265 7590 12/26/2012

Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

EXAMINER	
RUDY, ANDREW J	

ART UNIT	PAPER NUMBER
3687	

NOTIFICATION DATE	DELIVERY MODE
12/26/2012	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):

patent@headwaterllc.com

Office Action Summary	Application No.	Applicant(s)	
	13/134,028	RALEIGH ET AL.	
	Examiner	Art Unit	
	ANDREW JOSEPH RUDY	3687	

-- 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 *27 September 2012*.

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

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

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-76 and 78-115* is/are pending in the application.

5a) Of the above claim(s) *1-52* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *53-76 and 78-115* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

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

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

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

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) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant cancelled claim 77 and added claim 115. Thus, claims 1-76 and 78-115 are pending. Claims 1-52 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made without traverse in the reply filed on September 27, 2012.

Claim Rejections - 35 USC § 112

2. The following is a quotation of 35 U.S.C. 112(b):

(B) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 54, 55, 72, 73, 82, 90, 93-100, 102-106, 108-110, 112, 113 and 114 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Applicant's numerous acronyms need to be clarified, e.g. claim 54, line 3, "QoS," claim 93 "app."

Claim Rejections - 35 USC § 103

4. 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 negatived by the manner in which the invention was made.

5. Claims 53-76 and 78-115, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Chambliss et al., US 7,228,354.

Chambliss discloses in Figs. 1-13 and related text, service class usage, e.g. 324, and classification rules, e.g. 322. Official Notice is taken that the various classification rules articulated by the various claims, e.g. claim 54, appear to have been common knowledge in the art. To have provided such classification rules in place of the classification rules of Chambliss would have been obvious to one of ordinary skill in the art.

6. Further pertinent references of interest are noted on the attached PTO-892.

7. Applicant's Information Disclosure Statements (IDS's) have been reviewed. Note the attached IDS's.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW JOSEPH RUDY whose telephone number is (571)272-6789. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Gart can be reached on 571-272-3955. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/ANDREW JOSEPH RUDY/
Primary Examiner, Art Unit 3687

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	Examiner ANDREW JOSEPH RUDY	Art Unit 3687	Page 1 of 1

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

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

Application Number	13134028
Filing Date	2011-05-25
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP032

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	Attorney Docket Number	RALEP032

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EXAMINER SIGNATURE			
Examiner Signature	/Andrew Joseph Rudy/	Date Considered	12/17/2012

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[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.

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	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
Sheet 1 of 4	Atty Docket No.	26WV-160509 [RALEP032]

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	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
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Sheet 4 of 4	Atty Docket No.	26WV-160509 [RALEP032]

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Examiner /Andrew Joseph Rudy/ Date Considered 12/17/2012

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Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*	Application No.:	13134028
	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
Sheet 1 of 1	Atty Docket No.	26WV-160509 [RALEP032]

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Examiner Initials	CiteNo.	Document Number Number-Kind Code [1]	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

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	Attorney Docket Number	26WV-160509 [RALEP032]

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Gregory G. Raleigh
	Art Unit	2447
	Examiner Name	Joon H. Hwang
	Attorney Docket Number	26WV-160509 [RALEP032]

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2011-05-25
	First Named Inventor	Gregory G. Raleigh
	Art Unit	2447
	Examiner Name	Joon H. Hwang
	Attorney Docket Number	26WV-160509 [RALEP032]

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2010088413	WO		2010-08-05	Headwater Partners I LLC		☐

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 4

Complete if Known	
Application Number	13/134,028
Filing Date	May 25, 2011
First Named Inventor	Gregory G. Raleigh, et al.
Art Unit	2447
Examiner Name	Joon H. Hwang
Attorney Docket Number	26WV-160509 [RALEP032]

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Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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Sheet 2 of 4

Complete if Known	
Application Number	13/134,028
Filing Date	May 25, 2011
First Named Inventor	Gregory G. Raleigh, et al.
Art Unit	2447
Examiner Name	Joon H. Hwang
Attorney Docket Number	26WV-160509 [RALEP032]

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Sheet 3 of 4

Complete if Known	
Application Number	13/134,028
Filing Date	May 25, 2011
First Named Inventor	Gregory G. Raleigh, et al.
Art Unit	2447
Examiner Name	Joon H. Hwang
Attorney Docket Number	26WV-160509 [RALEP032]

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Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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Sheet 4 of 4

Complete if Known	
Application Number	13/134,028
Filing Date	May 25, 2011
First Named Inventor	Gregory G. Raleigh, et al.
Art Unit	2447
Examiner Name	Joon H. Hwang
Attorney Docket Number	26WV-160509 [RALEP032]

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		International Search Report and Written Opinion mailed October 17, 2011 from International Serial Number PCT/US2011/000937 filed May 25, 2011.	

Examiner Signature	/Andrew Joseph Rudy/	Date Considered	12/17/2012

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Search Notes

Application/Control No.	Applicant(s)/Patent under Reexamination	
13/134,028	RALEIGH ET AL.	
Examiner	**Art Unit**	
ANDREW JOSEPH RUDY	3687	

SEARCHED			
Class	Subclass	Date	Examiner
705	34	12/15/2012	AJR
709	223	12/15/2012	AJR
455	414.1	12/15/2012	AJR
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INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Continuity data reviewed.	12/15/2012	AJR
Inventor name search conducted.	12/15/2012	AJR
Bibliographic data reviewed.	12/15/2012	AJR

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

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First Named Inventor	RALEIGH, Gregory G.
Art Unit	2447
Examiner Name	Not Yet Assigned
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U.S.PATENTS

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	Art Unit	2447
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	26WV-160509 [RALEP032]

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	Art Unit	2447
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	26WV-160509 [RALEP032]

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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	Attorney Docket Number	26WV-160509 [RALEP032]

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	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	26WV-160509 [RALEP032]

	19	20080183812		2008-07-31	PAUL, et al	
	20	20060178918		2006-08-10	MIKURAK	
	21	20040103193		2004-05-27	PANDYA et al	
	22	20050183143		2005-08-18	ANDERHOLM et al	
	23	20070294395		2007-12-20	STRUB et al	
	24	20090287921		2009-11-19	ZHU et al	
	25	20060085543		2006-04-01	HRASTAR et al	
	26	20080059474		2008-03-01	LIM, Keng	
	27	20080066149		2008-03-01	LIM, Keng	
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	29	20080167033		2008-07-10	BECKERS, Michel	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	26WV-160509 [RALEP032]

	30	20070298764		2007-12-27	CLAYTON	

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FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	WO1999/065185	WO		1999-12-16	British Telecommunications Public Limited Company		☐
	2	WO2007/018363	WO		2006-08-02	Upresto, Inc.		☐

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS

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]
	1	Author Unknown, "Data Roaming Tariffs - Transparency Measures." EUROPA - Europe's Information Society Thematic Portal website, date unknown.	☐

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EXAMINER SIGNATURE

Examiner Signature	/Andrew Joseph Rudy/	Date Considered	12/17/2012

*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.

[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.

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PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	13134028
Filing Date	2011-05-25
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP032

U.S.PATENTS

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	7167078		2007-01-23	Pourchot, Shawn C.	
	2	8102814		2012-01-24	Rahman, Shahriar I. et al.	
	3	7970350		2011-06-28	Sheynman, Arnold et al.	
	4	8094551		2012-01-10	Huber, Kurt Donald et al.	
	5	8208919		2012-06-26	Kotecha, Lalit Ratilal	
	6	8185152		2012-05-22	Goldner, Alla	
	7	7844728		2010-11-30	Anderson, Thomas W. et al.	
	8	7873344		2011-01-18	Bowser, Robert et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

	9	7856226		2010-12-21	Wong, Ellis L. et al.	
	10	7948952		2011-05-24	Hurtta, Tuija et al.	
	11	7957020		2011-06-07	Mine, Ryuta et al.	
	12	7346410		2008-03-18	Uchiyama, Kenji	

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20090307746		2009-12-10	DI, Jinwen et al.	
	2	20050009499		2005-01-13	Koster, Karl	
	3	20100041364		2010-02-18	Lott, Robert Wayne et al.	
	4	20100027469		2010-02-04	Gurajala, Ravindra Babu et al.	
	5	20010053694		2001-12-20	Igarashi, Yoichiro et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
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	1							☐

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NON-PATENT LITERATURE DOCUMENTS

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]
	1		☐

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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[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.

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	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

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).

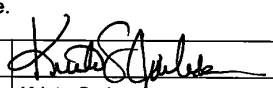
☐ See attached certification statement.

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

☐ None

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		Date (YYYY-MM-DD)	2013-01-22
Name/Print	Krista S. Jacobsen	Registration Number	59374

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.**

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Electronic Acknowledgement Receipt

EFS ID:	14764146
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	Krista Susan Jacobsen/Ann Taylor
Filer Authorized By:	Krista Susan Jacobsen
Attorney Docket Number:	RALEP032 [26WV-160509]
Receipt Date:	22-JAN-2013
Filing Date:	25-MAY-2011
Time Stamp:	21:37:04
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	Information Disclosure Statement (IDS) Form (SB08)	P032IDS.pdf	887715 b9100b5dab80842a568c0d0a40489434f3824226	no	4

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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.

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99**)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

U.S.PATENTS						
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	8135388		2012-03-13	Gailloux, Michael A. et al.	
	2	6947723		2005-09-20	Gurnani, Roger et al.	
	3	8350700		2013-01-08	Fast, Raymond D. et al.	
	4	8204190		2012-06-19	Bang, Jung-Hee et al.	
	5	7962622		2011-06-14	Friend, John et al.	
	6	7583964		2009-09-01	Wong, Gregory A.	
	7	7565141		2009-07-21	Macaluso, Anthony G.	
	8	7373179		2008-05-13	Stine, Ted et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

	9	7236780		2007-06-26	Benco, David S. et al.	
	10	7039403		2006-05-02	Wong, Gregory A.	
	11	7865182		2011-01-04	Macaluso, Anthony G.	
	12	8370477		2013-02-05	Short, Joel E. et al.	
	13	8364806		2013-01-29	Short, Joel E. et al.	
	14	8279067		2012-10-02	Berger, Thomas R. et al.	
	15	8213296		2012-07-03	Shannon, Frank M. et al.	
	16	8019868		2011-09-13	Rao, Goutham et al.	
	17	8005988		2011-08-23	Maes, Stephane H.	
	18	7978627		2011-07-12	Taylor, William Scott et al.	
	19	7711848		2010-05-04	Maes, Stephane H.	

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	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

	20	6782412		2004-08-24	Brophy, Kevin et al.	
	21	6081591		2000-06-27	Skoog, Frederick H.	
	22	6064878		2000-05-16	Denker, John Stewart et al.	
	23	7730123		2010-06-01	Erickson, Richard R. et al.	
	24	8024397		2011-09-20	Erickson, Richard R. et al.	
	25	8156206		2012-04-10	Kiley, Kevin J. et al.	
	26	8126722		2012-02-28	Robb, Terence Alan et al.	
	27	8315594		2012-11-20	MAUSER, Edward Ronald et al.	
	28	8353001		2013-01-08	HERROD, Allan	
	29	8195093		2013-06-05	GARRETT, Darrin et al.	
	30	8036600		2011-10-11	GARRETT, Darrin et al.	

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	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

	31	8364089		2013-01-29	PHILLIPS, Derek	
	32	8335161		2012-12-18	FOOTTIT, Tom et al.	
	33	8301513		2012-10-30	PENG, Shih-Ta et al.	
	34	8230061		2012-07-24	HASSAN, Amer A. et al.	
	35	8204794		2012-06-19	PENG, Shih-Ta et al.	

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20090299857		2009-12-03	Brubaker, Curtis M.	

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FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
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	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

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.	T5
	1		☐

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Examiner Signature		Date Considered	

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	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

CERTIFICATION STATEMENT

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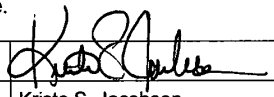
☐ See attached certification statement.

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

☐ None

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		Date (YYYY-MM-DD)	2013-03-21
Name/Print	Krista S. Jacobsen	Registration Number	59374

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Electronic Acknowledgement Receipt	
EFS ID:	15332413
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	Krista Susan Jacobsen/Ann Taylor
Filer Authorized By:	Krista Susan Jacobsen
Attorney Docket Number:	RALEP032 [26WV-160509]
Receipt Date:	22-MAR-2013
Filing Date:	25-MAY-2011
Time Stamp:	14:39:38
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	Information Disclosure Statement (IDS) Form (SB08)	P032IDS.pdf	1170397 00acb1aebc4570960828fdd55bf45c8643970b7c	no	6

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PTO/SB/08a (01-10)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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(Not for submission under 37 CFR 1.99)

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Filing Date	2011-05-25
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP032

U.S.PATENTS

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	6754470		2004-06-22	Hendrickson, Keith et al.	
	2	8122128		2012-02-21	Burke, II, Robert M. et al.	
	3	8149823		2012-04-03	Turcan, Diane Brown et al.	
	4	8131256		2012-03-06	Martti, Jyrki et al.	
	5	6381316		2002-04-30	Joyce, Simon James et al.	
	6	7965983		2011-06-21	Swan, Tim et al.	
	7	8284740		2012-10-09	O'Connor, Dennis M.	
	8	8116223		2012-02-14	Tian, Dan et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

	9	6154738		2000-11-28	Call, Charles Gainor	
	10	8423016		2013-04-16	Buckley, Adrian et al.	
	11	8306518		2012-11-06	Gailloux, Michael A.	
	12	8422988		2013-04-16	Keshav, Srinivasan	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

	20	8374090		2013-02-12	Morrill, Robert J. et al.	

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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	2	20080235511		2008-09-25	O'Brien, William G. et al.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

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If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
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NON-PATENT LITERATURE DOCUMENTS

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]
	1		☐

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
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	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

[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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

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).

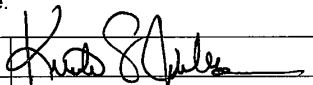
☐ See attached certification statement.

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

☐ None

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		Date (YYYY-MM-DD)	2013-05-23
Name/Print	Krista S. Jacobsen	Registration Number	59374

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.**

Electronic Acknowledgement Receipt

EFS ID:	15860987
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	Krista Susan Jacobsen/Ann Taylor
Filer Authorized By:	Krista Susan Jacobsen
Attorney Docket Number:	RALEP032 [26WV-160509]
Receipt Date:	23-MAY-2013
Filing Date:	25-MAY-2011
Time Stamp:	21:55:00
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	Information Disclosure Statement (IDS) Form (SB08)	P032.pdf	1118433 f8036036398f4380d8397cf837c3d7fe41ff6f2f	no	6

Warnings:	
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2	Foreign Reference	WO2006120558A1Nokia.pdf	829615 8b7d3998166eaadb50492ebf5e693219d9e238ca	no	34
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			Total Files Size (in bytes):	1948048	

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Raleigh et al.	Examiner:	RUDY, Andrew J.
Serial No.:	13/134,028	Art Unit:	3687
Filed:	May 25, 2011	Conf. No.:	3250
Title:	Device-Assisted Services for Protecting Network Capacity		

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

AMENDMENT AND RESPONSE

Madam:

In response to the non-final rejection dated December 26, 2012, the deadline for response being June 26, 2013, with the enclosed request for a three-month extension of time, Applicants respond as follows:

Amendments to the Specification begin on page 2.

Amendments to the Claims begin on page 14.

Remarks begin on page 45.

AMENDMENTS TO THE SPECIFICATION

In the Written Description:

Please replace **paragraph [0052]** with the following re-written paragraph:

-- **[0052]** Smart phone**s** and similar devices are exacerbating the problem by making frequent queries of the wireless network as such devices move among cell sites to**,** while in transit, for example, push email, access social networking tools, and/or conduct other repetitive actions. While data traffic is also growing, signaling traffic is outpacing actual mobile data traffic by 30 percent to 50 percent by some estimates. For example, a Yahoo IM user may send a message but then wait a couple of seconds between messages. To preserve battery life, the smart phone typically moves into an idle mode. When the user pushes another message seconds later, the device has to set up a signaling path again, and even when the signaling resource is released by the smart phone, the network typically does not react fast enough to allow for the next station to use resources until several seconds and sometimes minutes. As a result, the base station controller in this example is spending a lot of its resources trying to process the signaling so it cannot perform other tasks, such as allocate additional resources for data network usage, and such inefficiencies exacerbate**[[s]]** the data network capacity crunch and dropped calls on such wireless networks. --

Please replace **paragraph [0075]** with the following re-written paragraph:

-- **[0075]** In some embodiments, each of the links described above **has~~have~~** the ability to provide QoS services for that segment of an overall QoS channel. In some embodiments, the device traffic path link and/or the device to access network equipment element link are QoS enabled, but the carrier core network and/or IPX network links are not QoS enabled. In some embodiments, the core network and/or IPX network have sufficient over-provisioning of bandwidth that QoS is not limited by these network elements and, for example, can be limited by the device traffic link and/or the device to access network equipment element link do not have sufficient excess bandwidth making it desirable to QoS enable these QoS channel links. A common example is a 2G/3G/4G wireless network in which a device traffic path link and the device to access network element link (e.g., Radio Access Bearer (RAB)) are

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QoS enabled while the carrier core network and IPX network links are not (e.g., are provided at a best effort service level or other service levels). --

Please replace **paragraph [0082]** with the following re-written paragraph:

-- **[0082]** In some embodiments, before a QoS channel or link is provisioned (or before a QoS request is responded to or filled), a QoS availability assessment is performed to determine whether sufficient communication channel resources are available to provision the necessary level of QoS for the QoS channel or link. In some embodiments, this QoS availability assessment is determined by assessing the available QoS capacity for one or more necessary QoS links in the channel. For example, the available QoS link capacity can be assessed for one or more of a device traffic path, a device to access network equipment element link, a core network link, and/or an IPX network link. If the QoS assessment shows that the necessary channel capacity and quality **[[is]]**<u>**are**</u> available for the desired QoS level for one or more desired QoS service activities, then a QoS channel request or QoS service request can be granted. In some embodiments, a QoS link or QoS channel reservation process is provided to reserve QoS capacity and quality in advance of link or channel provisioning to ensure that the available QoS resources are not assigned between the time of QoS availability assessment and QoS channel provisioning. --

Please replace **paragraph [0085]** with the following re-written paragraph:

-- **[0085]** In some embodiments, device assisted service traffic control and QoS apply readily and directly to the problems of managing a QoS device link for QoS channel provisioning. Accordingly, in some embodiments, a service <u>**processor**</u>~~**provider**~~ is provided to assist in provisioning the device portion of the QoS channel. In some embodiments, the service processor provisions the device link portion of the QoS channel by placing a higher priority on higher QoS level traffic. In some embodiments, this QoS priority is implemented in a number of ways, including routing the higher priority QoS traffic into first priority in the downstream and/or upstream traffic queues. Upstream traffic queuing is performed directly in some embodiments by transmitting guaranteed bit rate traffic first at higher available throttling rates, differentiated QoS traffic second with a controlled throttling rate, best effort traffic third with possibly lower controlled throttled rates, and/or background traffic fourth when/if bandwidth not

needed by the higher levels of QoS traffic and at lower controlled throttling rates. For example, downstream traffic can be handled by queuing traffic and delaying or preventing TCP acknowledgements to be returned for the lower levels of QoS priority, while immediately passing the traffic and TCP acknowledgements for higher levels of QoS priority. The device link portion of the QoS channel is thus provisioned by assigning policies for the queuing priority, delay, throttle rate, and TCP acknowledgement return rate for device traffic in accordance with the bandwidth that is available at any point in time for the device. In some embodiments, various device service processor traffic control capabilities regulate or partially regulate QoS in accordance with a set of network policy instructions, including, in some embodiments, a service plan policy set. --

Please replace **paragraph [0094]** with the following re-written paragraph:

-- **[0094]** In some embodiments, the mapping of QoS service activity to the desired level of QoS class or QoS traffic control policies is determined by providing a QoS API in the device service processor that applications use to request a QoS class or QoS channel connection. In some embodiments, an API is provided so that application developers can create application software that uses the standard interface commands to request and set up QoS channels. In some embodiments, the API does one or more of the following: accepts QoS requests from an application, formats the QoS channel request into a protocol appropriate for transmission to network equipment responsible for assessing QoS channel availability (e.g., including possibly the device traffic control system), coordinates with other network elements (e.g., including possibly the device traffic control system) to reserve a QoS channel, coordinates with other network elements (e.g., including possibly the device traffic control system) to provision a QoS channel, informs the application that the desired QoS channel can be created or not, and/or coordinates with other network elements (e.g., including possibly the device traffic control system) to connect the application with the desired QoS channel class. In some embodiments, the QoS API accepts the application QoS request and communicates and possibly coordinates with one or more QoS network equipment elements, such as a base station, cable head end or access point. In some embodiments, the QoS API accepts the QoS request from the application and communicates and possibly coordinates with an intermediate network element, such as a service processor (e.g., or other similar function as described herein). In some embodiments the

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QoS API assesses the QoS service plan standing for the device or user before sending QoS channel requests to other network elements, and only initiates the QoS request sequence if required service plan authorization is in place. In this manner, the potentially complex process of establishing a QoS channel with all the specific equipment communication protocols that typically need to be supported to assess QoS channel availability and provision the QoS channel are simplified into a limited set of API commands that are easy for an application development community to learn about and use for QoS differentiated services and applications. --

Please replace **paragraph [0132]** with the following re-written paragraph:

-- **[00132]** In some embodiments, QoS for DAS provides for device assisted monitoring, information, and/or functionality to facilitate QoS without and/or to assist network based monitoring, information, and/or functionality (e.g., Deep Packet Inspection (DPI) and/or provides such monitoring, information, and/or functionality that may not be available via network based monitoring, information, and/or functionality (e.g., encrypted activities on the device may not be accessible by DPI or other network based techniques). For example, QoS for DAS can assist in the QoS setup to facilitate the QoS setup and provide such information that may not otherwise be available using network based only techniques. For example, device assisted activity and/or service monitoring techniques can assist in classifying the QoS for the monitored activity and/or service using, for example, a QoS activity map (e.g., as described herein or other similar techniques). For example, using such device assisted techniques eliminates and/or minimizes DPI or other network based techniques that can give rise to privacy concerns/issues, network neutrality concerns/issues, and/or otherwise may not be able to provide similar or equivalent granular service/activity monitoring, as discussed above, and/or also off loads such processing from the network (e.g., network elements/devices/functionality) to the communications devices (e.g., at least for such communications devices that can perform such functions, based on their processing and/or memory capabilities, as would be apparent to one of ordinary skill in the art). In some embodiments, QoS for DAS includes the service provider for providing an initial authorization/clearance for a QoS request (e.g., using various techniques described herein), and the service controller determines if the QoS request should be authorized (e.g., based on various QoS authorization/clearance/approval criteria (e.g., QoS activity maps and/or QoS request rule) and/or network capacity, as described herein). In some embodiments,

QoS for DAS includes the service provider for providing a QoS request including a QoS class to the service controller, and the service controller determines if the QoS request should be authorized, as described herein. In some embodiments, DAS for protecting network capacity provides for device assisted monitoring, information, and/or functionality to facilitate protecting network capacity without and/or to assist network based monitoring, information, and/or functionality (e.g., Deep Packet Inspection (DPI) and/or provides such monitoring, information, and/or functionality that may not be available via network based monitoring, information, and/or functionality (e.g., encrypted activities on the device may not be accessible by DPI or other network based techniques). In some embodiments, DAS for protecting network capacity provides for device assisted monitoring, information, and/or functionality to facilitate protecting network capacity without solely relying upon DPI and/or without any use or any significant use of DPI wireless network, which conserves network resources and network capacity by controlling device network access behavior at the device instead of deep in the core network at a DPI gateway (e.g., DPI based techniques consume over the air wireless network capacity even if chatty device behavior is blocked at a DPI gateway**;[[,]]** in contrast, DAS for protecting network capacity techniques that do not use DPI based techniques for controlling device service usage can, for example, **provide~~providing~~** a device based usage notification and service selection UI that does not consume over the air wireless network capacity). --

Please replace **paragraph [0223]** with the following re-written paragraph:

-- **[00223]** In some cases, multiple applications, processes, functions, OS services or other service activities can utilize a common set of component software applications, processes, functions or OS services. In such cases, in order to implement background service policies and/or network protection service policies for service activity monitoring and accounting, service activity launch control, user notification, or network access control as described herein, it is necessary to associate the specific network access data or information flows to and from the common component software applications, processes or functions that belong to the specific initiating application, process, function or other service activity that is to be managed according to a background service or network protection service policy set. In what follows, a specific set of examples **[[are]]is** provided on how to map common component service activity for a set of common OS functions referred to as proxy service functions to a specific application, process,

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function, OS service or other service activity for the purpose of implementing a background service policy set or a network protection service policy set as described herein. Once these examples are reviewed, it will be obvious to one of ordinary skill in the art how to apply similar mapping of service activity for a common set of components to a service activity that is to be managed in accordance with a background service policy set or a network protection service policy set as described herein. --

Please replace **paragraph [0225]** with the following re-written paragraph:

-- **[00225]** In some embodiments, a proxy network service manager refers to an intermediary data flow function in a device operating system that sits on a data path between a device application and a device networking stack interface to provide a level of network service abstraction from the network stack interface, a higher level service function above the network stack interface, enhanced or special traffic processing functions, media service transfer management, file download service, HTTP proxy service functions, QoS differentiation, or other similar or related higher level traffic processing. Example Proxy Service Managers include the following: media service manager (e.g., android media service library function), email service manager, DNS function, software download service manager, media download manager (e.g., audio player, streaming media player, movie downloader, media service OS function, etc.), data download service manager, Android "media" library function, Android.net library function, Jave.net library function, Apache library function, other similar software/library functions or services in other device operating systems, SMTP/IMAP/POP proxy, HTTP proxy, IM proxy, VPN service manager, SSL proxy, etc. Herein these alternative network access data flows that are initiated by an application are termed application proxy service flows. In such embodiments an app can sometimes simply request**[[s]]** a network access service activity from an OS component such as a proxy service component rather **[[then]]**<u>**than**</u> directly accessing the network. In such embodiments, in order to implement background service controls or user notification of application service usage, it is necessary to monitor the application proxy service flows, classify them as being initiated by or belonging to a particular application or service activity, and implement the proper background service classifications, user notifications, application process launch intercept, background service accounting, and background service usage restrictions as described herein in accordance with the policies intended for the initiating

application or service activity. This is accomplished by inserting service usage monitors that allow a mapping of (i) the initiating application identifier (e.g., app name, app fingerprint, application identification tag, application process number, application credential, or other secure or non-secure application or process identifier) to (ii) the request to the proxy service and subsequently to (iii) the network service flows between the proxy service and the network elements that service the information communications. Once this mapping is accomplished, the service usage flows of the proxy service can then be accounted back to the initiating application, device software process or other service activity, the proper policies can then be applied to each service usage flow for user notification, service activity launch control, service activity background accounting (including variable charge rating dependent on background service state and/or sponsored service charging), service activity background service controls or network usage restrictions as described herein (including but not limited to for example: block network access, restrict network access, throttle network access, delay network access, aggregate and hold network access, select for time of day network access restrictions, select network type restrictions, select roaming network access restrictions, select service usage restrictions such as a usage limit, select service cost restrictions such as a cost limit or otherwise place on another form of background service status or network usage restriction as described herein). --

Please replace **paragraph [0227]** with the following re-written paragraph:

-- **[00227]** In some embodiments, the various design techniques described herein that allow for monitoring, accounting for and/or implementing service policy for component service activities that belong to an aggregate service activity can be designed into the OS itself. For example, in certain current mobile OS implementations (e.g., Android, iPhone, Blackberry, etc.) there are some applications available in the market that allow a user to get an estimate for how much data a certain subset of applications are consuming on a wireless service provider network, but it is not possible for the user or application to get an indication of the service usage for certain OS functions, whereas the embodiments disclosed herein will allow for this. As another example, in certain current mobile OS implementations it is not possible to associate proxy service usage (e.g., media download and media streaming proxy library software functions) with the specific applications that use the proxy service, so while the user can be informed of generic common OS functions or proxy services (e.g., in the case of Android: "media service,"[[,]]

"media,"[[,]] "gallery,"[[,]] "google service framework" and other generic common OS software library functions or proxy services), there is no way for the user to determine what applications widgets or other service activities are actually generating this common service function usage, whereas the invention described herein permits the user full visibility on such usage monitoring examples. Furthermore, if the OS is retrofitted with the intercept and policy implementation functions can be designed into the activity manager, broadcast intent manger, media service manager, service manager, or other application or service activity management function in the Android OS. One or ordinary skill in the art will recognize that similarly, the various design techniques described herein that allow for intercepting a service activity intention to launch, and applying a background service policy set or a network protection service policy set can be designed into application launch management functions in the iPhone OS, **Windows**~~**windows**~~ mobile OS, **Windows**~~**windows**~~ PC OS, Blackberry OS, Palm OS, and other OS designs. --

Please replace **paragraph [0228]** with the following re-written paragraph:

-- **[00228]** Figure 19 illustrates another flow diagram for device assisted services (DAS) for protecting network capacity in accordance with some embodiments. At 1902, the process begins. At 1904, determining a network busy state of one or more networks is performed. In some embodiments, the one or more networks are selected from an access network, a wired network, and a wireless network. At 1906, classifying a network service usage activity (e.g., a network capacity controlled service) of a device based on the network busy state determination is performed to facilitate differential network access control for protecting network capacity of the one or more networks. In some embodiments, the network busy state is based on one or more of the following: network performance, network congestion, network availability, network resource availability, network capacity, or any other network service usage measure, and one or more time windows (e.g., time based criteria). In some embodiments, protecting network capacity of the one or more networks includes protecting network capacity of a last edge segment of a wireless network (e.g., RAN, BTS, BTSC, and/or other network elements). In some embodiments, the determining and classifying are performed using device assisted/based techniques. In some embodiments, the determining and classifying are performed using network assisted/based techniques (e.g., implemented on a network element/function, such as a service controller, a DPI gateway, a BTS/BTSC, etc., or a combination of network

elements). In some embodiments, the determining and classifying are performed using a combination of device assisted/based techniques and network assisted/based techniques. At 1908, implementing differential traffic controls is performed based on the service usage activity classification for protecting network capacity ~~**is performed**~~. At 1910, the process is completed. In some embodiments, a network busy state is determined based on one or more of the following: a time of day, a network reported busy state, and/or a device (e.g., near-end and/or far-end) determined/reported network busy state. In some embodiments, a network busy state is determined using one or more of the following: a network probe, a device query, a network probe report (e.g., including a BTS and/or BTSC), a network probe analysis, a device analysis based on performance of native traffic without probe such as TCP timeout, UDP retransmissions, a multiple network test, a device monitored network congestion based on network service usage activity (e.g., application based network access performance data) performed for a network to which the device is connected and/or one or more alternative networks. In some embodiments, a network congestion state is associated with a network busy state (e.g., a network busy state setting/level). For example, a network congestion level of 40% of network usage can be associated with a network busy state setting of 4, a network congestion level of 80% of network usage can be associated with a network busy state setting of 8, and so forth. --

Please replace **paragraph [0259]** with the following re-written paragraph:

-- **[00259]** In some embodiments, a network service usage control policy (e.g., a network capacity controlled services policy) includes a traffic control policy. In some embodiments, the traffic control policy includes a traffic control setting. In some embodiments, the traffic control policy includes a traffic control/tier, and the traffic control/tier includes the traffic control setting. In some embodiments, the traffic control policy includes one or more of the following: block/allow settings, throttle settings, adaptive throttle settings, QoS class settings including packet error rate, jitter and delay settings, queue settings, and tag settings (e.g., for packet tagging certain traffic flows). In some embodiments, QoS class settings**[[,]]** include one or more of the following: throttle level, priority queuing relative to other device traffic, time window parameters, and hold or delay while accumulating or aggregating traffic into a larger stream/burst/packet/group of packets. In some embodiments, the traffic control policy includes filters implemented as indexes into different lists of policy settings (e.g., using cascade filtering

techniques), in which the policy filters include one or more of the following: a network, a service plan, an application, a time of day, and a network busy state. For example, a two dimensional traffic control implementation scheme can be provided using a network busy state and/or a time of day as an index into a traffic control setting (e.g., a certain application's priority level can be increased or decreased based on a network busy state and/or time of day). In some embodiments, the traffic control policy is used for selecting the network from a list of available networks, blocking or reducing access until a connection is made to an alternative network, and/or modifying or replacing a network stack interface of the device to provide for intercept or discontinuance of network socket interface messages to applications or OS functions. --

Please replace **paragraph [0264]** with the following re-written paragraph:

-- **[00264]** In some embodiments, classifying the network service usage activity further includes classifying the network service usage activity (e.g., using a usage threshold filter and/or cascading filter techniques) into one or more of a plurality of classification categories for differential network access control for protecting network capacity. In some embodiments, classifying the network service usage activity**[[,]]** further includes classifying the network service usage activity into one or more network capacity controlled services in which the network capacity controlled services include one or more of the following: applications requiring data network access, application software updates, applications requiring network information, applications requiring GPS or physical location, operating system software updates, security software updates, network based backups, email downloads, and a set of activities configured as network capacity controlled service activities based on a service profile and/or user input (e.g., and/or various other types of network service usage activities as described herein and as will now be apparent to one of ordinary skill in the art). For example, network capacity controlled services can include software updates for OS and applications, OS background network accesses, cloud synchronization services, RSS feeds **[[&]]<u>and</u>** other background information feeds, browser/application/device behavior reporting, background email downloads, content subscription service updates and downloads (e.g., music/video downloads, news feeds), text/voice/video chat clients, security updates (e.g., antimalware updates), peer to peer networking application updates, inefficient network access sequences during frequent power cycling or power save state cycling, large downloads or other high bandwidth accesses, and

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greedy application programs that constantly/repeatedly access the network with small transmissions or requests for information. In some embodiments, a network capacity controlled services list is static, adaptive, generated using a service processor, received from a network element (e.g., service controller or service cloud), received from a network element (e.g., service controller or service cloud) and based at least in part on device activity reports received from the service processor, based on criteria set by pre-testing, report of behavior characterization performed by the application developer, and/or based at least in part on user input. In some embodiments, the network capacity controlled services list includes one or more network service activity background (QoS) classes. --

Please replace **paragraph [0289]** with the following re-written paragraph:

-- **[00289]** The differential network access control engine 2410 uses the predicted service class use from the network service usage classification engine 2408 to dynamically adjust resources allocated to service classes. For example, the differential network access control engine 2410 can perform a service class availability assessment to determine whether service class capacity for service classes on a channel **[[are]]**<u>**is**</u> sufficient for predicted service usage, and either add resources if service class availability is insufficient for predicted service usage or reduce resources if service class availability is more than sufficient for predicted service usage. --

In the Abstract:

Please replace the Abstract with the following re-written abstract:

-- Disclosed is a non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to: identify a service usage activity of the wireless end-user device, the service usage activity being associated with a first software component of a plurality of software components on the wireless end-user device, the service usage activity comprising one or more prospective or successful communications over a wireless network; determine whether the service usage activity comprises a background activity; determine at least an aspect of a policy based on a user input or based on information from a network element, the policy to be applied if the service usage activity is the background activity, the policy at least for controlling the service usage activity; and if it is determined that the service usage activity is the background activity, apply the policy. --

AMENDMENTS TO THE CLAIMS

Without prejudice, and without surrender of any subject matter, please amend the claims as follows:

1-52. (Canceled)

53. (Currently amended) A ~~**method**~~**non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to**~~**comprising**~~:

identify~~**examining**~~ a ~~**particular**~~ service usage activity **of the wireless end-user device,** ~~**to determine if**~~ the ~~**particular**~~ service usage activity **being associated with a first software component of a plurality of software components on the wireless end-user device, the service usage activity comprising**~~**fits a set of**~~ one or more **prospective or successful communications over a wireless network**~~**classification rules that define the particular service usage activity as a background service usage activity**~~;

determin**e**~~**[ing]**~~ whether ~~**a condition is satisfied, the condition including a finding that**~~ the ~~**particular**~~ service usage activity **comprises**~~**is determined to be**~~ a background ~~**service usage**~~ activity; **[and]**

determine at least an aspect of a policy based on a user input or based on information from a network element, the policy to be applied if the service usage activity is the background activity, the policy at least for controlling the service usage activity; and

if it is determined that~~**when the condition is satisfied, restricting network access of**~~ the ~~**particular**~~ service usage activity **is the background activity, apply the policy**.

54-115. (Canceled)

116. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the first software component comprises at least a portion of an application component or at least a portion of an operating system component, and wherein the one or more prospective or

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successful communications over the wireless network comprise an update to the first software component.

117. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with a network access, background signaling, a cloud synchronization service, an information feed, a download, an e-mail, a chat client, a security update, a peer-to-peer networking application update, a report of a behavior associated with the wireless end-user device, or a combination of these.

118. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with a content update or a content download.

119. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with an image, music, a video, an electronic book, an e-mail attachment, a content or media subscription, a news feed, a text message, a video chat, or a combination of these.

120. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with a device application or widget, a device operating system function, a file download, streaming media, a software update, a firmware update, a website, a connection to a server, a web browser, or a synchronization service.

121. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein identify a service usage activity of the wireless end-user device comprises identify an intention to launch or start the first software component.

122. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein identify a service usage activity of the wireless end-user device comprises identify: an application identifier associated with the service usage activity or the first software component, an operating system function identifier associated with the service usage activity or the first software component, an aggregate service activity identifier, a component service activity identifier, or a combination of these.

123. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the service usage activity results from cooperation between the first software component and at least one other software component, application, process, function, activity, or service, and wherein identify a service usage activity of the wireless end-user device comprises:

identify a data flow to or from the at least one other software component, application, process, function, activity, or service; and

associate the data flow with the first software component.

124. (New) The non-transitory computer-readable storage medium recited in claim 123, wherein the first software component comprises at least a portion of an application, and wherein the at least one other software component, application, process, function, activity, or service performs a proxy function.

125. (New) The non-transitory computer-readable storage medium recited in claim 123, wherein the at least one other software component, application, process, function, activity, or service performs a proxy function.

126. (New) The non-transitory computer-readable storage medium recited in claim 123, wherein the at least one other software component, application, process, function, activity, or service comprises a media service manager, an e-mail service manager, a domain name service (DNS) function, a software download service manager, a media download manager, a data download service manager, a media library function, a simple mail transfer protocol (SMTP) proxy, an Internet message access protocol (IMAP) proxy, a post office protocol (POP) proxy, a

hypertext transfer protocol (HTTP) proxy, an instant messaging (IM) proxy, a virtual private network (VPN) service manager, or a secure socket layer (SSL) proxy.

127. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein identify a service usage activity of the wireless end-user device comprises:

monitor an application proxy service flow; and

classify the application proxy service flow as being initiated by or belonging to the first software component.

128. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein identify a service usage activity of the wireless end-user device comprises:

associate an identifier identifying the first software component with a request to a proxy service;

associate the request to the proxy service with a traffic flow, the traffic flow comprising the service usage activity; and

associate the traffic flow with the identifier.

129. (New) The non-transitory computer-readable storage medium recited in claim 128, wherein the identifier comprises a name, a fingerprint, an identification tag, a process number, or a credential.

130. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the service usage activity results from cooperation between the first software component and a proxy function, and wherein identify a service usage activity of the wireless end-user device comprises:

identify a data flow to or from the proxy function; and

associate the data flow with the first software component.

131. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein identify a service usage activity of the wireless end-user device comprises identify the service

usage activity based on a stream, a flow, a destination, a port, a packet inspection, or a combination of these.

132. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein identify a service usage activity of the wireless end-user device comprises determine an identifier associated with the first software component, a number associated with the first software component, a name associated with the first software component, or a signature associated with the first software component.

133. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the first software component comprises at least a portion of an application on the wireless end-user device.

134. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the first software component comprises an operating system component, function, or service.

135. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the first software component comprises a software function, utility, process, or tool.

136. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the first software component comprises a plurality of applications, processes, functions, activities, or services.

137. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the first software component comprises a Java archive (JAR) file, an application that uses an operating system (OS) function, an application that uses a proxy service function, or an OS process function that supports an application or OS function.

138. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the network element is communicatively coupled to the wireless end-user device over the wireless network.

139. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the policy is based on an amount of time, a time of day, a day of a week, a schedule, a network busy state, a network performance state, a network quality-of-service state, a priority of the service usage activity, or a combination of these.

140. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the policy is based on a background service class, a background service state, or a combination of these.

141. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the policy is based on at least an aspect of a service plan.

142. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the policy is based on a behavior of the first software component, a behavior of the service usage activity, a messaging layer behavior, a random back-off, a power state of the wireless end-user device, a usage state of the wireless end-user device, or a combination of these.

143. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the policy is based on a user interaction with the first software component, a user interaction with the service usage activity, a user interaction with the wireless end-user device, a user interface priority of the service usage activity, or a combination of these.

144. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the wireless end-user device is part of a device group, and wherein the policy is associated with the device group.

145. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the policy is based on a type of the wireless network.

146. (New) The non-transitory computer-readable storage medium recited in claim 145, wherein the type of the wireless network is cellular, 2G, 3G, 4G, home, roaming, wireless fidelity (WiFi), or a combination of these.

147. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the policy is based on a roaming condition of the wireless end-user device, a cost associated with communicating over the wireless network, or a combination of these.

148. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein controlling the service usage activity comprises preventing the first software component from launching, executing, or running.

149. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the at least an aspect of the policy is based on the user input, and wherein the user input identifies the first software component or the service usage activity.

150. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the at least an aspect of the policy is based on the user input, and wherein the user input identifies a network parameter or a network type.

151. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the policy is based on a usage limit or a threshold.

152. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the policy is based on a limit, wherein the limit is based on the user input, a user preference, an indication of a threshold, a total traffic, a type of traffic, a destination, a port, a frequency of access, an access behavior, or a combination of these.

153. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the policy is based on a type of the service usage activity, a priority of the service usage activity, a duration of the service usage activity, a characteristic of the wireless network, a quality-of-service (QoS) rule associated with the service usage activity, or a combination of these.

154. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the policy comprises one or more filters, wherein the one or more filters provide filtering based on: a characteristic of the wireless network, a service plan applicable to the wireless end-user device, a characteristic of the first software component, a time of day, a network busy state, or a combination of these.

155. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the wireless network is a first wireless network, and wherein the service usage activity is a first service usage activity, and wherein the policy assists the one or more processors to control the first service usage activity when the wireless end-user device is connected to the first wireless network and refrain from controlling a second service usage activity when the wireless end-user device is connected to a second wireless network, the second service usage activity being associated with the first software component.

156. (New) The non-transitory computer-readable storage medium recited in claim 155, wherein control the first service usage activity comprises prevent, restrict, or block the first service usage activity.

157. (New) The non-transitory computer-readable storage medium recited in claim 155, wherein the second wireless network is a wireless fidelity (WiFi) network or a home network.

158. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein determine whether the service usage activity comprises a background activity comprises determine whether a user is interacting with or has interacted with the first software component.

159. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is in a user interface foreground.

160. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein determine whether the service usage activity comprises a background activity comprises determine whether the service usage activity is a software update.

161. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is or has been classified as being in a background state or the service usage activity is or has been classified as a background service.

162. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein determine whether the service usage activity comprises a background activity comprises determine whether the service usage activity is identified by a list specifying one or more background activities.

163. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein determine whether the service usage activity comprises a background activity comprises determine whether the service usage activity is a foreground activity.

164. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is a foreground component.

165. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein determine whether the service usage activity comprises a background activity comprises:

determine a classification of the service usage activity, and

based on the classification of the service usage activity, determine whether the service usage activity comprises the background activity.

166. (New) The non-transitory computer-readable storage medium recited in claim 165, wherein the classification of the service usage activity is based on: whether the first software component requires access to the wireless network, whether the one or more prospective or successful communications over the wireless network comprise an update to the first software component, whether the first software component requires information about the wireless network, whether the first software component requires location information, whether the one or more prospective or successful communications over the wireless network comprise an operating system software update, whether the one or more prospective or successful communications over the wireless network comprise a security software update, whether the one or more prospective or successful communications over the wireless network comprise a communication associated with a network-based back-up, whether the one or more prospective or successful communications over the wireless network comprise a communication associated with an e-mail download, whether the one or more prospective or successful communications over the wireless network comprise communications associated with a cloud synchronization service, or a combination of these.

167. (New) The non-transitory computer-readable storage medium recited in claim 165, wherein the user input is a first user input, and wherein determine a classification of the service usage activity is based on a characteristic of the first software component, a content type associated with the service usage activity, a characteristic of the wireless network, a service plan, a user preference, the first user input, a second user input, the information from the network element, or a combination of these.

168. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein determine whether the service usage activity comprises a background activity is based on a user interaction with the wireless end-user device.

169. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein determine whether the service usage activity comprises a background activity comprises determine whether a value comprising a measure of the service usage activity satisfies a condition relative to a threshold.

170. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is a foreground component or an unclassified component.

171. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is in a foreground of user interaction or determine whether the first software component is in a background of user interaction.

172. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein determine whether the service usage activity comprises a background activity comprises determine whether content associated with the service usage activity is in a foreground of a user interface of the wireless end-user device.

173. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is active.

174. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises at least assist in allowing, restricting, delaying, throttling, or preventing the service usage activity.

175. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises at least assist in: blocking access to the wireless network, restricting

access to the wireless network, delaying access to the wireless network, or aggregating and holding the service usage activity.

176. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises at least assist in queuing, time-windowing, suspending, quarantining, killing, or removing the service usage activity.

177. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises at least assist in preventing an update associated with the first software component.

178. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the one or more prospective or successful communications over the wireless network comprise one or more Internet protocol (IP) address requests, and wherein apply the policy comprises at least assist in withholding, delaying, time-windowing, reducing in frequency, or aggregating at least a portion of the service usage activity.

179. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the information from the network element is first information, and wherein apply the policy comprises provide second information to the first software component.

180. (New) The non-transitory computer-readable storage medium recited in claim 179, wherein provide second information to the first software component comprises provide the second information through an application programming interface.

181. (New) The non-transitory computer-readable storage medium recited in claim 179, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:

provide third information to a second software component on the wireless end-user device, the third information being different from the second information.

182. (New) The non-transitory computer-readable storage medium recited in claim 181, wherein provide third information to a second software component on the wireless end-user device comprises provide the third information through an application programming interface.

183. (New) The non-transitory computer-readable storage medium recited in claim 181, wherein the third information enables the second software component to communicate over the wireless network.

184. (New) The non-transitory computer-readable storage medium recited in claim 179, wherein the wireless network is a first wireless network, and wherein the second information comprises a network access condition of the first wireless network, a network busy state associated with the first wireless network, a network availability state associated with the first wireless network, a network busy state associated with a second wireless network, a network availability state associated with the second wireless network, or information about the policy.

185. (New) The non-transitory computer-readable storage medium recited in claim 179, wherein the second information comprises a setting for assisting the first software component in restricting, allowing, blocking, throttling, deferring, time-scheduling, or queuing the service usage activity.

186. (New) The non-transitory computer-readable storage medium recited in claim 185, wherein the setting is based on a characteristic of the wireless network, a network busy state associated with the wireless network, a time, a service plan associated with the wireless end-user device, a classification of the service usage activity, or a combination of these.

187. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises inform the first software component whether the first software component is allowed to access the wireless network.

188. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises inform the first software component whether the wireless network is available.

189. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises inform the first software component of a traffic control to be implemented or applied by the first software component.

190. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the information from the network element is first information, and wherein apply the policy comprises obtain second information from the first software component.

191. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises at least assist in intercepting, controlling, blocking, modifying, removing, or replacing a notification associated with the first software component or the service usage activity, the notification for presentation through a user interface of the wireless end-user device.

192. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises at least assist in intercepting, controlling, blocking, modifying, removing, or replacing a notification for presentation through a user interface of the wireless end-user device.

193. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises at least assist in intercepting a stack application programming interface (API) level or application messaging layer request.

194. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises at least assist in killing or suspending the service usage activity or the first software component.

195. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises at least assist in changing or setting a priority of the service usage activity.

196. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises at least assist in emulating a network application programming interface (API) message.

197. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises at least assist in intercepting, modifying, blocking, removing, injecting, swapping, or replacing an application interface message.

198. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises:

at least assist in preventing initiation of the service usage activity by the first software component; and

send a message to the first software component.

199. (New) The non-transitory computer-readable storage medium recited in claim 198, wherein initiation of the service usage activity by the first software component comprises opening of a connection, opening of a socket, initiating transmission, initiating a data flow, or initiating a data stream.

200. (New) The non-transitory computer-readable storage medium recited in claim 198, wherein the message comprises a reset message, an indication that the service usage activity is not allowed, or an indication that the wireless network is not available.

201. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises:

identify a socket to be opened for the service usage activity; and

based on a condition, block the service usage activity or terminate the socket.

202. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein controlling the service usage activity comprises: blocking a network access event or attempt associated with the first software component, modulating a number of access events or attempts associated with the first software component, aggregating a plurality of access events or attempts associated with the first software component, or time-windowing the number of access events or attempts associated with the first software component.

203. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:

if it is determined that the service usage activity is not the background activity, refrain from applying the policy.

204. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:

if it is determined that the service usage activity is not the background activity, apply a second policy.

205. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein apply the policy comprises cause a notification to be presented through a user interface of the wireless end-user device.

206. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the notification provides information about the policy.

207. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the notification provides information about an option to set, control, override, or modify the at least an aspect of the policy or a second aspect of the policy.

208. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to obtain an indication of a user response to the notification.

209. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the notification provides a warning or an alert.

210. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the notification provides information about a service plan limit.

211. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the first software component is at least a portion of an application, and wherein the one or more prospective or successful communications over the wireless network comprise an attempt to launch, run, or execute the application, and wherein the notification comprises information about the attempt to launch, run, or execute the application.

212. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the one or more prospective or successful communications over the wireless network comprise an attempted or successful launch or execution of the first software component, and wherein the notification comprises information about the attempted or successful launch or execution of the first software component.

213. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the policy is based on a limit, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the

one or more processors to determine that a data usage associated with the service usage activity is not less than the limit, and wherein cause a notification to be presented through a user interface of the wireless end-user device comprises trigger presentation of the notification based on the determination that the data usage associated with the service usage activity is not less than the limit.

214. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the one or more prospective or successful communications over the wireless network comprise an attempt to download or load an application, and wherein the notification comprises information about the attempted download or load of the application.

215. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the one or more prospective or successful communications over the wireless network comprise an attempt to initiate usage of a cloud-based service or application, and wherein the notification comprises information about the attempted initiation of usage of the cloud-based service or application.

216. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the notification indicates that one or more service usage activities are subject to the policy.

217. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the notification provides information about a second network.

218. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the notification comprises an offer for a service plan upgrade or downgrade.

219. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein apply the policy further comprises obtain an indication of a user preference in response to the notification.

220. (New) The non-transitory computer-readable storage medium recited in claim 219, wherein the indication of the user preference comprises a user directive to associate the policy with a second software component.

221. (New) The non-transitory computer-readable storage medium recited in claim 219, wherein the indication of the user preference comprises a user directive to allow or block the service usage activity.

222. (New) The non-transitory computer-readable storage medium recited in claim 219, wherein the indication of the user preference identifies a traffic control setting associated with the policy.

223. (New) The non-transitory computer-readable storage medium recited in claim 219, wherein the indication of the user preference comprises a user directive to allow the service usage activity under a specified condition.

224. (New) The non-transitory computer-readable storage medium recited in claim 219, wherein the indication of the user preference comprises a user directive to override or modify the policy.

225. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein cause a notification to be presented through a user interface of the wireless end-user device comprises cause the notification to be presented based on occurrence of a trigger.

226. (New) The non-transitory computer-readable storage medium recited in claim 225, wherein the trigger is: a measure of the service usage activity satisfies a first condition relative to a threshold, an aspect of the service usage activity satisfies a second condition, a change to the policy, or a message from the network element.

227. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the notification enables a user associated with the wireless end-user device to obtain information about at least an aspect of the service usage activity or a service plan associated with the wireless end-user device.

228. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the notification presents a list of service usage activities or software components, the list of service usage activities or software components including the service usage activity or the first software component.

229. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the notification presents an option to modify the policy.

230. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the notification presents an indication of a measure of usage of the wireless network associated with the service usage activity.

231. (New) The non-transitory computer-readable storage medium recited in claim 205, wherein the notification is provided through an e-mail, a text message, a window, a setting, or a voice message.

232. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:

cause a notification to be presented through a user interface of the wireless end-user device.

233. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification provides information about the policy.

234. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification provides information about an option to set, control, override, or modify the at least an aspect of the policy or a second aspect of the policy.

235. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification indicates that the service usage activity is the background activity.

236. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification provides information about a second network.

237. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to obtain an indication of a user preference in response to the notification.

238. (New) The non-transitory computer-readable storage medium recited in claim 237, wherein the indication of the user preference comprises a user directive to associate the policy with the first software component.

239. (New) The non-transitory computer-readable storage medium recited in claim 237, wherein the indication of the user preference comprises a user directive to restrict, allow, or block the service usage activity.

240. (New) The non-transitory computer-readable storage medium recited in claim 237, wherein the indication of the user preference identifies a traffic control setting associated with the policy.

241. (New) The non-transitory computer-readable storage medium recited in claim 237, wherein the indication of the user preference comprises a user directive to override or modify the policy.

242. (New) The non-transitory computer-readable storage medium recited in claim 237, wherein the indication of the user preference comprises a user acknowledgment of the notification.

243. (New) The non-transitory computer-readable storage medium recited in claim 237, wherein the indication of the user preference indicates one or more network types.

244. (New) The non-transitory computer-readable storage medium recited in claim 243, wherein the one or more network types comprise WiFi, 4G, 3G, wireless, wired, or a combination of these.

245. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein cause a notification to be presented through a user interface of the wireless end-user device comprises cause the notification to be presented based on occurrence of a trigger.

246. (New) The non-transitory computer-readable storage medium recited in claim 245, wherein the trigger is: a measure of the service usage activity satisfies a first condition relative to a threshold, an aspect of the service usage activity satisfies a second condition, a change to the policy, or a message from the network element.

247. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification enables a user associated with the wireless end-user device to obtain information about at least an aspect of the service usage activity or a service plan associated with the wireless end-user device.

248. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification presents a list of service usage activities or software components, the list of service usage activities or software components including the service usage activity or the first software component.

249. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification presents information about a setting associated with the policy.

250. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification presents information about the wireless network.

251. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification presents an indication of a measure of usage of the wireless network associated with the service usage activity.

252. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification presents information about a network busy state or a network availability state.

253. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification presents an indication of a measure of usage of the wireless network associated with the first software component.

254. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification presents information about a statistic associated with the service usage activity.

255. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification comprises a gauge providing service usage information associated with the service usage activity.

256. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification comprises a gauge providing service usage information associated with one or more networks, the one or more networks including the wireless network.

257. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification comprises a gauge providing information associated with a service plan.

258. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification is provided through an e-mail, a text message, a window, a setting, or a voice message.

259. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification comprises a warning or an alert.

260. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the information from the network element is first information, and wherein the notification is based on second information from the network element.

261. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification comprises information about a cost or a charge associated with the service usage activity.

262. (New) The non-transitory computer-readable storage medium recited in claim 232, wherein the notification comprises information about a service sponsor.

263. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:

detect an attempted use of the first software component; and

based on the detected attempted use of the first software component, cause a notification to be presented through a user interface of the wireless end-user device.

264. (New) The non-transitory computer-readable storage medium recited in claim 263, wherein the notification provides information to enable a user associated with the wireless end-user device to override the policy.

265. (New) The non-transitory computer-readable storage medium recited in claim 263, wherein the notification provides information about a cost or a charge associated with the service usage activity.

266. (New) The non-transitory computer-readable storage medium recited in claim 263, wherein the notification provides information to enable a user associated with the wireless end-user device to change or upgrade a service plan associated with the wireless end-user device.

267. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the at least an aspect of a policy is based on the user input, and wherein the user input specifies a user preference associated with one or more network types.

268. (New) The non-transitory computer-readable storage medium recited in claim 267, wherein the one or more network types comprise wireless fidelity (WiFi), home, roaming, 4G, 3G, wireless, wired, or a combination of these.

269. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the user input is a first user input, and wherein the policy is a first policy, and wherein the first user input or a second user input comprises a directive to apply a second policy to a second software component of the plurality of software components on the wireless end-user device.

270. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the user input is a first user input, and wherein the first user input or a second user input comprises a directive to refrain from applying the policy to a second software component of the plurality of software components on the wireless end-user device.

271. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the user input comprises a directive to apply the policy to a second software component of the plurality of software components on the wireless end-user device.

272. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the user input specifies a user preference associated with the service usage activity or the first software component.

273. (New) The non-transitory computer-readable storage medium recited in claim 272, wherein the user preference comprises a preference to restrict, allow, block, delay, or throttle the service usage activity.

274. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the service usage activity is a first service usage activity, and wherein the wireless network is a first wireless network, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:

identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component or with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising one or more prospective or successful communications over a second wireless network; and

refrain from applying the policy to the second service usage activity.

275. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the service usage activity is a first service usage activity, and wherein the background activity is a first background activity, and wherein the wireless network is a first wireless network, and wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:

identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component or with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising one or more prospective or successful communications over a second wireless network; and

determine whether the second service usage activity is a second background activity;

if it is determined that the second service usage activity is the second background activity, apply a second policy to the second service usage activity.

276. (New) The non-transitory computer-readable storage medium recited in claim 275, wherein the first policy restricts or prevents the first background activity, and wherein the second policy allows the second background activity.

277. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the service usage activity is a first service usage activity, and wherein the wireless network is a first wireless network, and wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:

identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component or with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising one or more prospective or successful communications over a second wireless network; and

apply a second policy to the second service usage activity.

278. (New) The non-transitory computer-readable storage medium recited in claim 277, wherein the second policy comprises a control policy, a notification policy, or an accounting policy associated with the first software component or the second software component.

279. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the first wireless network, and wherein the background activity is a first background activity, and wherein the user input is a first user input, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:

identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising second one or more prospective or successful communications over the wireless network;

determine whether the second service usage activity is a second background activity; and

if it is determined that the second service usage activity is the second background activity, apply at least a portion of the policy, wherein the at least a portion of the policy is based on a second user input.

280. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the wireless network, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:

identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising second one or more prospective or successful communications over the wireless network;

determine whether the second service usage activity is the background activity; and

if it is determined that the second service usage activity is the background activity, refrain from applying at least a portion of the policy.

281. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the background activity is a first background activity, and wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the wireless network, and wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:

identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising second one or more prospective or successful communications over the wireless network;

determine whether the second service usage activity is a second background activity;

obtain a second policy, the second policy to be applied when the second service usage activity is the second background activity, the second policy for controlling the second service usage activity; and

if it is determined that the second service usage activity is the second background activity, apply the second policy.

282. (New) The non-transitory computer-readable storage medium recited in claim 281, wherein the first policy, the second policy, or both are based on a network busy state, a network availability state, or a cost associated with the wireless network.

283. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the wireless network, and wherein, when

executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:

identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component, the second service usage activity comprising second one or more prospective or successful communications over the wireless network;

determine whether the second service usage activity is the background activity; and

if it is determined that the second service usage activity is the background activity, apply at least a portion of the policy.

284. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to monitor the service usage activity, account for the service usage activity, report information about the service usage activity, or a combination of these.

285. (New) The wireless end-user device embodying the non-transitory computer-readable storage medium recited in claim 53.

286. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein the network element comprises a service controller, a server, a cloud element, or a billing element.

287. (New) The non-transitory computer-readable storage medium recited in claim 53, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to provide information about the service usage activity to the network element.

288. (New) The non-transitory computer-readable storage medium recited in claim 287, wherein the information about the service usage activity comprises a count of data traffic associated with the service usage activity, a transaction count, a message count, a connection

time, a connection duration, a classification of traffic, an indication that a measure of the service usage activity satisfies a condition relative to a threshold, a parameter associated with the service usage activity, an indication that the background activity is restricted, or a combination of these.

REMARKS

Prior to entry of the amendments herein, claims 53-115 are pending[1] and stand rejected. Claims 1-52 were previously withdrawn.

In this amendment, Applicants are amending claim 53, cancelling claims 1-52, 54-115, and adding claims 116-288. No new matter is being added by these amendments. Following entry of the amendments herein, claims 53 and 116-288 are pending.

Applicants are amending the specification to correct several typographical errors. Applicants are also amending the Abstract to reflect amended claim 53.

Applicants respectfully request reconsideration.

Claim Rejections – 35 U.S.C. § 112

In section 3, the Office Action rejects claims 54, 55, 72, 73, 82, 90, 93-100, 102-106, 108-110, and 112-114 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Specifically, the Office Action states that the numerous acronyms in the claims need to be defined.

Applicants are herein canceling claims 54, 55, 72, 73, 82, 90, 93-100, 102-106, 108-110, and 112-114.

Claim Rejections – 35 U.S.C. § 103

In section 5, the Office Action rejects claims 53-76 and 78-115 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 7,228,354 to Chambliss, *et al.* (hereinafter "Chambliss"). Specifically, the Office Action states that Chambliss discloses, in FIGS. 1-13 and

[1] Although the Office Action states that claim 77 was already canceled, claim 77 is still pending prior to entry of the amendments herein, which do in fact cancel claim 77. Simply for the accuracy of the record, Applicants respectfully note that in Applicants' restriction requirement response filed on September 27, 2012, Applicants pointed out that the as-filed claim set included two claims numbered "77." Also in the September 27, 2012 response, Applicants canceled the second instance of claim 77, leaving one pending claim numbered "77." Thus, prior to entry of the amendments herein, claims 53-115 are pending.

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related text, service class usage (*e.g.*, 324) and classification rules (*e.g.*, 322). The Office Action takes Official Notice that the various classification rules articulated by the various claims, *e.g.*, claim 54, appear to have been common knowledge in the art, and that to have provided such classification rules in place of the classification rules of Chambliss would have been obvious to one of ordinary skill in the art.

Summary of Chambliss

Chambliss discloses a method for improving performance of a computer storage system using a request classifier, a flow controller, and operational characteristics of the system resources. Chambliss at col. 5, ll. 57-60. A number of clients are capable of generating requests for a storage system to store data to, and retrieve data from, data objects associated with the storage system. *Id.* at col. 6, ll. 10-13. The clients are computers on which applications are generating input/output (I/O) requests for disk devices according to the SCSI-3 standards. *Id.* at col. 6, ll. 46-49. The storage system is a collection of RAID controllers that use disk devices to create logical units that are made available for use by the clients according to SCSI-3 standards. *Id.* at col. 6, ll. 49-52. The storage system may consist of one or more devices that are used to constitute a single data storage facility. *Id.* at col. 6, ll. 16-19.

Each client has at least one gateway connection to a gateway. *Id.* at col. 6, ll. 19-20. The gateway connection is capable of transmitting requests to the gateway and transmitting responses to the client. *Id.* at col. 6, ll. 21-23. A client may have connections to multiple gateway and multiple connections to the same gateway, and a single gateway may have connections to multiple clients. *Id.* at col. 6, ll. 23-26.

Each gateway has at least one storage connection to the storage system, by which it can transmit requests to the storage system and by which the storage system transmits responses to requests back to the gateway. *Id.* at col. 6, ll. 27-30. The gateways are computing devices running a program that performs the actions of a classifier and a flow controller. *Id.* at col. 6, ll. 52-54. Within each flow controller are data objects, each of which is referred to as a "service class." *Id.* at col. 6, ll. 34-35. Within each classifier are data objects, each of which is referred to as a "classification rule." *Id.* at col. 6, ll. 42-43. The classification rules contain information by which each request is associated with a service class. *Id.* at col. 6, ll. 43-45.

The clients, storage system, and gateways are attached in a network via Fibre Channel hardware, through one or more switch fabrics. *Id.* at col. 6, ll. 55-57.

Before the system is used, it undergoes a configuration process that takes as input the requirements for the system, including the client description, the capacity requirements, and the service level definition. *Id.* at col. 6, l. 66 – col. 7, l. 3. The configuration process determines the system operational parameters that meet the system requirements and the constraints implied by business needs and device capabilities. *Id.* at col. 7, ll. 4-6. The client description identifies each client and defines values of attributes. *Id.* at col. 7, ll. 7-8. The capacity requirements specify the data objects (such as SCSI-3 logical units), the size of each, and the level of access of each client to each data object. *Id.* at col. 7, ll. 9-11. The service level definition consists of a set of performance guarantees that are to be honored by the system. *Id.* at col. 7, ll. 12-14. Each guarantee consists of a workload group specification, a load specification, and service objectives. *Id.* at col. 7, ll. 14-16. A workload group is a set of request streams between clients and data objects, and the workload group specification defines the workload group by identifying each request stream with the client and data object for each stream. *Id.* at col. 7, ll. 16-19. The load specification and service objectives specification together define the quality of service that is guaranteed for the workload group. *Id.* at col. 7, ll. 19-22. The load specification defines the rate and types of requests that are to be admitted for service, and the service objectives specification contains the response-time objectives that the storage system must meet whenever the limits defined by the load specification are not exceeded. *Id.* at col. 7, ll. 22-27.

During operation of the system, the classifier and flow controller ensure that the limits are not exceeded. *Id.* at col. 10, ll. 27-29. A request is generated by a client and transmitted to the gateway via a gateway connection. *Id.* at col. 10, ll. 64-66. The arrival time of the request is recorded by the gateway, and control of the request is given to the classifier. *Id.* at col. 10, l. 66 – col. 11, l. 1. The classifier uses the identity of the gateway connection and the attributes of the request to assign it to a service class, and then gives control of the request to the flow controller. *Id.* at col. 11, ll. 2-6. The flow controller uses the request attributes and service class to determine whether the request can be processed immediately without exceeding the usage limits. *Id.* at col. 11, ll. 6-9. If necessary, the request is held in a delay queue, to be released either when its servicing would fall within usage limits, or when the service time limit for the request has

expired. *Id.* at col. 11, ll. 10-13. If and when servicing is permitted within usage limits, the request is forwarded to the storage system for servicing. *Id.* at col. 11, ll. 14-16. Upon completion of servicing, notification is sent to the client. *Id.* at col. 11, ll. 17-18.

Claim 53

Applicants are amending claim 53 to recite:

> A non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to:
>
> identify a service usage activity of the wireless end-user device, the service usage activity being associated with a first software component of a plurality of software components on the wireless end-user device, the service usage activity comprising one or more prospective or successful communications over a wireless network;
>
> determine whether the service usage activity comprises a background activity;
>
> determine at least an aspect of a policy based on a user input or based on information from a network element, the policy to be applied if the service usage activity is the background activity, the policy at least for controlling the service usage activity; and
>
> if it is determined that the service usage activity is the background activity, apply the policy.

The amendments to claim 53 are supported at least by paragraphs [0034], [0059], [0061], [0065], [0162], [0284], and [0314]-[0322].

Applicants respectfully submit that Chambliss fails to disclose or render obvious at least "[a] non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to identify a service usage activity of the wireless end-user device, the service usage activity being associated with a first software component of a plurality of software components on the wireless end-user device, the service usage activity comprising one or more prospective or successful communications over a wireless network," "[a] non-transitory computer-readable storage medium storing machine-executable instructions that, when executed

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by one or more processors of a wireless end-user device, cause the one or more processors to . . . determine whether the service usage activity comprises a background activity," "[a] non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to . . . determine at least an aspect of a policy based on a user input or based on information from a network element, the policy to be applied if the service usage activity is the background activity, the policy at least for controlling the service usage activity," and "[a] non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to . . . if it is determined that the service usage activity is the background activity, apply the policy."

Chambliss does not disclose "[a] non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to identify a service usage activity of the wireless end-user device, the service usage activity being associated with a first software component of a plurality of software components on the wireless end-user device, the service usage activity comprising one or more prospective or successful communications over a wireless network." First, Chambliss does not disclose a service usage activity comprising one or more prospective or successful communications over a wireless network. The system of Chambliss, which is a storage system, uses Fibre Channel hardware, which operates over non-wireless networks, not wireless networks. Second, Chambliss does not disclose that the clients include one or more processors that execute machine-executable instructions that cause the one or more processors to identify a service usage activity of the clients. Indeed, Chambliss does not disclose that the clients identify a service usage activity of the clients; Chambliss only discloses that the clients generate storage requests and receive responses to those requests. *See, e.g.*, *id.* at col. 10, ll. 64-66; col. 12, ll. 26-27. Although Chambliss discloses that the classifier determines the identity of a client-to-gateway connection via which a client request was submitted and performs a table lookup to determine the corresponding service class, *id.* at col. 11, ll. 22-26, the classifier is part of the gateway, which is separate from the client. *See, e.g.*, FIG. 1. Thus, even if the determination of the identity of the client-to-gateway connection were an identification of a

service usage activity of a wireless end-user device, that determination is not made by "one or more processors of a wireless end-user device." Thus, for at least these reasons, Chambliss does not disclose "[a] non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to identify a service usage activity of the wireless end-user device, the service usage activity being associated with a first software component of a plurality of software components on the wireless end-user device, the service usage activity comprising one or more prospective or successful communications over a wireless network."

Because Chambliss does not disclose "[a] non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to identify a service usage activity of the wireless end-user device, the service usage activity being associated with a first software component of a plurality of software components on the wireless end-user device, the service usage activity comprising one or more prospective or successful communications over a wireless network," it follows that Chambliss also does not disclose "[a] non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to . . . determine whether the service usage activity comprises a background activity." Indeed, Chambliss does not disclose any determination, by the clients or the gateway, of whether any activity of the clients is a background activity.

Chambliss also does not disclose "[a] non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to . . . determine at least an aspect of a policy based on a user input or based on information from a network element, the policy to be applied if the service usage activity is the background activity, the policy at least for controlling the service usage activity." As discussed above, Chambliss does not disclose any background activity, and therefore it follows that Chambliss also does not disclose a policy to be applied if a service usage activity is a background activity. Moreover, even if the service class of Chambliss were a policy, the determination of the service class is performed by the classifier, which is part of the gateway and not part of the client. Furthermore, Chambliss does not disclose that any

aspect of any policy is based on a user input or based on information from a network element. Therefore, Chambliss does not disclose "[a] non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to . . . determine at least an aspect of a policy based on a user input or based on information from a network element, the policy to be applied if the service usage activity is the background activity, the policy at least for controlling the service usage activity."

Finally, because Chambliss does not disclose "[a] non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to . . . determine whether the service usage activity comprises a background activity," it follows that Chambliss does not disclose "[a] non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to . . . if it is determined that the service usage activity is the background activity, apply the policy."

Applicants also respectfully submit that Chambliss does not render obvious claim 53 because Chambliss seeks to provide a system and method for guaranteeing a performance level to each of several clients in a shared storage system by regulating the processing of the resource requests from multiple clients. *Id.* at col. 4, ll. 10-13. Chambliss does not disclose, or appear to contemplate or suggest in any manner, that the clients themselves take any actions whatsoever to regulate their own requests to the shared storage system.

For at least the reasons provided herein, Applicants respectfully submit that Chambliss does not disclose or render obvious any of the limitations of claim 53, as amended, and Applicants respectfully request that the rejection of claim 53 under 35 U.S.C. § 103(a) be withdrawn.

Claims 116-288

Claims 116-288 depend, directly or indirectly, from claim 53 and are therefore patentable for at least the same reasons that claim 53 is patentable.

Google Exhibit 1006, Page 697 of 901

Support for New Claims

Claims 116 and 117 are supported at least by paragraphs [0050], [0261], and [0264]. Claim 118 is supported at least by paragraphs [0050], and [0261]. Claim 119 is supported at least by paragraph [0261]. Claim 120 is supported at least by paragraph [0064]. Claim 121 is supported at least by paragraphs [0212] and [0213]. Claim 122 is supported at least by paragraph [0212]. Claims 123-125 are supported at least by paragraph [0223]. Claims 126-129 are supported at least by paragraph [0225].

Claim 130 is supported at least by paragraph [0227]. Claim 131 is supported at least by paragraph [0245]. Claim 132 is supported at least by paragraph [0265]. Claim 133 is supported at least by paragraph [0049]. Claim 134 is supported at least by paragraphs [0050], [0059], and [0212]. Claim 135 is supported at least by paragraphs [0211], [0212], and [0233]. Claim 136 is supported at least by paragraphs [0221] and [0223]. Claim 137 is supported at least by paragraph [0221]. Claim 138 is supported at least by paragraph [0254]. Claim 139 is supported at least by paragraphs [0067], [0212], [0256], [0221], [0225], [0229], and [0230].

Claim 140 is supported at least by paragraphs [0067], [0212], and [0256]. Claim 141 is supported at least by paragraphs [0067], [0212], [0256], [0257], [0258], [0221], [0225], [0229], and [0230]. Claim 142 is supported at least by paragraphs [0067], [0212], [0256], and [0257]. Claim 143 is supported at least by paragraphs [0067], [0212], and [0256]. Claim 144 is supported at least by paragraph [0258]. Claim 145 is supported at least by paragraphs [0208] and [0255]. Claim 146 is supported at least by paragraphs [0212] and [0255]. Claim 147 is supported at least by paragraphs [0221], [0225], [0229], and [0230]. Claim 148 is supported at least by paragraph [0212]. Claims 149 and 150 are supported at least by paragraph [0300].

Claim 151 is supported at least by paragraphs [0246], [0221], [0225], [0229], and [0230]. Claim 152 is supported at least by paragraph [0246]. Claim 153 is supported at least by paragraph [0258]. Claim 154 and 155 are supported at least by paragraph [0259]. Claim 156 is supported at least by paragraph [0260]. Claim 157 is supported at least by paragraphs [0106] and [0323]. Claim 158 is supported at least by paragraphs [0049] and [0314]. Claim 159 is supported at least by paragraph [0314].

Claim 160 is supported at least by paragraph [0049]. Claim 161 is supported at least by paragraph [0060]. Claim 162 is supported at least by paragraphs [0207] and [0314]. Claims 163 and 164 are supported at least by paragraph [0314]. Claim 165 is supported at least by paragraph [0264]. Claim 166 is supported at least by paragraphs [0264] and [0050]. Claim 167 is supported at least by paragraph [0265]. Claim 168 is supported at least by paragraph [0267]. Claim 169 is supported at least by paragraph [0266].

Claim 170 is supported at least by paragraph [0267]. Claims 171 and 172 are supported at least by paragraph [0314]. Claim 173 is supported at least by paragraph [0267]. Claim 174 is supported at least by paragraph [0054]. Claim 175 is supported at least by paragraphs [0221] and [0225]. Claim 176 is supported at least by paragraphs [0054], [0065], and [0212]. Claim 177 is supported at least by paragraph [0057]. Claim 178 is supported at least by paragraph [0059]. Claim 179 is supported at least by paragraphs [0230] and [0271].

Claim 180 is supported at least by paragraph [0230]. Claim 181 is supported at least by paragraphs [0269] and [0270]. Claims 182 and 183 are supported at least by paragraph [0270]. Claims 184-186 are supported at least by paragraph [0271]. Claims 187-190 are supported at least by paragraph [0230]. Claim 191 is supported at least by paragraph [0268]. Claims 192-195 are supported at least by paragraph [0269]. Claims 196-201 are supported at least by paragraph [0270].

Claim 202 is supported at least by paragraph [0258]. Claims 203 and 204 are supported at least by paragraph [0267]. Claim 205 is supported at least by paragraph [0055]. Claim 206 is supported at least by paragraphs [0055] and [0211]. Claim 207 is supported at least by paragraphs [0055], [0274], and [0216]. Claim 208 is supported at least by paragraph [0055]. Claim 209 is supported at least by paragraphs [0055], [0219], and [0300].

Claim 210 is supported at least by paragraphs [0055] and [0300]. Claim 211 is supported at least by paragraph [0211]. Claim 212 is supported at least by paragraph [0212]. Claim 213 is supported at least by paragraph [0214]. Claim 214 is supported at least by paragraphs [0211] and [0215]. Claim 215 is supported at least by paragraph [0215]. Claims 216 and 217 are supported at least by paragraph [0211]. Claim 218 is supported at least by paragraphs [0211] and [0299]. Claim 219 is supported at least by paragraphs [0211] and [0300].

Claims 220-223 are supported at least by paragraph [0211]. Claim 224 is supported at least by paragraphs [0211], [0274], and [0300]. Claims 225-227 are supported at least by paragraph [0215]. Claims 228-230 are supported at least by paragraph [0216]. Claim 231 is supported at least by paragraphs [0219] and [0301]. Claim 232 is supported at least by paragraph [0055]. Claim 233 is supported at least by paragraph [0211]. Claim 234 is supported at least by paragraphs [0055], [0274], and [0216]. Claim 235 is supported at least by paragraphs [0068] and [0211]. Claim 236 is supported at least by paragraph [0211]. Claim 237 is supported at least by paragraphs [0211] and [0300]. Claims 238-240 are supported at least by paragraph [0211].

Claim 241 is supported at least by paragraphs [0211], [0274], and [0300]. Claim 242 is supported at least by paragraph [0211]. Claims 243 and 244 are supported at least by paragraph [0218]. Claims 245-247 are supported at least by paragraph [0215]. Claims 248-254 are supported at least by paragraph [0216]. Claims 255-257 are supported at least by paragraph [0219]. Claim 258 is supported at least by paragraphs [0219] and [0301]. Claim 259 is supported at least by paragraph [0219].

Claim 260 is supported at least by paragraph [0220]. Claims 261 and 262 are supported at least by paragraph [0229]. Claim 263 is supported at least by paragraph [0217]. Claim 264 is supported at least by paragraphs [0217] and [0274]. Claim 265 is supported at least by paragraphs [0217] and [0291]. Claim 266 is supported at least by paragraph [0217]. Claims 267-268 are supported at least by paragraph [0218]. Claims 269-271 are supported at least by paragraphs [0051], [0057], and [0267].

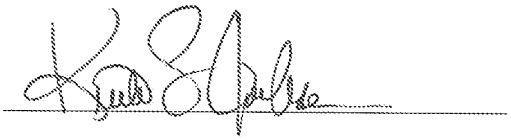
Claims 272 and 273 are supported at least by paragraph [0218]. Claims 274-278 are supported at least by paragraph [0267]. Claims 279-282 are supported at least by paragraph [0206]. Claim 283 is supported at least by paragraphs [0206] and [0212]. Claim 284 is supported at least by paragraphs [0065] and [0262]. Claim 285 is supported at least by paragraph [0213]. Claim 286 is supported at least by paragraph [0229]. Claim 287 is supported at least by paragraphs [0226] and [0262]. Claim 288 is supported at least by paragraphs [0237], [0238], and [0262].

CONCLUSION

Applicants respectfully request entry of these amendments as provided herein. The application is believed to be in condition for allowance, and a Notice of Allowance is hereby respectfully requested. If the Examiner has any questions or needs any additional information, the Examiner is invited to contact the undersigned.

If the Examiner has any questions or needs any additional information, the Examiner is invited to contact the undersigned. The Commissioner is authorized to charge any fee deficiency or credit any overpayment to Deposit Account 50-5876.

Respectfully submitted,

Date: June 11, 2013 By: 

Krista S. Jacobsen
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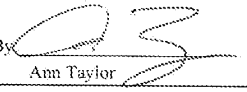
CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being filed electronically via EFS-Web addressed to the Commissioner for Patents on:

Date: June 11, 2013 By: 
Ann Taylor

Google Exhibit 1006, Page 701 of 901

Electronic Patent Application Fee Transmittal	
Application Number:	13134028
Filing Date:	25-May-2011
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP032 [26WV-160509]
Filed as Small Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	59	40	2360
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 3 months with $0 paid	2253	1	700	700
Miscellaneous:				
		Total in USD ($)		**3060**

Electronic Acknowledgement Receipt	
EFS ID:	16012098
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	Krista Susan Jacobsen/Ann Taylor
Filer Authorized By:	Krista Susan Jacobsen
Attorney Docket Number:	RALEP032 [26WV-160509]
Receipt Date:	11-JUN-2013
Filing Date:	25-MAY-2011
Time Stamp:	19:25:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$3060
RAM confirmation Number	6501
Deposit Account	505876
Authorized User	
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Extension of Time	P032Ext.pdf	628768 760330430e63583f3386c1a96efb84e96d49faef	no	1
Warnings:					
Information:					
2		P032OAR.pdf	671440 e0d630e9c489054e9e7d66396c6f90199b09952a	yes	55

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Specification	2	13
	Claims	14	44
	Applicant Arguments/Remarks Made in an Amendment	45	55

Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32498 f9485ef99cbbfdf428794a2e7bd0ed2d8ddc67d0	no	2
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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

PTO/SB/22 (03-13)
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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): RALEP032

Application Number: 13/134,028

Filed: May 25, 2011

For: Device-Assisted Services for Protecting Network Capacity

Art Unit: 3687

Examiner: Rudy, Andrew J.

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

	Fee	Small Entity Fee	Micro Entity Fee	
☐ One month (37 CFR 1.17(a)(1))	$200	$100	$50	$
☐ Two months (37 CFR 1.17(a)(2))	$600	$300	$150	$
☑ Three months (37 CFR 1.17(a)(3))	$1,400	$700	$350	$ 700.00
☐ Four months (37 CFR 1.17(a)(4))	$2,200	$1,100	$550	$
☐ Five months (37 CFR 1.17(a)(5))	$3,000	$1,500	$750	$

☑ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 505876.

☑ Payment made via EFS-Web.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

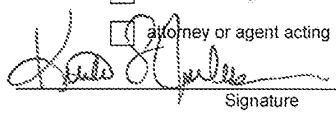
I am the

☐ applicant/inventor.

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

☑ attorney or agent of record. Registration number 59374.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.



Signature

June 11, 2013
Date

Krista S. Jacobsen
Typed or printed name

650-517-2798
Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.136(a). 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 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/134,028	Filing Date 05/25/2011	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	06/11/2013	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 173	Minus	** 115	= 58	X $40 =	2320
	Independent (37 CFR 1.16(h))	* 1	Minus	***14	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**2320**

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

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/MOLIKI MAY/

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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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	13134028
Filing Date	2011-05-25
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP032

U.S.PATENTS

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	8447324		2013-05-21	Shuman, Mohammed Ataur et al.	
	2	8347362		2013-01-01	Cai, Yigang et al.	
	3	8315718		2012-11-20	Caffrey, Paul Oliver et al.	
	4	8406427		2013-03-26	Chand, Naresh et al.	
	5	8468337		2013-06-18	Gaur, Santosh P. et al.	
	6	8477778		2013-07-02	Lehmann, Jr., L. Curtis et al.	
	7	6640097		2003-10-28	Corrigan, Louis et al.	
	8	7457265		2008-11-25	Julka, Vibhor et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

	9	7729326		2010-06-01	Sekhar, Ramesh	
	10	7929973		2011-04-19	Zavalkovsky, Arthur et al.	
	11	7945945		2011-05-17	Graham, Richard et al.	
	12	8059530		2011-11-15	Cole, Terry L.	
	13	8266681		2012-09-11	Deshpande, Sumit B. et al.	
	14	8280354		2012-10-02	Smith, Christopher et al.	
	15	8331293		2012-12-11	Sood, Kapil	
	16	8019820		2011-09-13	Son, Giyeong et al.	
	17	8155155		2012-04-10	Chow, Albert T. et al.	
	18	8191116		2012-05-29	Gazzard, Daryl	
	19	6292828		2001-09-18	Williams, David L.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

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	21	7472189		2008-12-30	Mallya, Arvind R. et al.	
	22	7944948		2011-05-17	Chow, Albert T. et al.	
	23	8005009		2011-08-23	McKee, Neil et al.	
	24	7760861		2010-07-20	Croak, Marian et al.	
	25	8060463		2011-11-15	Spiegel, Joel R.	
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	27	8352980		2013-01-08	Howcroft, Jerald Robert	
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	29	8340718		2012-12-25	Colonna, Massimo et al.	
	30	8385896		2013-02-26	Proctor, Jr., James A. et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

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	32	8279864		2012-10-02	Wood, Daniel M.	
	33	8271045		2012-09-18	Parolkar, Satish et al.	
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	35	8224382		2012-07-17	Bultman, Michael J.	
	36	8184590		2012-05-22	Rosenblatt, Ariel	
	37	8174970		2012-05-08	Adamczyk, Maria et al.	
	38	8165576		2012-04-24	Raju, Vishwanath et al.	
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	40	8032899		2011-10-04	Archer, Charles J. et al.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

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	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

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If you wish to add additional U.S. Patent citation information please click the Add button.

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20080120668		2008-05-22	Yau, Frank Chuen-Foo	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
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If you wish to add additional U.S. Published Application citation information please click the Add button.

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	1889777A	CN		2006-07-19	Huawei Tech. Co. Ltd.		☐
	2	101155343A	CN		2006-09-29	Huawei Tech. Co. Ltd.		☐

EFS Web 2.1.17

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

	3	101035308A	CN		2006-03-09	Huawei Tech. Co. Ltd.		☐
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If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS

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]
	1		☐

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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.

[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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

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).

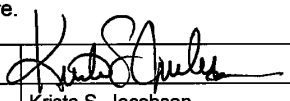
☐ See attached certification statement.

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

☐ None

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		Date (YYYY-MM-DD)	2013-07-17
Name/Print	Krista S. Jacobsen	Registration Number	59374

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.**

Electronic Acknowledgement Receipt

EFS ID:	16347467
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	Device-assisted services for protecting network capacity
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	Krista Susan Jacobsen/Ann Taylor
Filer Authorized By:	Krista Susan Jacobsen
Attorney Docket Number:	RALEP032 [26WV-160509]
Receipt Date:	17-JUL-2013
Filing Date:	25-MAY-2011
Time Stamp:	21:32:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	P032.pdf	1828920 e7a481c62997addb8044ec99a5819ef72ebfa29a	no	10

Warnings:	
Information:	

This is not an USPTO supplied IDS fillable form					
2	Foreign Reference	Starhub.pdf	656227 34c62e843998321805c9a9e280b3233bc8a53e75	no	22
Warnings:					
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3	Foreign Reference	Cisco.pdf	1398028 a85c7e6d6f08a1f6747fb7d21a9fb93427e3c5e3	no	69
Warnings:					
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4	Foreign Reference	CN101155343B.pdf	2070647 cc7a6c8344a80e179d9f2601a49cb9a37f359e87	no	28
Warnings:					
Information:					
5	Foreign Reference	CN101035308A.pdf	1231903 bb1b6fa1721a042823731a8283b8d37b6b313b35	no	28
Warnings:					
Information:					
6	Foreign Reference	CN1889777A.pdf	928344 9a22716535cc0ec62b3db71f323c7634d266e61a	no	19
Warnings:					
Information:					
		Total Files Size (in bytes):	8114069		

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.

<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.

<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.

<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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Raleigh et al.	Examiner:	RUDY, Andrew J.
Serial No.:	13/134,028	Art Unit:	3687
Filed:	May 25, 2011	Conf. No.:	3250
Title:	Device-Assisted Services for Protecting Network Capacity		

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

REQUEST FOR A CORRECTED FILING RECEIPT

Madam:

Applicants respectfully request a corrected filing receipt for the above-captioned application. Submitted with this request are:

(1) An application data sheet (ADS) reflecting the benefit claim after the Office granted, on September 9, 2012, the Renewed Petition Under 37 C.F.R. § 1.78(a)(3) filed on July 9, 2012.

(2) A copy of the Filing Receipt mailed September 7, 2012 with the requested changes noted thereon.

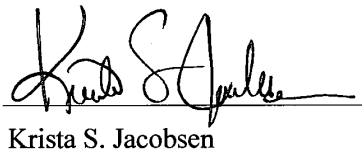
Applicants respectfully note that this request is not a request to add or correct a benefit claim. Applicants are simply seeking a filing receipt that reflects the benefit claim as provided in paragraphs [0001] through [0003] of the specification following the Office's granting of the Renewed Petition Under 37 C.F.R. § 1.78(a)(3) that was filed on July 9, 2012.

Google Exhibit 1006, Page 721 of 901

CONCLUSION

The Commissioner is authorized to charge any fee deficiency or credit any overpayment to Deposit Account 50-5876.

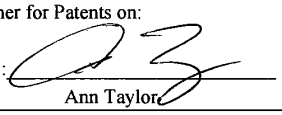
Respectfully submitted,

Date: August 16, 2013 By: 

Krista S. Jacobsen
Reg. No. 59,374
Head Counsel
Headwater Partners I LLC
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065
(650) 517-2798

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being filed electronically via EFS-Web addressed to the Commissioner for Patents on:

Date: Aug. 16, 2013 By: 
Ann Taylor

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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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
13/134,028	05/25/2011	3687	4695	RALEP032 [26WV-160509]	115	14

CONFIRMATION NO. 3250

107265
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

CORRECTED FILING RECEIPT

OC000000056402769

Date Mailed: 09/07/2012

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)

Gregory G. Raleigh, Woodside, CA;
Alireza Raissinia, Monte Sereno, CA;
James Lavine, ~~Mill Valley~~, CA; [Corte Madera]

Power of Attorney: The patent practitioners associated with Customer Number 107265

Domestic Priority data as claimed by applicant

This application is a CIP of 12/380,759 03/02/2009 PAT 8270310
and claims benefit of 61/472,606 04/06/2011
and claims benefit of 61/435,564 01/24/2011
and claims benefit of 61/422,574 12/13/2010
and claims benefit of 61/422,572 12/13/2010
and claims benefit of 61/422,565 12/13/2010
and claims benefit of 61/420,727 12/07/2010
and claims benefit of 61/418,509 12/01/2010
and claims benefit of 61/418,507 12/01/2010
and claims benefit of 61/407,358 10/27/2010
and claims benefit of 61/389,547 10/04/2010
and claims benefit of 61/387,247 09/28/2010
and claims benefit of 61/387,243 09/28/2010
and claims benefit of 61/385,020 09/21/2010
and claims benefit of 61/384,456 09/20/2010
and claims benefit of 61/381,162 09/09/2010
and claims benefit of 61/381,159 09/09/2010
and claims benefit of 61/348,022 05/25/2010
and is a CIP of 13/134,005 05/25/2011

Google Exhibit 1006, Page 723 of 901

which is a CIP of 12/380,759 03/02/2009 PAT 8270310
and is a CIP of 12/380,779 03/02/2009
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and is a CIP of 12/380,773 03/02/2009
and is a CIP of 12/380,769 03/02/2009
and is a CIP of 12/380,777 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and said 13/134,005 05/25/2011
is a CIP of 12/695,019 01/27/2010 PAT 8275830
which is a CIP of 12/380,778 03/02/2009
and is a CIP of 12/380,771 03/02/2009 PAT 8023425
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and said 12/695,019 01/27/2010
claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/264,126 11/24/2009
and said 13/134,005 01/27/2010
is a CIP of 12/695,020 01/27/2010
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/275,208 08/25/2009
and claims benefit of 61/237,753 08/28/2009
and said 13/134,005 01/27/2010
is a CIP of 12/694,445 01/27/2010
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

Google Exhibit 1006, Page 724 of 901

and claims benefit of 61/252,151 10/15/2009
and said 13/134,005 01/27/2010
is a CIP of 12/694,451 01/27/2010
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/264,120 11/24/2009
and said 13/134,005 01/27/2010
is a CIP of 12/695,021 01/27/2010
which is a CIP of 12/380,780 03/02/2009
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/252,151 10/15/2009
and claims benefit of 61/252,153 10/15/2009
and said 13/134,005 01/27/2010
is a CIP of 12/695,980 01/28/2010
which is a CIP of 12/380,780 03/02/2009
and is a CIP of 12/695,019 01/27/2010 PAT 8275830
and is a CIP of 12/695,021 01/27/2010
and claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
This application 13/134,028
is a CIP of 12/695,980 01/28/2010
and said 12/695,980
is a CIP of 12/380,780 03/02/2009
and is a CIP of 12/695,019 01/27/2010 PAT 8275830
and is a CIP of 12/695,021 01/27/2010
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and claims benefit of 61/270,353 07/06/2009
This application 13/134,028
is a CIP of 12/695,021 01/27/2010
which is a CIP of 12/380,780 03/02/2009

Google Exhibit 1006, Page 725 of 901

and claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/252,151 10/15/2009
and claims benefit of 61/252,153 10/15/2009
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is a CIP of 12/694,455 01/27/2010
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/264,120 11/24/2009
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is a CIP of 12/694,451 01/27/2010
which is a CIP of 12/380,780 03/02/2009
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and claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/264,126 11/24/2009

Google Exhibit 1006, Page 726 of 901

This application 13/134,028
is a CIP of 12/380,777 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
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and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,769 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,773 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,774 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,781 03/02/2009 PAT 8229812
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,757 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,783 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,782 03/02/2009 PAT 8270952
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,772 03/02/2009
which claims benefit of 61/206,354 01/28/2009

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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application is a CIP of 12/380,771 03/02/2009 PAT 8023425
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,770 03/02/2009 ABN
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
~~and said 12/380,759~~ This application 13/134,028
is a CIP of 12/380,756 03/02/2009 PAT 8250207
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,755 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,780 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,767 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/207,393 02/10/2009
This application 13/134,028
is a CIP of 12/380,768 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,778 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028

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is a CIP of 12/380,758 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,779 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and said 12/380,759
claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

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.)
GERMANY 10 2009 030 492.4 06/24/2009

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If Required, Foreign Filing License Granted: 06/15/2011

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/134,028**

Projected Publication Date: Not Applicable

Non-Publication Request: No

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

Device-assisted services for protecting network capacity

Preliminary Class

705

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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Application Data Sheet		Attorney Docket No.	RALEP032
		Application Number	13/134,028
Title of Invention	DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY		

Applicant Information:

Applicant 1 -

Applicant Authority:	**Inventor**
Legal Name:	
First Name:	Gregory
Middle Name:	G.
Family Name:	Raleigh
Residence Information:	
City:	Woodside
State:	CA
Country of Residence:	USA
Mailing Address of Inventor:	350 Marine Parkway, Suite 300 Redwood Shores, CA 94065 USA

Applicant 2 -

Applicant Authority:	**Inventor**
Legal Name:	
First Name:	Alireza
Middle Name:	
Family Name:	Raissinia
Residence Information:	
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State:	CA
Country of Residence:	USA
Mailing Address of Inventor:	350 Marine Parkway, Suite 300 Redwood Shores, CA 94065 USA

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Application Data Sheet		Attorney Docket No.	RALEP032
		Application Number	13/134,028
Title of Invention	DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY		

Applicant 3 -

Applicant Authority:	**Inventor**
Legal Name:	
First Name:	James
Middle Name:	
Family Name:	Lavine
Residence Information:	
City:	Corte Madera
State:	CA
Country of Residence:	USA
Mailing Address of Inventor:	350 Marine Parkway, Suite 300 Redwood Shores, CA 94065 USA

Correspondence Information:

Correspondence Address:	Customer Number 107265
E-mail address:	patent@headwaterllc.com

Application Information:

Title of Invention:	DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY
Attorney Docket Number:	RALEP032
Small Entity Status Claimed:	Yes
Application Type:	Nonprovisional
Subject Matter:	Utility
Total Number of Drawing Sheets:	29

Application Data Sheet		Attorney Docket No.	RALEP032
		Application Number	13/134,028
Title of Invention	DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY		

Suggested Drawing Figure for Publication: —

Representative Information:

Customer Number: 107265

Domestic Benefit/National Stage Information:

This Application 13/134,028, filed 05/25/2011
is a CIP of Application No. 12/380,759, filed 03/02/2009 (PAT 8270310)
and is a CIP of Application No. 12/380,779, filed 03/02/2009
and is a CIP of Application No. 12/380,758, filed 03/02/2009
and is a CIP of Application No. 12/380,778, filed 03/02/2009 (PAT 8321526)
and is a CIP of Application No. 12/380,768, filed 03/02/2009
and is a CIP of Application No. 12/380,767, filed 03/02/2009 (PAT 8355337)
and is a CIP of Application No. 12/380,780, filed 03/02/2009
and is a CIP of Application No. 12/380,755, filed 03/02/2009 (PAT 8331901)
and is a CIP of Application No. 12/380,756, filed 03/02/2009 (PAT 8250207)
and is a CIP of Application No. 12/380,770, filed 03/02/2009 (ABN)
and is a CIP of Application No. 12/380,772, filed 03/02/2009
and is a CIP of Application No. 12/380,782, filed 03/02/2009 (PAT 8270952)
and is a CIP of Application No. 12/380,783, filed 03/02/2009
and is a CIP of Application No. 12/380,757, filed 03/02/2009 (PAT 8326958)
and is a CIP of Application No. 12/380,781, filed 03/02/2009 (PAT 8229812)
and is a CIP of Application No. 12/380,774, filed 03/02/2009
and is a CIP of Application No. 12/380,771, filed 03/02/2009 (PAT 8023425)
and is a CIP of Application No. 12/380,773, filed 03/02/2009
and is a CIP of Application No. 12/380,769, filed 03/02/2009
and is a CIP of Application No. 12/380,777, filed 03/02/2009
and is a CIP of Application No. 12/695,019, filed 01/27/2010 (PAT 8275830)
and is a CIP of Application No. 12/695,020, filed 01/27/2010 (PAT 8406748)
and is a CIP of Application No. 12/694,445, filed 01/27/2010 (PAT 8391834)
and is a CIP of Application No. 12/694,451, filed 01/27/2010
and is a CIP of Application No. 12/694,455, filed 01/27/2010 (PAT 8402111)
and is a CIP of Application No. 12/695,021, filed 01/27/2010 (PAT 8346225)

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and is a CIP of Application No. 12/695,980, filed 01/28/2010 (PAT 8340634)
and is a CIP of Application No. 13/134,005, filed 05/25/2011
and claims benefit of Application No. 61/348,022, filed 05/25/2010
and claims benefit of Application No. 61/381,159, filed 09/09/2010
and claims benefit of Application No. 61/381,162, filed 09/09/2010
and claims benefit of Application No. 61/384,456, filed 09/20/2010
and claims benefit of Application No. 61/385,020, filed 09/21/2010
and claims benefit of Application No. 61/387,243, filed 09/28/2010
and claims benefit of Application No. 61/387,247, filed 09/28/2010
and claims benefit of Application No. 61/389,547, filed 10/04/2010
and claims benefit of Application No. 61/407,358, filed 10/27/2010
and claims benefit of Application No. 61/418,507, filed 12/01/2010
and claims benefit of Application No. 61/418,509, filed 12/01/2010
and claims benefit of Application No. 61/420,727, filed 12/07/2010
and claims benefit of Application No. 61/422,565, filed 12/13/2010
and claims benefit of Application No. 61/422,572, filed 12/13/2010
and claims benefit of Application No. 61/422,574, filed 12/13/2010
and claims benefit of Application No. 61/435,564, filed 01/24/2011
and claims benefit of Application No. 61/472,606, filed 04/06/2011

and said Application No. 12/380,759, filed 03/02/2009 (PAT 8270310)
claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,779, filed 03/02/2009
claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,758, filed 03/02/2009
claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009

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and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,778, filed 03/02/2009 (PAT 8321526)
claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,768, filed 03/02/2009
claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,767, filed 03/02/2009 (PAT 8355337)
claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,780, filed 03/02/2009
claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,755, filed 03/02/2009 (PAT 8331901)
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and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,756, filed 03/02/2009 (PAT 8250207)
claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009

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and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,770, filed 03/02/2009 (ABN)
claims benefit of Application No. 61/206,354, filed 01/28/2009
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and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,772, filed 03/02/2009
claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,782, filed 03/02/2009 (PAT 8270952)
claims benefit of Application No. 61/206,354, filed 01/28/2009
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and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

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and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,757, filed 03/02/2009 (PAT 8326958)
claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,781, filed 03/02/2009 (PAT 8229812)
claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009

and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,774, filed 03/02/2009
claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,771, filed 03/02/2009 (PAT 8023425)
claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,773, filed 03/02/2009
claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,769, filed 03/02/2009
claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/380,777, filed 03/02/2009
claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009

and said Application No. 12/695,019, filed 01/27/2010 (PAT 8275830)
is a CIP of Application No. 12/380,778, filed 03/02/2009 (PAT 8321526)
and is a CIP of Application No. 12/380,771, filed 03/02/2009 (PAT 8023425)
and claims benefit of Application No. 61/206,354, filed 01/28/2009

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and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009
and claims benefit of Application No. 61/270,353, filed 07/06/2009
and claims benefit of Application No. 61/264,126, filed 11/24/2009

and said Application No. 12/695,020, filed 01/27/2010 (PAT 8406748)
is a CIP of Application No. 12/380,780, filed 03/02/2009
and claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009
and claims benefit of Application No. 61/275,208, filed 08/25/2009
and claims benefit of Application No. 61/237,753, filed 08/28/2009

and said Application No. 12/694,445, filed 01/27/2010 (PAT 8391834)
is a CIP of Application No. 12/380,780, filed 03/02/2009
and claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009
and claims benefit of Application No. 61/252,151, filed 10/15/2009

and said Application No. 12/694,451, filed 01/27/2010
is a CIP of Application No. 12/380,780, filed 03/02/2009
and claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009
and claims benefit of Application No. 61/270,353, filed 07/06/2009
and claims benefit of Application No. 61/252,153, filed 10/15/2009

and said Application No. 12/694,455, filed 01/27/2010 (PAT 8402111)
is a CIP of Application No. 12/380,780, filed 03/02/2009
and claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009

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and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009
and claims benefit of Application No. 61/264,120, filed 11/24/2009

and said Application No. 12/695,021, filed 01/27/2010 (PAT 8346225)
is a CIP of Application No. 12/380,780, filed 03/02/2009
and claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009
and claims benefit of Application No. 61/252,151, filed 10/15/2009
and claims benefit of Application No. 61/252,153, filed 10/15/2009

and said Application No. 12/695,980, filed 01/28/2010 (PAT 8340634)
is a CIP of Application No. 12/380,780, filed 03/02/2009
and is a CIP of Application No. 12/695,019, filed 01/27/2010 (PAT 8275830)
and is a CIP of Application No. 12/695,021, filed 01/27/2010 (PAT 8346225)
and claims benefit of Application No. 61/206,354, filed 01/28/2009
and claims benefit of Application No. 61/206,944, filed 02/04/2009
and claims benefit of Application No. 61/207,393, filed 02/10/2009
and claims benefit of Application No. 61/207,739, filed 02/13/2009
and claims benefit of Application No. 61/270,353, filed 07/06/2009

Foreign Priority Information:

None.

Assignee Information:

Assignee is:	The Assignee, which is an Organization
Organization Name:	Headwater Partners I LLC

Google Exhibit 1006, Page 740 of 901

Application Data Sheet		Attorney Docket No.	RALEP032
		Application Number	13/134,028
Title of Invention	DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY		

Mailing Address Information for Applicant: Headwater Partners I LLC
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065
U.S.A.
(650) 517-2786

E-mail Address: patent@headwaterllc.com

Signature:

Signature:

Date: August 16, 2013

Printed/Typed Name: Krista S. Jacobsen

Registration Number: 59,374

Google Exhibit 1006, Page 741 of 901

Electronic Acknowledgement Receipt	
EFS ID:	16615464
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	Krista Susan Jacobsen/Ann Taylor
Filer Authorized By:	Krista Susan Jacobsen
Attorney Docket Number:	RALEP032 [26WV-160509]
Receipt Date:	16-AUG-2013
Filing Date:	25-MAY-2011
Time Stamp:	17:17:04
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	Request for Corrected Filing Receipt	P032Request.pdf	316512 7acdaa91e5918a23f77ddde809d0cd473793a6ce	no	2
Warnings:					
Information:					

2	Request for Corrected Filing Receipt	P032CorrectedFilingReceipt.pdf	2389925 b41effa62ad76fbd15cba7ce43465622eda4860d	no	9
Warnings:					
Information:					
3	Application Data Sheet	P032ADS.pdf	2760477 e4cd18b40db477f69ed6acdc49941100bd0324dd	no	10
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
			Total Files Size (in bytes):	5466914	

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
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NOTICE OF ALLOWANCE AND FEE(S) DUE

107265 7590 08/20/2013
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

EXAMINER	
RUDY, ANDREW J	
ART UNIT	PAPER NUMBER
3687	

DATE MAILED: 08/20/2013

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/134,028	05/25/2011	Gregory G. Raleigh	RALEP032 [26WV-160509]	3250

TITLE OF INVENTION: DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$890	$300	$0	$1190	11/20/2013

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

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

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

IMPORTANT REMINDER: 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.

PTOL-85 (Rev. 02/11)

Google Exhibit 1006, Page 744 of 901

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)

107265 7590 08/20/2013
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

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.
13/134,028	05/25/2011	Gregory G. Raleigh	RALEP032 [26WV-160509]	3250

TITLE OF INVENTION: DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$890	$300	$0	$1190	11/20/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
RUDY, ANDREW J	3687	705-034000

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).

Google Exhibit 1006, Page 745 of 901

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29	NOTE: Absent a valid certification of Micro Entity Status (see form PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
❑ Applicant asserting small entity status. See 37 CFR 1.27	NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
❑ Applicant changing to regular undiscounted fee status.	NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: 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.

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.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/134,028	05/25/2011	Gregory G. Raleigh	RALEP032 [26WV-160509]	3250

107265 7590 08/20/2013

Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

EXAMINER	
RUDY, ANDREW J	

ART UNIT	PAPER NUMBER
3687	

DATE MAILED: 08/20/2013

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.

PTOL-85 (Rev. 02/11)

Google Exhibit 1006, Page 747 of 901

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. 13/134,028	Applicant(s) RALEIGH ET AL.	
	Examiner ANDREW JOSEPH RUDY	Art Unit 3687	AIA (First Inventor to File) Status No

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

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

1. ☒ This communication is responsive to *the 11 June 2013 Amendment*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *53 and 116-288*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file 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.

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

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

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

DETAILED ACTION

1. Applicant cancelled claims 1-52 and 54-115.

EXAMINER'S AMENDMENT

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

Authorization for this examiner's amendment was given in a telephone interview with Krista Jacobsen (Reg. No. 59,374) on August 13, 2013.

The application has been amended as follows:

53. (Currently amended) A non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to:

identify a service usage activity of the wireless end-user device, the service usage activity being associated with a first software component of a plurality of software components on the wireless end-user device, the service usage activity comprising one or more prospective or successful communications over a wireless network;

determine whether the service usage activity comprises a background activity;

determine at least an aspect of a policy based on a user input **obtained through a user interface of the wireless end-user device** or based on information from a

network element, the policy to be applied if the service usage activity is the background activity, the policy at least for controlling the service usage activity; and if it is determined that the service usage activity is the background activity, apply the policy.

149. (Currently amended) The non-transitory computer-readable storage medium recited in claim 53, wherein the at least an aspect of the policy is based on the user input **obtained through the user interface of the wireless end-user device**, and wherein the user input identifies the first software component or the service usage activity.

150. (Currently amended) The non-transitory computer-readable storage medium recited in claim 53, wherein the at least an aspect of the policy is based on the user input **obtained through the user interface of the wireless end-user device**, and wherein the user input identifies a network parameter or a network type.

152. (Currently amended) The non-transitory computer-readable storage medium recited in claim 53, wherein the policy is based on a limit, wherein the limit is based on the user input **obtained through the user interface of the wireless end-user device**, a user preference, an indication of a threshold, a total traffic, a type of traffic, a destination, a port, a frequency of access, an access behavior, or a combination of these.

167. (Currently amended) The non-transitory computer-readable storage medium recited in claim 165, wherein the user input **obtained through the user interface of the wireless end-user device** is a first user input, and wherein determine a classification of the service usage activity is based on a characteristic of the first software component, a content type associated with the service usage activity, a characteristic of the wireless network, a service plan, a user preference, the first user input, a second user input, the information from the network element, or a combination of these.

267. (Currently amended) The non-transitory computer-readable storage medium recited in claim 53, wherein the at least an aspect of a policy is based on the user input **obtained through the user interface of the wireless end-user device**, and wherein the user input specifies a user preference associated with one or more network types.

269. (Currently amended) The non-transitory computer-readable storage medium recited in claim 53, wherein the user input **obtained through the user interface of the wireless end-user device** is a first user input, and wherein the policy is a first policy, and wherein the first user input or a second user input comprises a directive to apply a second policy to a second software component of the plurality of software components on the wireless end-user device.

270. (Currently amended) The non-transitory computer-readable storage medium recited in claim 53, wherein the user input **obtained through the user interface of the wireless end-user device** is a first user input, and wherein the first user input or a second user input comprises a directive to refrain from applying the policy to a second software component of the plurality of software components on the wireless end-user device.

271. (Currently amended) The non-transitory computer-readable storage medium recited in claim 53, wherein the user input **obtained through the user interface of the wireless end-user device** comprises a directive to apply the policy to a second software component of the plurality of software components on the wireless end-user device.

272. (Currently amended) The non-transitory computer-readable storage medium recited in claim 53, wherein the user input **obtained through the user interface of the wireless end-user device** specifies a user preference associated with the service usage activity or the first software component.

279. (Currently amended) The non-transitory computer-readable storage medium recited in claim 53, wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the

wireless network are first one or more prospective or successful communications over the first wireless network, and wherein the background activity is a first background activity, and wherein the user input **obtained through the user interface of the wireless end-user device** is a first user input, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:

identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising second one or more prospective or successful communications over the wireless network;

determine whether the second service usage activity is a second background activity; and

if it is determined that the second service usage activity is the second background activity, apply at least a portion of the policy, wherein the at least a portion of the policy is based on a second user input.

Allowable Subject Matter

3. Pursuant to Applicant's May 1, 2013 Amendment and REMARKS, claims 53 and 116-288 are allowed.

4. The following is an examiner's statement of reasons for allowance: The prior art of record, either alone or in combination, does not disclose, or suggest, Applicant's claim language.

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."

5. Further pertinent references of interest are noted on the attached PTO-892.

6. Applicant's four Information Disclosure Statement (IDS's) submitted July 17, 2013; May 22, 2013; March 22, 2013 and January 22, 2013 have been reviewed. Note the attached IDS's.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW JOSEPH RUDY whose telephone number is (571)272-6789. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Gart can be reached on 571-272-3955. 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

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/ANDREW JOSEPH RUDY/

Primary Examiner

Art Unit 3687

Notice of References Cited	Application/Control No. 13/134,028	Applicant(s)/Patent Under Reexamination RALEIGH ET AL.	
	Examiner ANDREW JOSEPH RUDY	Art Unit 3687	Page 1 of 1

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

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

Application Number	13134028
Filing Date	2011-05-25
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP032

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	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
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	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP032

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EXAMINER SIGNATURE

Examiner Signature	/Andrew Joseph Rudy/	Date Considered	08/10/2013

*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.

[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.

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Issue Classification	Application/Control No.	Applicant(s)/Patent under Reexamination	
	13/134,028	RALEIGH ET AL.	
	Examiner	Art Unit	
	ANDREW JOSEPH RUDY	3687	

ISSUE CLASSIFICATION

ORIGINAL CLASS	ORIGINAL SUBCLASS	CROSS REFERENCE(S) CLASS	CROSS REFERENCE(S) SUBCLASS (ONE SUBCLASS PER BLOCK)						
709	224	455	405						
INTERNATIONAL CLASSIFICATION									
G06F 15/173									
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XXXXXXXXXXXXXXXXXXXXXXXX (Assistant Examiner) (Date)		Total Claims Allowed: 174
(Legal Instruments Examiner) (Date)	/Andrew Joseph Rudy/ 8/14/2013 (Primary Examiner) (Date)	O.G. Print Claim(s): 1 / O.G. Print Fig.: 27

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

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Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination
	13/134,028	RALEIGH ET AL.
	Examiner	Art Unit
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Class	Subclass	Date	Examiner
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INTERFERENCE SEARCHED			
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709	**223,224**	**8/14/2013**	**AJR**

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Continuity data reviewed.	8/13/2013	AJR
Inventor name search conducted.	8/13/2013	AJR
Bibliographic data reviewed.	8/13/2013	AJR

Doc code: IDS
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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]
	1		☐

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Examiner Signature	/Andrew Joseph Rudy/	Date Considered	07/02/2013

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[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.

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
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	13134028
Filing Date	2011-05-25
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP032

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	10	8423016		2013-04-16	Buckley, Adrian et al.	
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	Attorney Docket Number	RALEP032

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	1	2006120558A1	WO		2006-11-16	Nokia Corp.		☐

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Issue Classification	Application/Control No.	Applicant(s)/Patent under Reexamination	
	13/134,028	RALEIGH ET AL.	
	Examiner	Art Unit	
	ANDREW JOSEPH RUDY	3687	

ISSUE CLASSIFICATION

ORIGINAL			CROSS REFERENCE(S)						
CLASS	SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)						
709	224	455	405						
INTERNATIONAL CLASSIFICATION									
G 0 6 F	15/173								
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XXXXXXXXXXXXXXXXXXXXXXXX (Assistant Examiner) (Date)		Total Claims Allowed: 174
(Legal Instruments Examiner) (Date)	/Andrew Joseph Rudy/ 8/14/2013 (Primary Examiner) (Date)	O.G. Print Claim(s): 1 / O.G. Print Fig.: 27

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

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
97	211	127	241	157	271		301		331		361		391
98	212	128	242	158	272		302		332		362		392
99	213	129	243	159	273		303		333		363		393
100	214	130	244	160	274		304		334		364		394
101	215	131	245	161	275		305		335		365		395
102	216	132	246	162	276		306		336		366		396
103	217	133	247	163	277		307		337		367		397
104	218	134	248	164	278		308		338		368		398
105	219	135	249	165	279		309		339		369		399
106	220	136	250	166	280		310		340		370		400
107	221	137	251	167	281		311		341		371		401
108	222	138	252	168	282		312		342		372		402
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125	239	155	269		299		329		359		389		419
126	240	156	270		300		330		360		390		420

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Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP032

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	1	20090307746		2009-12-10	DI, Jinwen et al.	
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	1							☐

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	1		☐

If you wish to add additional non-patent literature document citation information please click the Add button

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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
13/134,028	05/25/2011	3687	7055	RALEP032 [26WV-160509]	115	14

CONFIRMATION NO. 3250

107265
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

CORRECTED FILING RECEIPT

OC000000063493778

Date Mailed: 09/03/2013

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

Inventor(s)

Gregory G. Raleigh, Woodside, CA;
Alireza Raissinia, Monte Sereno, CA;
James Lavine, Corte Medera, CA;

Applicant(s)

Gregory G. Raleigh, Woodside, CA;
Alireza Raissinia, Monte Sereno, CA;
James Lavine, Corte Medera, CA;

Power of Attorney: The patent practitioners associated with Customer Number 107265

Domestic Priority data as claimed by applicant

This application is a CIP of 12/380,759 03/02/2009 PAT 8270310
and claims benefit of 61/472,606 04/06/2011
and claims benefit of 61/435,564 01/24/2011
and claims benefit of 61/422,574 12/13/2010
and claims benefit of 61/422,572 12/13/2010
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and claims benefit of 61/420,727 12/07/2010
and claims benefit of 61/418,509 12/01/2010
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This application 13/134,028
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Google Exhibit 1006, Page 784 of 901

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The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/134,028**

Projected Publication Date: Not Applicable

Non-Publication Request: No

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

DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY

Preliminary Class

705

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

Application Number	13134028
Filing Date	2011-05-25
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J RUDY
Attorney Docket Number	RALEP032 [26WV-160509]

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	2	2007097786	WO	A	2007-08-30	Sony Ericsson Mobile Communications AB		☐

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NON-PATENT LITERATURE DOCUMENTS

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]
	1	Accuris Networks, "The Business Value of Mobile Data Offload – a White Paper", 2010	☐
	2	ANTON, B. et al., "Best Current Practices for Wireless Internet Service Provider (WISP) Roaming"; Release Date February 2003, Version 1.0; Wi-Fi Alliance – Wireless ISP Roaming (WISPr)	☐

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP032 [26WV-160509]

	3	Ruckus Wireless – White Paper; "Smarter Wi-Fi for Mobile Operator Infrastructures" 2010	☐
	4	THURSTON, Richard, "WISPr 2.0 Boosts Roaming Between 3G and Wi-Fi"; June 23, 2010; Web page from zdnet. com; Zdnet.com/wispr-2-0-boosts-roaming-between-3g-and-wi-fi-3040089325/	☐
	5	Wireless Broadband Alliance, "WISPr 2.0, 08 April, 2010"; Doc. Ref. No.: WBA/RM/WISPr, Version 01.00	☐

If you wish to add additional non-patent literature document citation information please click the Add button

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.

[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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP032 [26WV-160509]

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).

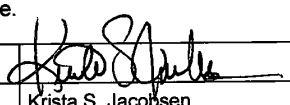
☐ See attached certification statement.

☒ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

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		Date (YYYY-MM-DD)	2013-09-13
Name/Print	Krista S. Jacobsen	Registration Number	59374

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.**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Gregory G. Raleigh	Rudy, Andrew J.
Serial No. 13/134,028	Art Unit: 3687
Filed: May 25, 2011	Conf. No.: 3250

Title: Device-Assisted Services for Protecting Network Capacity

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

SUBMISSION OF INFORMATION DISCLOSURE STATEMENT AFTER RECEIPT OF NOTICE OF ALLOWANCE BUT PRIOR TO PAYMENT OF ISSUE FEE

Madam:

In accordance with the duty of disclosure under 37 CFR §1.56 and pursuant to 37 CFR §§ 1.97-1.98, Applicant hereby submits the references listed on the enclosed Form PTO-SB/08A.

The present Information Disclosure Statement is being filed after Applicant received the Notice of Allowance in the above-captioned application, but before Applicant has paid the Issue Fee. Accordingly, pursuant to 37 C.F.R. § 1.97(d), Applicant is submitting both the fee set forth in 37 C.F.R. § 1.17(p) and the certification statement set forth in 37 C.F.R. § 1.97(e).

Applicant respectfully requests consideration of the listed references.

CONCLUSION

Applicant respectfully requests that the Examiner consider the references listed in the IDS submitted herewith. In accordance with 37 C.F.R. § 1.97(d)-(e), the IDS is being filed prior to payment of the issue fee, with both the certification statement and fee specified in 37 C.F.R. § 1.97(d)-(e).

The Commissioner is authorized to charge any fee deficiency or credit any overpayment to Deposit Account 50-5876.

Respectfully submitted,

Date: September 13, 2013

By: _____

Krista S. Jacobsen
Reg. No. 59,374
Head Counsel
Headwater Partners I LLC
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065
(650) 517-2798

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being filed electronically via EFS-Web addressed to the Commissioner for Patents on:

Date: September 13, 2013 By: _____
Ann Taylor

Google Exhibit 1006, Page 805 of 901

Electronic Patent Application Fee Transmittal	
Application Number:	13134028
Filing Date:	25-May-2011
Title of Invention:	DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP032 [26WV-160509]
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($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt

EFS ID:	16854451
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	Krista Susan Jacobsen/Ann Taylor
Filer Authorized By:	Krista Susan Jacobsen
Attorney Docket Number:	RALEP032 [26WV-160509]
Receipt Date:	13-SEP-2013
Filing Date:	25-MAY-2011
Time Stamp:	18:51:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$180
RAM confirmation Number	6227
Deposit Account	505876
Authorized User	

File Listing:

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

1	Information Disclosure Statement (IDS) Form (SB08)	P032IDS.pdf	2361442 77ff792e6c0a226d1657561e03652fba5c90c5c5	no	13
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Transmittal Letter	P032IDSLtr.pdf	338699 6d5dec43791ab9aac69f7d8ff045ccd2424d4b28	no	2
Warnings:					
Information:					
3	Foreign Reference	2035_SONERA.pdf	1449270 83f568206d53812bd422a23bc97d8efdc212af6a	no	36
Warnings:					
Information:					
4	Foreign Reference	2036_SONY.pdf	831108 a6a0c393147acb9517804ca2ded34f2a1d36d44c	no	22
Warnings:					
Information:					
5	Non Patent Literature	3025_ANTON.PDF	608012 129dd45630f651b9102a169bcfd96b3eb3641016	no	37
Warnings:					
Information:					
6	Non Patent Literature	3026_RUCKUS.PDF	928924 8115313ba3be83f3712b9ae0005c09db2e99bdd5	no	7
Warnings:					
Information:					
7	Non Patent Literature	3027_ACCURIS.PDF	1747360 ac5f8cd0c2e2bf88ebf182a1527d6143ca94b961	no	23
Warnings:					
Information:					
8	Non Patent Literature	3028_WIRELESS.PDF	506452 25813a856d3ae61a06ff94ed223802f7babc3ecf	no	58
Warnings:					
Information:					
9	Non Patent Literature	3029_THURSTON.PDF	54264 9682fa517747e51ab29fc34455cfab07819acf93	no	1

Warnings:					
Information:					
10	Fee Worksheet (SB06)	fee-info.pdf	30557 26ba0420c161ac92ec2791a15f6c192b365119e9	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	8856088	

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.

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)

107265 7590 08/20/2013
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

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.

Ann Taylor	(Depositor's name)
	(Signature)
September 16, 2013	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/134,028	05/25/2011	Gregory G. Raleigh	RALEP032 [26WV-160509]	3250

TITLE OF INVENTION: DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$890	$300	$0	$1190	11/20/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
RUDY, ANDREW J	3687	705-034000

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 Krista S. Jacobsen
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: Headwater Partners I LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Redwood Shores, CA

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 505876 (enclose an extra copy of this form).

PTOL-85 (Rev. 02/11)

Google Exhibit 1006, Page 811 of 901

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

☐ Applicant certifying micro entity status. See 37 CFR 1.29

NOTE: Absent a valid certification of Micro Entity Status (see form PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

☐ Applicant asserting small entity status. See 37 CFR 1.27

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

☐ Applicant changing to regular undiscounted fee status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: 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 September 16, 2013

Typed or printed name Krista S. Jacobsen Registration No. 59374

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:	13134028
Filing Date:	25-May-2011
Title of Invention:	DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP032 [26WV-160509]

Filed as Small 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	2501	1	890	890
Publ. Fee- Early, Voluntary, or Normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1190**

Electronic Acknowledgement Receipt	
EFS ID:	16866611
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	Krista Susan Jacobsen/Ann Taylor
Filer Authorized By:	Krista Susan Jacobsen
Attorney Docket Number:	RALEP032 [26WV-160509]
Receipt Date:	16-SEP-2013
Filing Date:	25-MAY-2011
Time Stamp:	17:26:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$1190
RAM confirmation Number	5245
Deposit Account	505876
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

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	Issue Fee Payment (PTO-85B)	P032IssueFeeTrans.pdf	506915 2c72269e75222c91245426643a22e6362fab2408	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32113 d7dd36aa72a86c7ebfd8acb9a8bb403d43e99580	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	539028		

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/134,028	05/25/2011	Gregory G. Raleigh	RALEP032 [26WV-160509]	3250

107265 7590 09/19/2013

Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

EXAMINER	
RUDY, ANDREW J	

ART UNIT	PAPER NUMBER
3687	

NOTIFICATION DATE	DELIVERY MODE
09/19/2013	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):

patent@headwaterllc.com

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Application No. : 13134028
Applicant : Raleigh
Filing Date : 05/25/2011
Date Mailed : 09/19/2013

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Notice of Allowance Mailed

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

Applicant is given 1 month(s) from the mail date of this Notice, or the time remaining from the Notice of Allowance and Fee(s) Due, whichever is longer, within which to respond.

The informalities requiring correction are indicated in the attachment(s). If the informality pertains to the abstract, specification (including claims) or drawings, the informality must be corrected with an amendment in compliance with 37 CFR 1.121 (or, if the application is a reissue application, 37 CFR 1.173). Such an amendment may be filed after payment of the issue fee if limited to correction of informalities noted herein. See Waiver of 37 CFR 1.312 for Documents Required by the Office of Patent Publication, 1280 Off. Gaz. Patent Office 918 (March 23, 2004). In addition, if the informality is not corrected until after payment of the issue fee, for purposes of 35 U.S.C. 154(b)(1)(iv), "all outstanding requirements" will be considered to have been satisfied when the informality has been corrected. A failure to respond within the above-identified time period will result in the application being ABANDONED. **This period for reply is NOT extendable under 37 CFR 1.136(a).**

See attachment(s).

A copy of this notice MUST be returned with the reply. Please address response to "Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450".

/Janeen Saxer/
Publication Branch
Office of Data Management
(571) 272-4200

Application No. 13134028

SPECIFICATION REFERS TO ITS OWN PAGE/PARAGRAPH NUMBER(S) AND/OR SPECIFICATION REFERS TO NONEXISTENT CLAIM(S)

[X] The patent will be printed in numbered columns with intercolumnar line numbers and without paragraph numbers. Any reference(s) within the applicant-filed specification to its own page number(s) or paragraph number(s) will have no meaning in the printed patent.

In response to this notice, the applicant either should file an amendment to the specification that removes the reference(s) to the page number(s) or paragraph number(s) or should submit a letter stating that the patent specification should be printed with the reference(s) to the page number(s) or paragraph number(s).

See Page(s)/Paragraph(s) SPEC 07/09/12 - amendment to paragraph [0003].

[ ] The specification refers by number to one or more claims that are not present in the allowed application – that is, the claim number(s) mentioned in the specification are higher than the total number of allowed claims.

In response to this notice, the applicant either should file an amendment to the specification that removes the reference(s) to the nonexistent claim(s) or should submit a letter stating that the patent specification should be printed with the reference(s) to the nonexistent claim(s).

See Page(s)/Paragraph(s) .

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Raleigh et al.	Examiner:	Rudy, Andrew J.
Serial No.:	13/134,028	Art Unit:	3687
Filed:	May 25, 2011	Conf. No.:	3250
Title:	Device-Assisted Services for Protecting Network Capacity		

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

RESPONSE TO NOTICE TO FILE CORRECTED APPLICATION PAPERS

Madam:

In response to the Notice to File Corrected Application Papers (the "Notice") dated September 19, 2013, the deadline for response being October 19, 2013, please enter the following amendments and remarks:

Amendments to the Specification begin on page 2.

Remarks begin on page 3.

Google Exhibit 1006, Page 820 of 901

AMENDMENTS TO THE SPECIFICATION

Please amend paragraph [0003] of the specification as follows:

-- **[0003]** Further, this application incorporates by reference the following U.S. provisional patent applications~~, which are also included in paragraph [0001] above~~: U.S. provisional application serial No. 61/206,354, filed January 28, 2009, entitled "Services Policy Communication System and Method," U.S. provisional application serial No. 61/206,944, filed February 4, 2009, entitled "Services Policy Communication System and Method," U.S. provisional application serial No. 61/207,393, filed February 10, 2009, entitled "Services Policy Communication System and Method," U.S. provisional application serial No. 61/207,739, filed February 13, 2009, entitled "Services Policy Communication System and Method," U.S. provisional application serial No. 61/270,353, filed July 6, 2009, entitled "Device Assisted CDR Creation, Aggregation, Mediation and Billing," U.S. provisional application serial No. 61/275,208, filed August 25, 2009, entitled "Adaptive Ambient Services," U.S. provisional application serial No. 61/237,753, filed August 28, 2009, entitled "Adaptive Ambient Services," U.S. provisional application serial No. 61/252,151, filed October 15, 2009, entitled "Security Techniques for Device Assisted Services," U.S. provisional application serial No. 61/252,153, filed October 15, 2009, entitled "Device Group Partitions and Settlement Platform," U.S. provisional application serial No. 61/264,120, filed November 24, 2009, entitled "Device Assisted Services Install," and U.S. provisional application serial No. 61/264,126, filed November 24, 2009, entitled "Device Assisted Services Activity Map." --

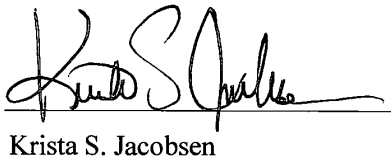
Google Exhibit 1006, Page 821 of 901

REMARKS

Applicant respectfully requests the entry of the amendments herein, which are made in compliance with 37 CFR § 1.121, and limited to the informalities noted in the Notice to File Corrected Application Papers mailed September 19, 2013. No new matter has been added.

The Commissioner is authorized to charge any fee deficiency or credit any overpayment to Deposit Account 50-5876.

Respectfully submitted,

Date: September 23, 2013 By: 

Krista S. Jacobsen
Reg. No. 59,374
Head Counsel
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350 Marine Parkway, Suite 300
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CERTIFICATE OF ELECTRONIC TRANSMISSION

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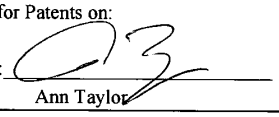
Date: Sept. 23, 2013 By: 
Ann Taylor

Google Exhibit 1006, Page 822 of 901

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/134,028	05/25/2011	Gregory G. Raleigh	RALEP032 [26WV-160509]	3250

107265 7590 09/19/2013

Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

EXAMINER	
RUDY, ANDREW J	

ART UNIT	PAPER NUMBER
3687	

NOTIFICATION DATE	DELIVERY MODE
09/19/2013	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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patent@headwaterllc.com

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Application No. : 13134028
Applicant : Raleigh
Filing Date : 05/25/2011
Date Mailed : 09/19/2013

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Notice of Allowance Mailed

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

Applicant is given 1 month(s) from the mail date of this Notice, or the time remaining from the Notice of Allowance and Fee(s) Due, whichever is longer, within which to respond.

The informalities requiring correction are indicated in the attachment(s). If the informality pertains to the abstract, specification (including claims) or drawings, the informality must be corrected with an amendment in compliance with 37 CFR 1.121 (or, if the application is a reissue application, 37 CFR 1.173). Such an amendment may be filed after payment of the issue fee if limited to correction of informalities noted herein. See Waiver of 37 CFR 1.312 for Documents Required by the Office of Patent Publication, 1280 Off. Gaz. Patent Office 918 (March 23, 2004). In addition, if the informality is not corrected until after payment of the issue fee, for purposes of 35 U.S.C. 154(b)(1)(iv), "all outstanding requirements" will be considered to have been satisfied when the informality has been corrected. A failure to respond within the above-identified time period will result in the application being ABANDONED. **This period for reply is NOT extendable under 37 CFR 1.136(a).**

See attachment(s).

A copy of this notice MUST be returned with the reply. Please address response to "Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450".

/Janeen Saxer/
Publication Branch
Office of Data Management
(571) 272-4200

Application No. 13134028

SPECIFICATION REFERS TO ITS OWN PAGE/PARAGRAPH NUMBER(S) AND/OR SPECIFICATION REFERS TO NONEXISTENT CLAIM(S)

[X] The patent will be printed in numbered columns with intercolumnar line numbers and without paragraph numbers. Any reference(s) within the applicant-filed specification to its own page number(s) or paragraph number(s) will have no meaning in the printed patent.

In response to this notice, the applicant either should file an amendment to the specification that removes the reference(s) to the page number(s) or paragraph number(s) or should submit a letter stating that the patent specification should be printed with the reference(s) to the page number(s) or paragraph number(s).

See Page(s)/Paragraph(s) SPEC 07/09/12 - amendment to paragraph [0003].

[ ] The specification refers by number to one or more claims that are not present in the allowed application – that is, the claim number(s) mentioned in the specification are higher than the total number of allowed claims.

In response to this notice, the applicant either should file an amendment to the specification that removes the reference(s) to the nonexistent claim(s) or should submit a letter stating that the patent specification should be printed with the reference(s) to the nonexistent claim(s).

See Page(s)/Paragraph(s) .

Electronic Acknowledgement Receipt	
EFS ID:	16932146
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	Krista Susan Jacobsen/Ann Taylor
Filer Authorized By:	Krista Susan Jacobsen
Attorney Docket Number:	RALEP032 [26WV-160509]
Receipt Date:	23-SEP-2013
Filing Date:	25-MAY-2011
Time Stamp:	21:37:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	P032RNFCAP.pdf	331060 75e6863b4685e0ed2967a8d45e9efa60721849c0	no	6
Warnings:					
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Total Files Size (in bytes):	331060

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

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350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

EXAMINER	
RUDY, ANDREW J	

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
13/134,028	25 May, 2011	RALEIGH ET AL.	RALEP032 [26WV-160509]

Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

EXAMINER	
ANDREW JOSEPH RUDY	
ART UNIT	PAPER
3687	20130920

DATE MAILED:

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Commissioner for Patents

Applicant's Information Disclosure Statement (IDS) submitted September 13, 2013 has been reviewed. Note the attached IDS.

/ANDREW JOSEPH RUDY/
Primary Examiner
Art Unit: 3687

PTO-90C (Rev.04-03)

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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

Application Number	13134028
Filing Date	2011-05-25
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J RUDY
Attorney Docket Number	RALEP032 [26WV-160509]

U.S.PATENTS

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	5630159	A	1997-05-13	Zancho, William F.	
	2	5633484	A	1997-05-27	Zancho, William F. et al.	
	3	5814798	A	1998-09-29	Zancho, William F.	
	4	5915008	A	1999-06-22	Dulman, Scott	
	5	6104700	A	2000-08-15	Haddock, Stephen R. et al.	
	6	6542992		2003-04-01	Peirce, Kenneth L. et al.	
	7	6654814		2003-11-25	Britton, Kathryn H. et al.	
	8	6934249	B1	2005-08-23	Bertin, Olivier et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

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	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP032 [26WV-160509]

	9	6957067		2005-10-18	Iyer, Pradeep J. et al.	
	10	7039713	B1	2006-05-02	Van Gunter, David et al.	
	11	7286848	B2	2007-10-23	Vireday, Richard P. et al.	
	12	7310424		2007-12-18	Gehring, Stephan Walter et al.	
	13	7313237	B2	2007-12-25	Bahl, Paramvir et al.	
	14	7356011		2008-04-08	Waters, Christopher J.F. et al.	
	15	7444669	B1	2008-10-28	Bahl, Paramvir et al.	
	16	7478420	B2	2009-01-13	Wright, Michael et al.	
	17	7493659	B1	2009-02-17	Wu, Handong et al.	
	18	7496652		2009-02-24	Pezzutti, David	
	19	7499438		2009-03-03	Hinman, Brian L. et al.	

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	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP032 [26WV-160509]

	20	7502672	B1	2009-03-10	Kolls, H. Brock	
	21	7535880		2009-05-19	Hinman, Brian L. et al.	
	22	7546460		2009-06-09	Maes, Stephane H.	
	23	7548976	B2	2009-06-16	Bahl, Paramvir et al.	
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	26	7756757	B1	2010-07-13	Oakes III, Charles Lee	
	27	7774456	B1	2010-08-10	Lownsbrough, Derek Leigh et al.	
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	30	7899438	B2	2011-03-01	Baker, Matthew Donald et al.	

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	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP032 [26WV-160509]

	31	7921463		2011-04-05	Sood, Kapil et al.	
	32	8521110		2013-08-27	Rofougaran, Ahmadreza	
	33	7930446	B2	2011-04-19	Kesselman, Alex et al.	
	34	7940751		2011-05-10	Hansen, Christopher J.	
	35	7945238	B2	2011-05-17	Baker, Matthew Donald et al.	
	36	7948953	B2	2011-05-24	Melkote, Keerti G. et al.	
	37	8000276	B2	2011-08-16	Scherzer, Shimon et al.	
	38	8019886	B2	2011-09-13	Harrang, Jeffrey Paul et al.	
	39	8027339	B2	2011-09-27	Short, Joel E. et al.	
	40	8068829	B2	2011-11-29	Lemond, Eric et al.	
	41	8078140	B2	2011-12-13	Baker, Matthew Donald et al.	

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	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP032 [26WV-160509]

	42	8078163	B2	2011-12-13	Lemond, Eric et al.	
	43	8086497	B1	2011-12-27	Oakes III, Charles Lee	
	44	8090359		2012-01-03	Proctor Jr., James Arthur et al.	
	45	8090616		2012-01-03	Proctor Jr., James Arthur et al.	
	46	8095112	B2	2012-01-10	Chow, Richard et al.	
	47	8116749		2012-02-14	Proctor Jr., James Arthur et al.	
	48	8122249		2012-02-21	Falk, Rainer et al.	
	49	8126476	B2	2012-02-28	Vardi, Yosef et al.	
	50	8134954		2013-03-13	Godfrey, James A. et al.	
	51	8150431		2012-04-03	Wolovitz, Lionel et al.	
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	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP032 [26WV-160509]

	53	8185093		2012-05-22	Jheng, Yu-Syuan et al.	
	54	8185127	B1	2012-05-22	Cai, Zheng et al.	
	55	8195163	B2	2012-06-05	Gisby, Doug et al.	
	56	8200509	B2	2012-06-12	Kenedy, Andrew Alexander et al.	
	57	8242959	B2	2012-08-14	Mia, Rashidus S. et al.	
	58	8270972	B2	2012-09-18	Otting, Marcia J. et al.	
	59	8285249	B2	2012-10-09	Baker, Matthew Donald et al.	
	60	8296404		2012-10-23	McDysan, Dave et al.	
	61	8307067	B2	2012-11-06	Ryan, Nicholas M.	
	62	8325638		2012-12-04	Jin, Haipeng et al.	
	63	8326319	B2	2012-12-04	Davis, Richard W.	

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	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP032 [26WV-160509]

	64	8356336	B2	2013-01-15	Johnston, Keith et al.	
	65	8358638	B2	2013-01-22	Scherzer, Tamir et al.	
	66	8369274	B2	2013-02-05	Sawai, Ryo	
	67	8374592		2013-02-12	Proctor, Jr. James A. et al.	
	68	8379847		2013-02-19	Bell, Robert H. et al.	
	69	8437734		2013-05-07	Ray, Amar N. et al.	
	70	8447607	B2	2013-05-21	Weider, Chris et al.	
	71	8472371		2013-06-25	Bari, Farooq et al.	
	72	8483135		2013-07-09	Cai, Yigang et al.	
	73	8495227		2013-07-23	Kaminsky, David L. et al.	
	74	8495360		2013-07-23	Falk, Rainer et al.	

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	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP032 [26WV-160509]

	75	8504729		2013-08-06	Pezzutti, David A.	

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20010048738	A	2001-12-06	Baniak, Paul G. et al.	
	2	20020049074	A	2002-04-25	Eisinger, Bernd et al.	
	3	20020161601	A	2002-10-31	Nauer, Bernhard et al.	
	4	20030233332	A	2003-12-18	Keeler, James D. et al.	
	5	20040102182	A	2004-05-27	Reith, Lothar et al.	
	6	20060068796	A	2006-03-30	Millen, Stephanie L. et al.	
	7	20060135144	A	2006-06-22	Jothipragasam, Premkumar	
	8	20070033197	A	2007-02-08	Scherzer, Shimon et al.	

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	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP032 [26WV-160509]

	9	20070109983	A	2007-05-17	Shankar, Rohit et al.	
	10	20070147324		2007-06-28	McGary, Faith	
	11	20070155365	A	2007-07-05	Kim, Sung-Jun et al.	
	12	20080022354	A	2008-01-24	Grewal, Karanvir et al.	
	13	20080089295	A	2008-04-17	Keeler, James D. et al.	
	14	20080250053	A	2008-10-09	Aaltonen, Janne et al.	
	15	20090005000	A	2009-01-01	Baker, Matthew et al.	
	16	20090006116	A	2009-01-01	Baker, Matthew et al.	
	17	20090006200	A	2009-01-01	Baker, Matthew et al.	
	18	20100080202		2010-04-01	Hanson, Mark	
	19	20100131584		2010-05-27	Johnson, William J.	

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	Attorney Docket Number	RALEP032 [26WV-160509]

	20	20110013569	A	2011-01-20	Scherzer, Shimon et al.	
	21	20110081881	A	2011-04-07	Baker, Matthew Donald et al.	
	22	20110082790	A	2011-04-07	Baker, Matthew Donald et al.	
	23	20110159818	A	2011-06-30	Scherzer, Shimon et al.	
	24	20130084835	A	2013-04-04	Scherzer, Shimon et al.	
	25	20120020296	A	2012-01-26	Scherzer, Shimon et al.	
	26	20130095787		2013-04-18	Kashanian, Nematolah	
	27	20120196644	A	2012-08-02	Scherzer, Shimon et al.	
	28	20120238287	A	2012-09-20	Scherzer, Shimon	
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	30	20130029653	A	2013-01-31	Baker, Matthew Donald et al.	

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	Attorney Docket Number	RALEP032 [26WV-160509]

	31	20130144789		2013-06-06	Aaltonen, Janne et al.	
	32	20130058274	A	2013-03-07	Scherzer, Shimon et al.	
	33	20130065555	A	2013-03-14	Baker, Matthew Donald et al.	

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FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	1998058505	WO		1998-12-23	Sonera Oy		☐
	2	2007097786	WO	A	2007-08-30	Sony Ericsson Mobile Communications AB		☐

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NON-PATENT LITERATURE DOCUMENTS

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]
	1	Accuris Networks, "The Business Value of Mobile Data Offload – a White Paper", 2010	☐
	2	ANTON, B. et al., "Best Current Practices for Wireless Internet Service Provider (WISP) Roaming"; Release Date February 2003, Version 1.0; Wi-Fi Alliance – Wireless ISP Roaming (WISPr)	☐

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP032 [26WV-160509]

	3	Ruckus Wireless – White Paper; "Smarter Wi-Fi for Mobile Operator Infrastructures" 2010	☐
	4	THURSTON, Richard, "WISPr 2.0 Boosts Roaming Between 3G and Wi-Fi"; June 23, 2010; Web page from zdnet. com; Zdnet.com/wispr-2-0-boosts-roaming-between-3g-and-wi-fi-3040089325/	☐
	5	Wireless Broadband Alliance, "WISPr 2.0, 08 April, 2010"; Doc. Ref. No.: WBA/RM/WISPr, Version 01.00	☐

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EXAMINER SIGNATURE

Examiner Signature	/Andrew Joseph Rudy/	Date Considered	09/20/2013

*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.

[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.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Raleigh et al.	Examiner:	RUDY, Andrew J.
Serial No.:	13/134,028	Art Unit:	3687
Filed:	May 25, 2011	Conf. No.:	3250
Title:	Device-Assisted Services for Protecting Network Capacity		

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

PETITION UNDER 37 C.F.R. § 1.181 AND REQUEST FOR A CORRECTED FILING RECEIPT

Madam:

Applicants respectfully submit this Petition to request the removal of certain foreign priority information from the record of the above-captioned application.

The data on PAIR indicates that the above-captioned application claims priority to German application No. 10 2009 030 492.4, which was apparently filed on June 24, 2009 (the „German Application„). Likewise, the filing receipt mailed on September 3, 2013, indicates that the above-captioned application claims priority to the German Application.

In fact, Applicants never claimed priority to the German Application, whether in the originally-filed specification, an amendment to the specification, or an application data sheet filed in the application. Moreover, the German Application was not referenced in any assignment, oath, or declaration. Indeed, to Applicants„ knowledge, none of the inventors listed on the instant application is even listed as an inventor on the German Application.

Google Exhibit 1006, Page 842 of 901

Applicants therefore respectfully request that any and all references to the German Application be removed from the above-captioned application. Applicants also request a corrected filing receipt showing that the German Application has been removed.

CONCLUSION

Applicants respectfully request prompt grant of this Petition.

Applicants believe that no fee is owed for the filing of this Petition, but the Commissioner is nevertheless authorized to charge any fee deficiency or credit any overpayment to Deposit Account 50-5876.

Respectfully submitted,

Date: October 9, 2013 By: /Krista S. Jacobsen/

Krista S. Jacobsen
Reg. No. 59,374
Head Counsel
Headwater Partners I LLC
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065
(650) 517-2798

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being filed electronically via EFS-Web addressed to the Commissioner for Patents on:

Date: Oct. 9, 2013 By: /Ann Taylor/
Ann Taylor

Google Exhibit 1006, Page 843 of 901

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/134,028	05/25/2011	3687	7055	RALEP032 [26WV-160509]	115	14

CONFIRMATION NO. 3250

CORRECTED FILING RECEIPT

107265
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

Date Mailed: 09/03/2013

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

Inventor(s)

Gregory G. Raleigh, Woodside, CA;
Alireza Raissinia, Monte Sereno, CA;
James Lavine, Corte Medera, CA;

Applicant(s)

Gregory G. Raleigh, Woodside, CA;
Alireza Raissinia, Monte Sereno, CA;
James Lavine, Corte Medera, CA;

Power of Attorney: The patent practitioners associated with Customer Number 107265

Domestic Priority data as claimed by applicant

This application is a CIP of 12/380,759 03/02/2009 PAT 8270310
and claims benefit of 61/472,606 04/06/2011
and claims benefit of 61/435,564 01/24/2011
and claims benefit of 61/422,574 12/13/2010
and claims benefit of 61/422,572 12/13/2010
and claims benefit of 61/422,565 12/13/2010
and claims benefit of 61/420,727 12/07/2010
and claims benefit of 61/418,509 12/01/2010
and claims benefit of 61/418,507 12/01/2010
and claims benefit of 61/407,358 10/27/2010
and claims benefit of 61/389,547 10/04/2010
and claims benefit of 61/387,247 09/28/2010
and claims benefit of 61/387,243 09/28/2010
and claims benefit of 61/385,020 09/21/2010
and claims benefit of 61/384,456 09/20/2010

and claims benefit of 61/381,162 09/09/2010
and claims benefit of 61/381,159 09/09/2010
and claims benefit of 61/348,022 05/25/2010
and is a CIP of 13/134,005 05/25/2011
which is a CIP of 12/380,759 03/02/2009 PAT 8270310
and is a CIP of 12/380,779 03/02/2009
and is a CIP of 12/380,758 03/02/2009
and is a CIP of 12/380,778 03/02/2009 PAT 8321526
and is a CIP of 12/380,768 03/02/2009
and is a CIP of 12/380,767 03/02/2009 PAT 8355337
and is a CIP of 12/380,780 03/02/2009
and is a CIP of 12/380,755 03/02/2009 PAT 8331901
and is a CIP of 12/380,756 03/02/2009 PAT 8250207
and is a CIP of 12/380,782 03/02/2009 PAT 8270952
and is a CIP of 12/380,770 03/02/2009 ABN
and is a CIP of 12/380,772 03/02/2009
and is a CIP of 12/380,783 03/02/2009
and is a CIP of 12/380,757 03/02/2009 PAT 8326958
and is a CIP of 12/380,781 03/02/2009 PAT 8229812
and is a CIP of 12/380,774 03/02/2009
and is a CIP of 12/380,771 03/02/2009 PAT 8023425
and is a CIP of 12/380,773 03/02/2009
and is a CIP of 12/380,769 03/02/2009
and is a CIP of 12/380,777 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and said 13/134,005 05/25/2011
is a CIP of 12/695,019 01/27/2010 PAT 8275830
which is a CIP of 12/380,778 03/02/2009 PAT 8321526
and is a CIP of 12/380,771 03/02/2009 PAT 8023425
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and said 12/695,019 01/27/2010
claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/264,126 11/24/2009
and said 13/134,005 01/27/2010
is a CIP of 12/695,020 01/27/2010 PAT 8406748
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/275,208 08/25/2009
and claims benefit of 61/237,753 08/28/2009
and said 13/134,005 01/27/2010
is a CIP of 12/694,445 01/27/2010 PAT 8391834
which is a CIP of 12/380,780 03/02/2009

and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/252,151 10/15/2009
and said 13/134,005 01/27/2010
is a CIP of 12/694,451 01/27/2010
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/252,153 10/15/2009
and said 13/134,005 01/27/2010
is a CIP of 12/694,455 01/27/2010 PAT 8402111
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/264,120 11/24/2009
and said 13/134,005 01/27/2010
is a CIP of 12/695,021 01/27/2010 PAT 8346225
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/252,151 10/15/2009
and claims benefit of 61/252,153 10/15/2009
and said 13/134,005 01/27/2010
is a CIP of 12/695,980 01/28/2010 PAT 8340634
which is a CIP of 12/380,780 03/02/2009
and is a CIP of 12/695,019 01/27/2010 PAT 8275830
and is a CIP of 12/695,021 01/27/2010 PAT 8346225
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
This application 13/134,028
is a CIP of 12/695,980 01/28/2010 PAT 8340634
and said 12/695,980
is a CIP of 12/380,780 03/02/2009
and is a CIP of 12/695,019 01/27/2010 PAT 8275830
and is a CIP of 12/695,021 01/27/2010 PAT 8346225
and claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

and claims benefit of 61/270,353 07/06/2009
This application 13/134,028
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which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
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and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/252,151 10/15/2009
and claims benefit of 61/252,153 10/15/2009
This application 13/134,028
is a CIP of 12/694,455 01/27/2010 PAT 8402111
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/264,120 11/24/2009
This application 13/134,028
is a CIP of 12/694,451 01/27/2010
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and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/252,153 10/15/2009
This application 13/134,028
is a CIP of 12/694,445 01/27/2010 PAT 8391834
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/252,151 10/15/2009
This application 13/134,028
is a CIP of 12/695,020 01/27/2010 PAT 8406748
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/275,208 08/25/2009
and claims benefit of 61/237,753 08/28/2009
This application 13/134,028
is a CIP of 12/695,019 01/27/2010 PAT 8275830
which is a CIP of 12/380,778 03/02/2009 PAT 8321526
and is a CIP of 12/380,771 03/02/2009 PAT 8023425
and claims benefit of 61/206,354 01/28/2009
and said 12/695,019
claims benefit of 61/206,944 02/04/2009

and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/264,126 11/24/2009
This application 13/134,028
is a CIP of 12/380,777 03/02/2009
which claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,773 03/02/2009
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
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and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,781 03/02/2009 PAT 8229812
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,757 03/02/2009 PAT 8326958
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,783 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,782 03/02/2009 PAT 8270952
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009

and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,772 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application is a CIP of 12/380,771 03/02/2009 PAT 8023425
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,770 03/02/2009 ABN
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,756 03/02/2009 PAT 8250207
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,755 03/02/2009 PAT 8331901
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,780 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,767 03/02/2009 PAT 8355337
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/207,393 02/10/2009
This application 13/134,028
is a CIP of 12/380,768 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,778 03/02/2009 PAT 8321526
which claims benefit of 61/206,354 01/28/2009

and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,758 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,779 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and said 12/380,759
claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

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.)
~~GERMANY 10 2009 030 492.4 06/24/2009~~

Permission to Access - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 06/15/2011

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/134,028**

Projected Publication Date: Not Applicable

Non-Publication Request: No

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

DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY

Preliminary Class

705

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same

effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

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

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

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

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

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with

Google Exhibit 1006, Page 851 of 901

respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

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Google Exhibit 1006, Page 852 of 901

Electronic Acknowledgement Receipt	
EFS ID:	17084209
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	Krista Susan Jacobsen/Ann Taylor
Filer Authorized By:	Krista Susan Jacobsen
Attorney Docket Number:	RALEP032 [26WV-160509]
Receipt Date:	09-OCT-2013
Filing Date:	25-MAY-2011
Time Stamp:	16:09:35
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	Petition for review by the Office of Petitions.	P032Petitionx.pdf	1153238 8afa3ce71d7b72a1fb988750739884e2fa266edb	no	11
Warnings:					
Information:					

Total Files Size (in bytes):	1153238

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/134,028	05/25/2011	3687	7355	RALEP032 [26WV-160509]	115	14

CONFIRMATION NO. 3250

107265
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

CORRECTED FILING RECEIPT

OC000000064341042

Date Mailed: 10/11/2013

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

Inventor(s)

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James Lavine, Corte Medera, CA;

Applicant(s)

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Alireza Raissinia, Monte Sereno, CA;
James Lavine, Corte Medera, CA;

Power of Attorney: The patent practitioners associated with Customer Number 107265

Domestic Priority data as claimed by applicant

This application is a CIP of 12/380,759 03/02/2009 PAT 8270310
and claims benefit of 61/472,606 04/06/2011
and claims benefit of 61/435,564 01/24/2011
and claims benefit of 61/422,574 12/13/2010
and claims benefit of 61/422,572 12/13/2010
and claims benefit of 61/422,565 12/13/2010
and claims benefit of 61/420,727 12/07/2010
and claims benefit of 61/418,509 12/01/2010
and claims benefit of 61/418,507 12/01/2010
and claims benefit of 61/407,358 10/27/2010
and claims benefit of 61/389,547 10/04/2010
and claims benefit of 61/387,247 09/28/2010
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and claims benefit of 61/385,020 09/21/2010
and claims benefit of 61/384,456 09/20/2010

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and claims benefit of 61/381,162 09/09/2010
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and claims benefit of 61/348,022 05/25/2010
and is a CIP of 13/134,005 05/25/2011
which is a CIP of 12/380,759 03/02/2009 PAT 8270310
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and is a CIP of 12/380,755 03/02/2009 PAT 8331901
and is a CIP of 12/380,756 03/02/2009 PAT 8250207
and is a CIP of 12/380,782 03/02/2009 PAT 8270952
and is a CIP of 12/380,770 03/02/2009 ABN
and is a CIP of 12/380,772 03/02/2009
and is a CIP of 12/380,783 03/02/2009
and is a CIP of 12/380,757 03/02/2009 PAT 8326958
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and is a CIP of 12/380,774 03/02/2009
and is a CIP of 12/380,771 03/02/2009 PAT 8023425
and is a CIP of 12/380,773 03/02/2009
and is a CIP of 12/380,769 03/02/2009
and is a CIP of 12/380,777 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and said 13/134,005 05/25/2011
is a CIP of 12/695,019 01/27/2010 PAT 8275830
which is a CIP of 12/380,778 03/02/2009 PAT 8321526
and is a CIP of 12/380,771 03/02/2009 PAT 8023425
and claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and said 12/695,019 01/27/2010
claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/264,126 11/24/2009
and said 13/134,005 01/27/2010
is a CIP of 12/695,020 01/27/2010 PAT 8406748
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/275,208 08/25/2009
and claims benefit of 61/237,753 08/28/2009
and said 13/134,005 01/27/2010
is a CIP of 12/694,445 01/27/2010 PAT 8391834
which is a CIP of 12/380,780 03/02/2009

and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/252,151 10/15/2009
and said 13/134,005 01/27/2010
is a CIP of 12/694,451 01/27/2010 PAT 8548428
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/252,153 10/15/2009
and said 13/134,005 01/27/2010
is a CIP of 12/694,455 01/27/2010 PAT 8402111
which is a CIP of 12/380,780 03/02/2009
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/264,120 11/24/2009
and said 13/134,005 01/27/2010
is a CIP of 12/695,021 01/27/2010 PAT 8346225
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/252,151 10/15/2009
and claims benefit of 61/252,153 10/15/2009
and said 13/134,005 01/27/2010
is a CIP of 12/695,980 01/28/2010 PAT 8340634
which is a CIP of 12/380,780 03/02/2009
and is a CIP of 12/695,019 01/27/2010 PAT 8275830
and is a CIP of 12/695,021 01/27/2010 PAT 8346225
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
This application 13/134,028
is a CIP of 12/695,980 01/28/2010 PAT 8340634
and said 12/695,980
is a CIP of 12/380,780 03/02/2009
and is a CIP of 12/695,019 01/27/2010 PAT 8275830
and is a CIP of 12/695,021 01/27/2010 PAT 8346225
and claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

and claims benefit of 61/270,353 07/06/2009
This application 13/134,028
is a CIP of 12/695,021 01/27/2010 PAT 8346225
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/252,151 10/15/2009
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is a CIP of 12/694,455 01/27/2010 PAT 8402111
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and claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/264,120 11/24/2009
This application 13/134,028
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which is a CIP of 12/380,780 03/02/2009
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and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/252,153 10/15/2009
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is a CIP of 12/694,445 01/27/2010 PAT 8391834
which is a CIP of 12/380,780 03/02/2009
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and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/275,208 08/25/2009
and claims benefit of 61/237,753 08/28/2009
This application 13/134,028
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which is a CIP of 12/380,778 03/02/2009 PAT 8321526
and is a CIP of 12/380,771 03/02/2009 PAT 8023425
and claims benefit of 61/206,354 01/28/2009
and said 12/695,019
claims benefit of 61/206,944 02/04/2009

and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/264,126 11/24/2009
This application 13/134,028
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and claims benefit of 61/207,739 02/13/2009
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This application 13/134,028
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and claims benefit of 61/207,739 02/13/2009
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and claims benefit of 61/207,739 02/13/2009
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and claims benefit of 61/206,944 02/04/2009
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is a CIP of 12/380,770 03/02/2009 ABN
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,780 03/02/2009
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and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
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and claims benefit of 61/207,393 02/10/2009
This application 13/134,028
is a CIP of 12/380,768 03/02/2009
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,778 03/02/2009 PAT 8321526
which claims benefit of 61/206,354 01/28/2009

and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,758 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,779 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and said 12/380,759
claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

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

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The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/134,028**

Projected Publication Date: Not Applicable

Non-Publication Request: No

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

DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY

Preliminary Class

705

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

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security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

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Google Exhibit 1006, Page 863 of 901

Substitute for form 1449/PTO	Complete if Known	
Information Disclosure Statement By Applicant	Application No.:	13/134,028
(Use as many sheets as necessary)	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
Sheet 3 of 4	Atty Docket No.	26WV-160509 [RALEP032]

	EEEE.	US 2008/0305793	12-11-2008	GALLAGHER et al.	
	FFFF.	US 2008/0083013	04-03-2008	SOLIMAN et al.	
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W02-WEST[illegible] ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

PTO/SB/08 (08-03)

Substitute for form 1449/PTO	Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*	Application No.:	13/134,028
	Filing Date	2011-05-25
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2447
	Examiner Name	Not Yet Assigned
Sheet 1 of 4	Atty Docket No.	26WV-160509 [RALEP032]

U.S. Patent Documents					
Examiner Initials	CiteNo.	Document Number Number-Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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	NN.	US 2008/0082643	04-03-2008	STORRIE et al.	

Change(s) applied to document.
/N.W.S./
9/18/2013

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/134,028	05/25/2011	Gregory G. Raleigh	RALEP032 [26WV-160509]	3250

107265 7590 10/21/2013

Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

EXAMINER	
RUDY, ANDREW J	

ART UNIT	PAPER NUMBER
3687	

NOTIFICATION DATE	DELIVERY MODE
10/21/2013	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):

patent@headwaterllc.com

PTOL-90A (Rev. 04/07)

Response to Rule 312 Communication	Application No. 13/134,028	Applicant(s)
	Examiner	Art Unit

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

1. ☒ The amendment filed on *23 September 2013* under 37 CFR 1.312 has been considered, and has been:

   a) ☒ entered.

   b) ☐ entered as directed to matters of form not affecting the scope of the invention.

   c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
   Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

   d) ☐ disapproved. See explanation below.

   e) ☐ entered in part. See explanation below.

MN

Publishing Division

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Headwater Partners I LLC - Outside Firm 1
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MAILED
OCT 21 2013
OFFICE OF PETITIONS

In re Application of
RALEIGH et al.
Application No. 13/134,028
Filed: May 25, 2011
Atty Docket No. RALEP032 [26WV-160509]

DECISION ON PETITION AND REQUEST FOR CORRECTED FILING RECEIPT

This is a decision on the "PETITION UNDER 37 C.F.R. § 1.181 AND REQUEST FOR A CORRECTED FILING RECEIPT" filed October 9, 2013, to remove the claim under 37 CFR 1.55 for foreign priority to German application No. 10 2009 030 492.4 and to mail an updated filing receipt.

In the present petition, applicants assert:

> The data on PAIR indicates that the above-captioned application claims priority to German application No. 10 2009 030 492.4, which was apparently filed on June 24, 2009 (the "German Application"). Likewise, the filing receipt mailed on September 3, 2013, indicates that the above-captioned application claims priority to the German Application.
>
> In fact, Applicants never claimed priority to the German Application, whether in the originally-filed specification, an amendment to the specification, or an application data sheet filed in the application. Moreover, the German Application was not referenced in any assignment, oath, or declaration. Indeed, to Applicants' knowledge, none of the inventors listed on the instant application is even listed as an inventor on the German Application.

Petition, 10/09/13, p. 1.

A review of the record indicates that applicants did not make a claim under 37 CFR 1.55 for foreign priority to German application No. 10 2009 030 492.4 in any application data sheet or oath or declaration filed in this application. Rather, it appears that the Office entered the foreign priority claim to the German application in error.

Accordingly, the petition under 37 CFR 1.181 is **GRANTED**.

The Office has updated its records and has removed the foreign priority claim to German application No. 10 2009 030 492.4. A corrected filing receipt reflecting the removal of the claim under 37 CFR 1.55 for foreign priority to German application No. 10 2009 030 492.4 accompanies this decision.

This application is being forwarded to the Office of Data Management for issuance of the patent.

Any questions concerning this matter may be directed to the undersigned at (571) 272-3211.

/Christina Tartera Donnell/

Christina Tartera Donnell
Attorney Advisor
Office of Petitions

Enclosed: Corrected Filing Receipt

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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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
13/134,028	05/25/2011	3687	7355	RALEP032 [26WV-160509]	115	14

CONFIRMATION NO. 3250

CORRECTED FILING RECEIPT

107265
Headwater Partners I LLC - Outside Firm 1
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OC00000006434 1042

Date Mailed: 10/11/2013

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

Inventor(s)

Gregory G. Raleigh, Woodside, CA;
Alireza Raissinia, Monte Sereno, CA;
James Lavine, Corte Medera, CA;

Applicant(s)

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Alireza Raissinia, Monte Sereno, CA;
James Lavine, Corte Medera, CA;

Power of Attorney: The patent practitioners associated with Customer Number 107265

Domestic Priority data as claimed by applicant

This application is a CIP of 12/380,759 03/02/2009 PAT 8270310
and claims benefit of 61/472,606 04/06/2011
and claims benefit of 61/435,564 01/24/2011
and claims benefit of 61/422,574 12/13/2010
and claims benefit of 61/422,572 12/13/2010
and claims benefit of 61/422,565 12/13/2010
and claims benefit of 61/420,727 12/07/2010
and claims benefit of 61/418,509 12/01/2010
and claims benefit of 61/418,507 12/01/2010
and claims benefit of 61/407,358 10/27/2010
and claims benefit of 61/389,547 10/04/2010
and claims benefit of 61/387,247 09/28/2010
and claims benefit of 61/387,243 09/28/2010
and claims benefit of 61/385,020 09/21/2010
and claims benefit of 61/384,456 09/20/2010

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and claims benefit of 61/381,162 09/09/2010
and claims benefit of 61/381,159 09/09/2010
and claims benefit of 61/348,022 05/25/2010
and is a CIP of 13/134,005 05/25/2011
which is a CIP of 12/380,759 03/02/2009 PAT 8270310
and is a CIP of 12/380,779 03/02/2009
and is a CIP of 12/380,758 03/02/2009
and is a CIP of 12/380,778 03/02/2009 PAT 8321526
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and is a CIP of 12/380,755 03/02/2009 PAT 8331901
and is a CIP of 12/380,756 03/02/2009 PAT 8250207
and is a CIP of 12/380,782 03/02/2009 PAT 8270952
and is a CIP of 12/380,770 03/02/2009 ABN
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and is a CIP of 12/380,757 03/02/2009 PAT 8326958
and is a CIP of 12/380,781 03/02/2009 PAT 8229812
and is a CIP of 12/380,774 03/02/2009
and is a CIP of 12/380,771 03/02/2009 PAT 8023425
and is a CIP of 12/380,773 03/02/2009
and is a CIP of 12/380,769 03/02/2009
and is a CIP of 12/380,777 03/02/2009
which claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and said 13/134,005 05/25/2011
is a CIP of 12/695,019 01/27/2010 PAT 8275830
which is a CIP of 12/380,778 03/02/2009 PAT 8321526
and is a CIP of 12/380,771 03/02/2009 PAT 8023425
and claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,739 02/13/2009
and said 12/695,019 01/27/2010
claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/264,126 11/24/2009
and said 13/134,005 01/27/2010
is a CIP of 12/695,020 01/27/2010 PAT 8406748
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/275,208 08/25/2009
and claims benefit of 61/237,753 08/28/2009
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is a CIP of 12/694,445 01/27/2010 PAT 8391834
which is a CIP of 12/380,780 03/02/2009

and claims benefit of 61/206,354 01/28/2009
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is a CIP of 12/694,451 01/27/2010 PAT 8548428
which is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
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is a CIP of 12/694,455 01/27/2010 PAT 8402111
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/264,120 11/24/2009
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and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/252,151 10/15/2009
and claims benefit of 61/252,153 10/15/2009
and said 13/134,005 01/27/2010
is a CIP of 12/695,980 01/28/2010 PAT 8340634
which is a CIP of 12/380,780 03/02/2009
and is a CIP of 12/695,019 01/27/2010 PAT 8275830
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This application 13/134,028
is a CIP of 12/695,980 01/28/2010 PAT 8340634
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Google Exhibit 1006, Page 872 of 901

and claims benefit of 61/270,353 07/06/2009
This application 13/134,028
is a CIP of 12/695,021 01/27/2010 PAT 8346225
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and claims benefit of 61/264,126 11/24/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,781 03/02/2009 PAT 8229812
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,757 03/02/2009 PAT 8326958
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
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This application 13/134,028
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which claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
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and claims benefit of 61/207,393 02/10/2009

and claims benefit of 61/207,739 02/13/2009
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and claims benefit of 61/207,739 02/13/2009
This application is a CIP of 12/380,771 03/02/2009 PAT 8023425
which claims benefit of 61/206,354 01/28/2009
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and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
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This application 13/134,028
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This application 13/134,028
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This application 13/134,028
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and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
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This application 13/134,028
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and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
is a CIP of 12/380,778 03/02/2009 PAT 8321526
which claims benefit of 61/206,354 01/28/2009

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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
This application 13/134,028
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and claims benefit of 61/207,739 02/13/2009
and said 12/380,759
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

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

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If Required, Foreign Filing License Granted: 06/15/2011

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/134,028**

Projected Publication Date: Not Applicable

Non-Publication Request: No

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

DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY

Preliminary Class

705

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

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Bib Data Sheet

CONFIRMATION NO. 3250

SERIAL NUMBER	FILING OR 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
13/134,028	05/25/2011 RULE	705	3687	RALEP032 [26WV-160509]

APPLICANTS

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James Lavine, Corte Medera, CA;

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This application is a CIP of 12/380,759 03/02/2009 PAT 8270310
and claims benefit of 61/472,606 04/06/2011
and claims benefit of 61/435,564 01/24/2011
and claims benefit of 61/422,574 12/13/2010
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and claims benefit of 61/206,944 02/04/2009
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is a CIP of 12/695,019 01/27/2010 PAT 8275830
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and claims benefit of 61/207,739 02/13/2009
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and claims benefit of 61/275,208 08/25/2009
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is a CIP of 12/694,445 01/27/2010 PAT 8391834
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and claims benefit of 61/206,944 02/04/2009
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and claims benefit of 61/252,151 10/15/2009
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is a CIP of 12/694,455 01/27/2010 PAT 8402111
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This application 13/134,028
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This application 13/134,028
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and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009

** FOREIGN APPLICATIONS **********

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** SMALL ENTITY **
** 06/15/2011

Foreign Priority claimed ☐ yes ☐ no 35 USC 119 (a-d) conditions met ☐ yes ☐ no ☐ Met after Allowance Verified and Acknowledged Examiner's Signature Initials	STATE OR COUNTRY CA	SHEETS DRAWING 29	TOTAL CLAIMS 115	INDEPENDENT CLAIMS 14

ADDRESS
107265

TITLE
DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY

FILING FEE RECEIVED 7355	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13134028
	Filing Date	2011-05-25
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP032 [26WV-160509]

	42	8078163	B2	2011-12-13	Lemond, Eric et al.	
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	44	8090359		2012-01-03	Proctor Jr., James Arthur et al.	
	45	8090616		2012-01-03	Proctor Jr., James Arthur et al.	
	46	8095112	B2	2012-01-10	Chow, Richard et al.	
	47	8116749		2012-02-14	Proctor Jr., James Arthur et al.	
	48	8122249		2012-02-21	Falk, Rainer et al.	
	49	8126476	B2	2012-02-28	Vardi, Yosef et al.	
Change(s) applied to document, /T.W/ 10/22/2013	50	8134954		2012-03-13	Godfrey, James A. et al.	
	51	8150431		2012-04-03	Wolovitz, Lionel et al.	
	52	8166040	B2	2012-04-24	Brindisi, Richard G. et al.	

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/134,028	11/19/2013	8589541	RALEP032 [26WV-160509]	3250

107265 7590 10/30/2013

Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

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):

Gregory G. Raleigh, Woodside, CA;
Alireza Raissinia, Monte Sereno, CA;
James Lavine, Corte Medera, CA;

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Title:
Gregory G. Raleigh *et al.*	Device-Assisted Services for Protecting Network Capacity
Application Serial No. 13/134,028	Patent No. 8,589,541
Filing Date: May 25, 2011	Issue Date: November 19, 2013

Commissioner for Patents
Office of Patent Publication
ATTN: Certificate of Correction Branch
P.O. Box 1450
Alexandria, VA 22313-1450

MISCELLANEOUS COMMUNICATION REGARDING CERTIFICATE OF CORRECTION

Madam:

Applicant/Patentee (hereinafter, "Applicant") respectfully requests that the Office issue a Certificate of Correction for U.S. Patent No. 8,589,541 to correct a typographical error in claim 43. The error being corrected is the Office's error.

In Applicant's amendment dated June 11, 2013, claim 157 recites:

> 157. The non-transitory computer-readable storage medium recited in claim 155, wherein the second wireless network is a wireless fidelity (WiFi) network or a home network.

Claim 155 of the amendment was renumbered as claim 41 in the issued patent, and claim 157 was renumbered as claim 43. Claim 43 of the issued patent recites:

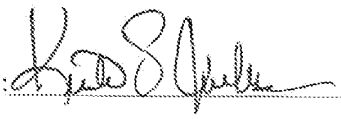
> 43. The non-transitory computer-readable storage medium recited in claim **1**, wherein the second wireless network is a wireless fidelity (WiFi) network or a home network.

Google Exhibit 1006, Page 887 of 901

Claim 43 of the issued patent mistakenly depends from claim 1 rather than claim 41.

Applicant respectfully requests issuance of the Certificate of Correction to correct the error in claim 43. Because the error in claim 43 was the Office's error, Applicant believes that no fee is owed with this request. Nevertheless, the Office is hereby authorized to charge any additional fee required or credit any overpayment to Deposit Account No. **50-5876**.

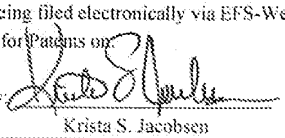
Respectfully submitted,

Date: March 11, 2014 By: 

Krista S. Jacobsen
Reg. No. 59,374
(408) 455-5539

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being filed electronically via EFS-Web addressed to the Commissioner for Patents on:

Date: March 11, 2014 By: 
Krista S. Jacobsen

Google Exhibit 1006, Page 888 of 901

PTO/SB/44 (09-07)
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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 8,589,541

APPLICATION NO.: 13/134,028

ISSUE DATE : November 19, 2013

INVENTOR(S) : Gregory G. Raleigh, Alireza Raissinia, James Lavine

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In column 114, line 6 (the second line of claim 43), the phrase "claim 1" should be changed to --claim 41--.

MAILING ADDRESS OF SENDER (Please do not use customer number below):

Headwater Partners I LLC
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. 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 1.0 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: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

Privacy Act Statement

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

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

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

Electronic Acknowledgement Receipt	
EFS ID:	18430476
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	Krista Susan Jacobsen
Filer Authorized By:	
Attorney Docket Number:	RALEP032 [26WV-160509]
Receipt Date:	11-MAR-2014
Filing Date:	25-MAY-2011
Time Stamp:	12:42:44
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	Request for Certificate of Correction	P032CoC_req.pdf	424608 68007c92aa6f0de407ae6e78f1819ab9e66c06e3	no	4
Warnings:					
Information:					

Total Files Size (in bytes):	424608

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO.	: 8,589,541 B2
APPLICATION NO.	: 13/134028
DATED	: November 19, 2013
INVENTOR(S)	: Gregory G. Raleigh, Alireza Raissinia and James Lavine

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims:

In column 114, line 6 (the second line of claim 43), the phrase "claim 1" should be changed to --claim 41--.

Signed and Sealed this
Twenty-seventh Day of May, 2014

Michelle K. Lee

Michelle K. Lee
Deputy Director of the United States Patent and Trademark Office

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Raleigh et al.	Patent No.: 8,589,541
Serial No.: 13/134,028	Issue Date: November 19, 2013
Filing Date: May 25, 2011	Conf. No.: 3250
Title: Device-Assisted Services for Protecting Network Capacity	

Commissioner for Patents
Office of Patent Publication
ATTN: Certificate of Correction Branch
P.O. Box 1450
Alexandria, VA 22313-1450

MISCELLANEOUS COMMUNICATION REGARDING CERTIFICATE OF CORRECTION

Applicant/Patentee (hereinafter, "Applicant") respectfully requests that the Office issue a Certificate of Correction for U.S. Patent No. 8,589,541 to correct typographical errors in the "Related U.S. Application Data (63)" section of the patent, as well as a missing priority. The errors being corrected are the Office's errors.

In the published patent, section (63) recites at the bottom of page 2, column 1 (beginning the 17th line from the bottom) to the end of the section at the top of page 2, column 2:

> said application No. 12/695,019 is a **continuation** of application No.12/380,778, filed on Mar. 2, 2009, now Pat. No. 8,321,526, and a continuation-in-part of application No.12/380,771, filed on Mar. 2, 2009, now Pat. No. 8,023,425, said application No. 12/695,020 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/694,445 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/694,451 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. **12/695,012** is a continuation-in-part of

Google Exhibit 1006, Page 894 of 901

> application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/695,980 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, and a continuation-in-part of application No. 2/695,019, filed on Jan. 27, 2010, now Pat. No. 8,275,830, and a continuation-in-part of application No. 12/695,021, filed on Jan. 27, 2010, now Pat. No. 8,346,225.

There are two typographical errors and one missing priority in this section.

1) application No. 12/695,019 is a continuation-in-part of rather than a continuation of;
2) application No. 12/695,012 should be application No. 12/695,021;
3) the priority for application No. 12/694,455 is missing.

As indicated in the August 16, 2013 Application Data Sheet, the section should recite:

> said application No. 12/695,019 is a **continuation-in-part** of application No.12/380,778, filed on Mar. 2, 2009, now Pat. No. 8,321,526, and a continuation-in-part of application No.12/380,771, filed on Mar. 2, 2009, now Pat. No. 8,023,425, said application No. 12/695,020 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/694,445 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/694,451 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, **said application No. 12/694,455 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009,** said application No. **12/695,021** is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/695,980 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, and a continuation-in-part of application No. 2/695,019, filed on Jan. 27, 2010, now Pat. No. 8,275,830, and a continuation-in-part of application No. 12/695,021, filed on Jan. 27, 2010, now Pat. No. 8,346,225.

Google Exhibit 1006, Page 895 of 901

CONCLUSION

Applicant respectfully requests issuance of the Certificate of Correction to correct the errors in the priority claim. The Office is authorized to charge any fee deficiency or credit any overpayment to Deposit Account 50-5876.

Respectfully submitted,

Date: January 11, 2019 By: /James E. Harris/

James E. Harris
Reg. No. 40,013
Patent Counsel
Headwater Research LLC
1011 Pruitt Place
Tyler, TX 75703
(903) 201-6212

CERTIFICATE OF ELECTRONIC TRANSMISSION

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Date: January 11, 2019 By: /Jennifer Smith/
Jennifer Smith

Google Exhibit 1006, Page 896 of 901

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 8,589,541

APPLICATION NO.: 13/134,028

ISSUE DATE : November 19, 2013

INVENTOR(S) : Raleigh et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Beginning at the 17th line from the bottom of page 2, col. 1 of the issued patent, to the end of the section titled Related U.S. Application Data (63), this text:

said application No. 12/695,019 is a continuation of application No.12/380,778, filed on Mar. 2, 2009, now Pat. No. 8,321,526, and a continuation-in-part of application No.12/380,771, filed on Mar. 2, 2009, now Pat. No. 8,023,425, said application No. 12/695,020 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/694,445 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/694,451 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/695,012 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/695,980 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, and a continuation-in-part of application No. 2/695,019, filed on Jan. 27, 2010, now Pat. No. 8,275,830, and a continuation-in-part of application No. 12/695,021, filed on Jan. 27, 2010, now Pat. No. 8,346,225.

should be replaced with:

said application No. 12/695,019 is a continuation-in-part of application No.12/380,778, filed on Mar. 2, 2009, now Pat. No. 8,321,526, and a continuation-in-part of application No.12/380,771, filed on Mar. 2, 2009, now Pat. No. 8,023,425, said application No. 12/695,020 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/694,445 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/694,451 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/694,455 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/695,021 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/695,980 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, and a continuation-in-part of application No. 2/695,019, filed on Jan. 27, 2010, now Pat. No. 8,275,830, and a continuation-in-part of application No. 12/695,021, filed on Jan. 27, 2010, now Pat. No. 8,346,225.

MAILING ADDRESS OF SENDER (Please do not use customer number below):

Headwater Research LLC
1011 Pruitt Place
Tyler, TX 75703

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. 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 1.0 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: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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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.

Electronic Acknowledgement Receipt	
EFS ID:	34832091
Application Number:	13134028
International Application Number:	
Confirmation Number:	3250
Title of Invention:	DEVICE-ASSISTED SERVICES FOR PROTECTING NETWORK CAPACITY
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	James E. Harris
Filer Authorized By:	
Attorney Docket Number:	RALEP032 [26WV-160509]
Receipt Date:	11-JAN-2019
Filing Date:	25-MAY-2011
Time Stamp:	14:28:03
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	Request for Certificate of Correction	P032_ReqforCoC_RTF.pdf	221085 d15c29992b29d2f22ccc19078c13ecfc08071423	no	5
Warnings:					

Information:	
Total Files Size (in bytes):	221085

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New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO.	: 8,589,541 B2
APPLICATION NO.	: 13/134028
DATED	: November 19, 2013
INVENTOR(S)	: Raleigh et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the Title Page

Beginning at the 17th line from the bottom of page 2, Column 1, to the end of the section titled Related U.S. Application Data (63), this text:
said application No. 12/695,019 is a continuation of application No. 12/380,778, filed on Mar. 2, 2009, now Pat. No. 8,321,526, and a continuation-in-part of application No. 12/380,771, filed on Mar. 2, 2009, now Pat. No. 8,023,425, said application No. 12/695,020 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/694,445 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/694,451 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/695,012 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/695,980 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, and a continuation-in-part of application No. 2/695,019, filed on Jan. 27, 2010, now Pat. No. 8,275,830, and a continuation-in-part of application No. 12/695,021, filed on Jan. 27, 2010, now Pat. No. 8,346,225.

Should be replaced with:
said application No. 12/695,019 is a continuation-in-part of application No. 12/380,778, filed on Mar. 2, 2009, now Pat. No. 8,321,526, and a continuation-in-part of application No. 12/380,771, filed on Mar. 2, 2009, now Pat. No. 8,023,425, said application No. 12/695,020 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/694,445 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/694,451 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/694,455 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/695,021 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, said application No. 12/695,980 is a continuation-in-part of application No. 12/380,780, filed on Mar. 2, 2009, and a continuation-in-part of application No. 2/695,019, filed on Jan. 27, 2010, now Pat. No. 8,275,830, and a continuation-in-part of application No. 12/695,021, filed on Jan. 27, 2010, now Pat. No. 8,346,225.

Signed and Sealed this
Nineteenth Day of February, 2019

Andrei Iancu
Director of the United States Patent and Trademark Office