UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/380,778	11/27/2012	8321526	RALEP004 [26WV-160485]	9622

107265 7590 11/07/2012

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 508 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;

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

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.
12/380,778	03/02/2009	Gregory G. Raleigh	RALEP004 [26WV-160485]	9622

107265 7590 10/22/2012

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
10/22/2012	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

UNITED STATES DEPARTMENT OF COMMERCE
U.S. Patent and Trademark Office
Address : COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
12/380,778	02 March, 2009	RALEIGH, GREGORY G.	RALEP004 [26WV-160485]

Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

EXAMINER	
ANDREW JOSEPH RUDY	
ART UNIT	PAPER
3687	20121016

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

Applicant's Information Disclosure Statement (IDS) submitted October 9, 2012 has been reviewed and entered into the record. 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
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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP004

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	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	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP004

	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.	
	18	7620041		2009-11-17	Dunn, Jeffrey H. et al.	
	19	7627314		2009-12-01	Carlson, Steven I. 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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP004

	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.	
	27	8254915		2012-08-28	Kozisek, Steven E.	
	28	7418257		2008-08-26	Kim, Myong-Ju	
	29	8126123		2012-02-28	Cai, Yigang et al.	
	30	7903553		2011-03-08	Liu, Enhui	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP004

	31	8155620		2012-04-10	Wang, Jun et al.	
	32	8238287		2012-08-07	Gopi, Paramesh et al.	
	33	7113997		2006-09-26	Jayapalan, Jay et al.	
	34	5594777		1997-01-14	Makkonen, Matti et al.	
	35	8244241		2012-08-14	Montemurro, Michael	
	36	7756534		2010-07-13	Anupam, Vinod et al.	
	37	7636574		2009-12-22	Poosala, Viswanath	
	38	6678516		2004-01-13	Nordman, Ian et al.	
	39	6477670		2002-11-05	Ahmadvand, Nima	
	40	6038452		2000-03-14	Strawczynski, Leo et al.	
	41	8108520		2012-01-31	Ruutu, Jussi 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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP004

	42	7778643		2010-08-17	Laroia, Rajiv et al.	
	43	7668176		2010-02-23	Chuah, Mooi Choo	
	44	7515608		2009-04-07	Yuan, Yuan et al.	
	45	6683853		2004-01-27	Kannas, Chris 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	

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

U.S.PATENT APPLICATION PUBLICATIONS Remove

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

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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP004

	1	20100144310		2010-06-10	Bedingfield, SR, James Carlton, et al.		

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

FOREIGN PATENT DOCUMENTS Remove

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							☐

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

NON-PATENT LITERATURE DOCUMENTS Remove

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		☐

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

EXAMINER SIGNATURE

Examiner Signature	/Andrew Joseph Rudy/	Date Considered	10/16/2012

*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.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

Electronic Acknowledgement Receipt	
EFS ID:	13945908
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
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:	RALEP004 [26WV-160485]
Receipt Date:	09-OCT-2012
Filing Date:	02-MAR-2009
Time Stamp:	19:49:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$595
RAM confirmation Number	6888
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)	

Electronic Patent Application Fee Transmittal	
Application Number:	12380778
Filing Date:	02-Mar-2009
Title of Invention:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP004 [26WV-160485]
Filed as Small Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Petition fee- 37 CFR 1.17(h) (Group III)	1464	1	130	130
Request for continued examination	2801	1	465	465
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Adjustment date: 10/15/2012 SDIRETA1 12380778
10/10/2012 INTEFSW 00000000 505876
02 FC:2801 465.00 CR

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

PATENT WITHDRAWAL NOTICE

DATE WITHDRAWN	WITHDRAWAL NUMBER
10/10/2012	21413

The following application has been **WITHDRAWN** from the

10/30/2012 issue.

SERIAL NO.	PATENT NUMBER
12/380,778	8,301,721
DRAWINGS	**CLASS**
000	705/034

TITLE

VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT

NAME AND ADDRESS

GREGORY G. RALEIGH
WOODSIDE, CA

REASON FOR WITHDRAWAL

Administrative withdrawal at issue build.
AUTO-PETITION

APPROVED

/Kimberly Terrell/, Manager

Patent Publication Branch
Office of Data Management

FORM PTO-302 -- (REV. 05-2009)

Electronic Patent Application Fee Transmittal

Application Number:	12380778
Filing Date:	02-Mar-2009
Title of Invention:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP004 [26WV-160485]

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Petition fee- 37 CFR 1.17(h) (Group III)	1464	1	130	130
Request for continued examination	2801	1	465	465
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**595**

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

Decision Date : October 9, 2012

In re Application of :

Gregory Raleigh

DECISION ON PETITION
UNDER CFR 1.313(c)(2)

Application No : 12380778

Filed : 02-Mar-2009

Attorney Docket No : RALEP004 [26WV-160485]

This is an electronic decision on the petition under 37 CFR 1.313(c)(2), filed October 9, 2012 , to withdraw the above-identified application from issue after payment of the issue fee.

The petition is **GRANTED.**

The above-identified application is withdrawn from issue for consideration of a submission under 37 CFR 1.114 (request for continued examination). See 37 CFR 1.313(c)(2).

Petitioner is advised that the issue fee paid in this application cannot be refunded. If, however, this application is again allowed, petitioner may request that it be applied towards the issue fee required by the new Notice of Allowance.

Telephone inquiries concerning this decision should be directed to the Patent Electronic Business Center (EBC) at 866-217-9197.

This application file is being referred to Technology Center AU 3687 for processing of the request for continuing examination under 37 CFR 1.114 .

Office of Petitions

Electronic Acknowledgement Receipt	
EFS ID:	13945908
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
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:	RALEP004 [26WV-160485]
Receipt Date:	09-OCT-2012
Filing Date:	02-MAR-2009
Time Stamp:	19:49:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$595
RAM confirmation Number	6888
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	Petition automatically granted by EFS	petition-request.pdf	32004 c5ac6d6a2d750a8142f41dc61b9cfc1a5d14db0a	no	2
Warnings:					
Information:					
2	Transmittal Letter	P004Trans.pdf	330444 246c7e8e524603fae9f1ac03a4e09cbcae50a64c	no	1
Warnings:					
Information:					
3	Request for Continued Examination (RCE)	P004CondRCE.pdf	697927 eaa437741e3f5cddebcb677cbe8f071a4d7cc77e	no	3
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Form (SB08)	P004IDS.pdf	613696 2cf097ccc6d51175bb239518d45a8999b426a507	no	8
Warnings:					
Information:					
5	Quick Path Information Disclosure Statement	P004QPIDSCert.pdf	376709 b4b68ed42f7ea4d1083f2d1327c78c3e3e358292	no	1
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	32604 c961fb297de0bbf84b1b0701b34e6fbab49ca0b2	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	2083384		

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: PET.AUTO Document Description: Petition automatically granted by EFS-Web	PTO/SB/140 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**PETITION TO WITHDRAW AN APPLICATION FROM ISSUE AFTER PAYMENT OF THE ISSUE FEE UNDER 37 CFR 1.313(c)**
Application Number	12380778
Filing Date	02-Mar-2009
First Named Inventor	Gregory Raleigh
Art Unit	3687
Examiner Name	ANDREW RUDY
Attorney Docket Number	RALEP004 [26WV-160485]
Title	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT

An application may be withdrawn from issue for further action upon petition by the applicant. To request that the Office withdraw an application from issue, applicant must file a petition under this section including the fee set forth in § 1.17(h) and a showing of good and sufficient reasons why withdrawal of the application from issue is necessary.

APPLICANT HEREBY PETITIONS TO WITHDRAW THIS APPLICATION FROM ISSUE UNDER 37 CFR 1.313(c).

A grantable petition requires the following items:
(1) Petition fee; and
(2) One of the following reasons:
(a) Unpatentability of one or more claims, which must be accompanied by an unequivocal statement that one or more claims are unpatentable, an amendment to such claim or claims, and an explanation as to how the amendment causes such claim or claims to be patentable;
(b) Consideration of a request for continued examination in compliance with § 1.114 (for a utility or plant application only); or
(c) Express abandonment of the application. Such express abandonment may be in favor of a continuing application, but not a CPA under 37 CFR 1.53(d).

Petition Fee

☐ Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

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

☒ Applicant(s) status remains as SMALL ENTITY.

☐ Applicant(s) status remains as other than SMALL ENTITY

Reason for withdrawal from issue

◯ One or more claims are unpatentable ◉ Consideration of a request for continued examination (RCE) (List of Required Documents and Fees) ◯ Applicant hereby expressly abandons the instant application (any attorney/agent signing for this reason must have power of attorney pursuant to 37 CFR 1.32(b)).
RCE request,submission, and fee. ☐ I certify, in accordance with 37 CFR 1.4(d)(4) that : The RCE request ,submission, and fee have already been filed in the above-identified application on ☒ Are attached.
THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES I certify, in accordance with 37 CFR 1.4(d)(4) that I am: ◉ An attorney or agent registered to practice before the Patent and Trademark Office who has been given power of attorney in this application. ◯ An attorney or agent registered to practice before the Patent and Trademark Office, acting in a representative capacity. ◯ A sole inventor ◯ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors ◯ A joint inventor; all of whom are signing this e-petition ◯ The assignee of record of the entire interest that has properly made itself of record pursuant to 37 CFR 3.71

Signature	/Krista S. Jacobsen/
Name	Krista S. Jacobsen
Registration Number	59374

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	13

Application Number	12/380778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	RALEP004

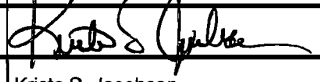
ENCLOSURES *(Check all that apply)*

- [✓] 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):
  1. Conditional Request for Continued Examination;
  2. Cert. & Req. for Consideration of an IDS Filed After Pymt. of the Issue Fee under QPIDS Program

Remarks

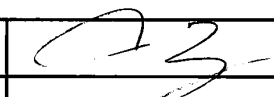
You are hereby authorized to charge any additional fee required or credit any overpayment to Deposit Account No. 50-5876.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Headwater Partners I, LLC		
Signature			
Printed name	Krista S. Jacobsen		
Date	October 9, 2012	Reg. No.	59374

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	October 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.

PTO/SB/30EFS (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 contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	12380778	Filing Date	2009-03-02	Docket Number (if applicable)	RALEP004	Art Unit	3687
First Named Inventor	Gregory G. Raleigh			Examiner Name	Andrew J. Rudy		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☐ Amendment/Reply

☒ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☒ Other 1. Certification & Request for Consideration of an IDS Filed After Payment of the Issue Fee Under the QPIDS Program; 2. Petition to Withdraw an Application from Issue After Payment of Issue Fee Under 37 CFR 1.313(c)

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 505876

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

PTO/SB/30EFS (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 contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Krista S. Jacobsen/	Date (YYYY-MM-DD)	2012-10-09
Name	Krista S. Jacobsen	Registration Number	59374

This collection of information is required by 37 CFR 1.114. 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.

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 the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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	12380778
Filing Date	2009-03-02
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP004

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	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	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP004

	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.	
	18	7620041		2009-11-17	Dunn, Jeffrey H. et al.	
	19	7627314		2009-12-01	Carlson, Steven I. et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP004

	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.	
	27	8254915		2012-08-28	Kozisek, Steven E.	
	28	7418257		2008-08-26	Kim, Myong-Ju	
	29	8126123		2012-02-28	Cai, Yigang et al.	
	30	7903553		2011-03-08	Liu, Enhui	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP004

	31	8155620		2012-04-10	Wang, Jun et al.	
	32	8238287		2012-08-07	Gopi, Paramesh et al.	
	33	7113997		2006-09-26	Jayapalan, Jay et al.	
	34	5594777		1997-01-14	Makkonen, Matti et al.	
	35	8244241		2012-08-14	Montemurro, Michael	
	36	7756534		2010-07-13	Anupam, Vinod et al.	
	37	7636574		2009-12-22	Poosala, Viswanath	
	38	6678516		2004-01-13	Nordman, Ian et al.	
	39	6477670		2002-11-05	Ahmadvand, Nima	
	40	6038452		2000-03-14	Strawczynski, Leo et al.	
	41	8108520		2012-01-31	Ruutu, Jussi et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP004

	42	7778643		2010-08-17	Laroia, Rajiv et al.	
	43	7668176		2010-02-23	Chuah, Mooi Choo	
	44	7515608		2009-04-07	Yuan, Yuan et al.	
	45	6683853		2004-01-27	Kannas, Chris 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	

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

U.S.PATENT APPLICATION PUBLICATIONS Remove

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP004

	1	20100144310		2010-06-10	Bedingfield, SR, James Carlton, et al.		

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

FOREIGN PATENT DOCUMENTS Remove

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							☐

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

NON-PATENT LITERATURE DOCUMENTS Remove

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		☐

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

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP004

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	/Krista S. Jacobsen/	Date (YYYY-MM-DD)	2012-10-09
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.**

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 Patent Application Fee Transmittal	
Application Number:	12380778
Filing Date:	02-Mar-2009
Title of Invention:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP004 [26WV-160485]
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:				
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:	13945946
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
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:	RALEP004 [26WV-160485]
Receipt Date:	09-OCT-2012
Filing Date:	02-MAR-2009
Time Stamp:	19:51:13
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	6916
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	Fee Worksheet (SB06)	fee-info.pdf	30811 4182b92f77b639787718b397eba59f687e46b0e7	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	30811	

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.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	2	of	4	Atty Docket No.	RALEP004

	OO.	US 2007/0140275	06-21-2007	BOWMAN et al.	
	PP.	US 2003/0182435	09-25-2003	REDLICH et al.	
	QQ.	US 6,263,055	07-17-2001	GARLAND et al.	
	RR.	US 5,940,472	08-17-1999	NEWMAN et al.	
	SS.	US 2008/0318550	12-25-2008	Deatley	
	TT.	US 2008/0298230	12-01-2008	LUFT et al.	
	UU.	US 2007/0220251	09-20-2007	ROSENBERG et al.	
	VV.	US 2007/0100981	05-03-2007	ADAMCZYK et al.	
	WW.	US 2007/0022289	01-25-2007	ALT et al.	
	XX.	US 2008/0095339	04-24-2008	ELLIOTT et al.	
	YY.	US 2006/0233166	10-19-2006	BOU-DIAB et al.	
	ZZ.	US 2008/0168523	07-10-2008	ANSARI et al.	
	AAA.	US 2006/0183462	08-17-2006	KOLEHAINEN et al.	
	BBB.	US 2006/0165060	07-27-2006	Dua	
	CCC.	US 2008/0177998	07-24-2008	APSANGI et al.	
	DDD.	US 2008/0064367	03-13-2008	NATH et al.	
	EEE.	US 2004/0168052	08-26-2004	CLISHAM et al.	
	FFF.	US 2005/0198377	09-08-2005	FERGUSON et al.	
	GGG.	US 2005/0216421	09-29-2005	BARRY et al.	
	HHH.	US 2006/0218395	09-28-2006	Maes	
	III.	US 2005/0055309	03-10-2005	WILLIAMS et al.	
	JJJ.	US 2003/0050837	03-13-2003	Kim	
	KKK.	US 2005/0266825	12-01-2005	Clayton	
	LLL.	~~US 2006/0178917~~	08-10-2006	Mikurak 20060178918	
	MMM.	US 2007/0055694	03-08-2007	RUGE et al.	
	NNN.	US 2005/0097516	05-05-2005	DONNELLY et al.	
	OOO.	US 7,356,337	04-08-2008	Florence	
	PPP.	US 2007/0019670	01-25-2007	Falardeau	
	QQQ.	US 2004/0127200	07-01-2004	SHAW et al.	
	RRR.	US 2005/0166043	07-28-2005	ZHANG et al.	
	SSS.	US 7,349,695	03-25-2008	OOMMEN et al.	
	TTT.	US 2004/0098715	05-20-2004	AGHERA et al.	
	UUU.	US 2006/0072646	04-06-2006	FEHER et al.	
	VVV.	US 2006/0206904	09-14-2006	WATKINS et al.	
	WWW.	US 2005/0060266	03-17-2005	DEMELLO et al.	
	XXX.	US 6,047,268	04-04-2000	BARTOLI et al.	
	YYY.	US 6,639,975	10-28-2003	O'NEAL et al.	
	ZZZ.	US 6,539,082	03-25-2003	LOWE et al.	
	AAAA.	US 2008/0134330	06-05-2008	KAPOOR et al.	
	BBBB.	US 2004/0047358	03-11-2004	CHEN et al.	
	CCCC.	US 2007/0274327	11-29-2007	KAARELA et al.	
	DDDD.	US 2003/0161265	08-28-2003	CAO et al.	

Change(s) applied to document, /D.H.P./ 6/13/2012

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

PTO/SB/08a (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 Apt of 1995 no Persons are required to respond to a collection of information unless it contains a valid OMR control number

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 2 of 3

Complete if Known	
Application Number	12/380,778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

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
		2002/0120540	08-29-2002	KENDE et al	
		2002/0131404	09-19-2002	MEHTA 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	
		2007/0093243	04-26-2007	KAPADEKAR et al	
Change(s) applied		2007/0259673	11-08-2007	WILLARS et al	
to document,		2007/0263558	11-15-2007	SALOMONE	
/K.A.C./		2008/0049630	02-28-2008	KOZISEK et al	
10/1/2012		2008/0162637	07-03-2008	ADAMCZYK et al	
		2008/0167027	07-10-2008	GAUTIER et al	
	200901803 91	~~2008/0180391~~	07-16-2009	PETERSEN et al	
		2008/0318547	12-25-2008	BALLOU 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.	

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	/Andrew Joseph Rudy/	Date Considered	05/08/2012

*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.

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 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, 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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

Substitute for form 1449/PTO				Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*				Application No.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	3	of	4	Atty Docket No.	RALEP004

	EEEE.	US 2008/0305793	12-11-2008	GALLAGHER et al.	
	FFFF.	US 2008/0083013	04-03-2008	SOLIMAN et al.	
	GGGG.	US 2004/0030705	02-12-2004	BOWMAN-AMUAH et al.	
	HHHH.	US 6,574,321	06-03-2003	COX et al.	
	IIII.	US 2006/0291477	12-28-2006	CROAK et al.	
	JJJJ.	US 2005/0266880	12-01-2005	Gupta	
	KKKK.	US 2003/0229900	12-11-2003	Reisman	
	LLLL.	US 2007/0198656	08-23-2007	MAZZAFERRI et al.	
	MMMM.	US 2003/0182420	09-25-2003	JONES et al.	
	NNNN.	US 2008/0225748	09-18-2008	KHEMANI et al.	
	OOOO.	US 2005/0250508	11-10-2005	GUO et al.	
	PPPP.	US 2008/0127304	05-29-2008	GINTER et al.	
	QQQQ.	US 7,289,489	10-30-2007	KUNG et al.	
	RRRR.	US 2003/0050070	03-13-2003	MASHINSKY et al.	
	SSSS.	US 6,996,076	02-07-2006	FORBES et al.	
	TTTT.	US 2008/0183	07-31-2008	PAUL et al.	
	UUUU.	US 2007/0226225	09-27-2007	YIU et al.	
	VVVV.	US 2007/0130315	06-07-2007	FRIEND et al.	
	WWWW.	US 2008/0059743	03-06-2008	BYCHKOV et al.	
	XXXX.	US 2008/0132268	06-05-2008	CHOI-GROGAN et al.	
	YYYY.	US 2003/0133408	07-17-2003	CHENG et al.	
	ZZZZ.	US 2005/0128967	06-16-2005	Scobbie	
	AAAAA.	US 2007/0140113	06-21-2007	Gemelos	
	BBBBB.	US 2002/0138601	09-26-2002	PIPONIUS et al.	
	CCCCC.	US 2002/0176377	11-28-2002	Hamilton	
	DDDDD.	US 2006/0034256	02-16-2006	ADDAGATLA et al.	
	EEEEE.	US 2005/0228985	10-13-2005	YLIKOSKI et al.	
	FFFFF.	US 2007/0036312	02-15-2007	CAI et al.	
	GGGGG.	US 2004/0082346	04-29-2004	SKYTT et al.	
	HHHHH.	US 7,142,876	11-28-2006	TROSSEN et al.	
	IIIII.	US 2008/0005561	01-03-2008	BROWN et al.	
	JJJJJ.	US 2007/0101426	05-03-2007	LEE et al.	
Change(s) applied to document, /K.A.C./ 10/1/2012	KKKKK.	US 2008/0222692	09-11-2008	ANDERSSON et al.	
	LLLLL.	US 2008/0160958	~~04-03-2008~~	ABICHANDANI et al.	July 3, 2008
	MMMMM	US 2006/0048223	03-02-2006	LEE et al.	
	NNNNN.	US 2007/0104126	5-10-2007	CALHOUN et al.	
	OOOOO.	US 2007/0243862	10-18-2007	COSKUN et al.	
	PPPPP.	US 2008/0109679	05-08-2008	WRIGHT et al.	
	QQQQQ.	US 2006/0242685	10-26-2006	HEARD et al.	
	RRRRR.	US 2008/0130656	06-05-2008	KIM et al.	
	SSSSS.	US 2005/0021995	01-27-2005	LAL et al.	
	TTTTT.	US 2008/0162704	04-03-2008	POPLETT et al.	

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.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	1	of	4	Atty Docket No.	RALEP004

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
	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	
Change(s) applied to document, /K.A.C./ 10/1/2012	O.	US 7,242,920	~~04-10-2007~~	Robert P. Morris	July 10, 2007
	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	
	DD.	US 2006/0143098	06-29-2006	Lazaridis	
	EE.	US 6,098,878	08-08-2000	DENT et al.	
	FF.	US 2004/0198331	10-07-2004	COWARD et al.	
	GG.	US 2003/0004937	01-02-2003	SALMENKAITA et al.	
	HH.	US 2005/0107091	05-19-2005	VANNITHAMBY et al.	
	II.	US 2003/0224781	12-04-2003	MILFORD et al.	
	JJ.	US 2008/0189760	08-07-2008	ROSENBERG et al.	
	KK.	US 2005/0246282	11-03-2005	NASLUND et al.	
	LL.	US 2008/0316923	12-25-2008	FEDDERS et al.	
	MM.	US 2006/0026679	02-02-2006	Zakas	
	NN.	US 2008/0082643	04-03-2008	STORRIE et al.	

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
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.
12/380,778	03/02/2009	Gregory G. Raleigh	RALEP004 [26WV-160485]	9622

107265 7590 09/26/2012

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
09/26/2012	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

UNITED STATES DEPARTMENT OF COMMERCE
U.S. Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
12/380,778	02 March, 2009	RALEIGH, GREGORY G.	RALEP004 [26WV-160485]

Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

EXAMINER	
ANDREW JOSEPH RUDY	
ART UNIT	PAPER
3687	20120921

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

Applicant's Information Disclosure Statement (IDS) submitted September 5, 2012 has been reviewed. Note the attached IDS.

Applicant's IDS submitted September 19, 2011, page 3 of 4, reference "TTTT" has now been officially not reviewed, as it was inadvertantly improperly identified. It is noted that reference "TTTT" is correctly identified as the reference from the IDS filed July 14, 2011, page 2 of 4, Cite No 3, issued to Paul et al.

/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
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	12380778
Filing Date	2009-03-02
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy
Attorney Docket Number	RALEP004

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					

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
/A.R./	1	20080081606		2008-04-03	COLE, Terry L.	
/A.R./	2	20090248883		2009-10-01	SURYANARAYANA, Lalitha 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]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							☐

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

NON-PATENT LITERATURE DOCUMENTS

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy
	Attorney Docket Number	RALEP004

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		☐

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	09/21/2012

*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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy
	Attorney Docket Number	RALEP004

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)	2012-09-05
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.**

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.
12/380,778	03/02/2009	Gregory G. Raleigh	RALEP004 [26WV-160485]	9622

107265 7590 09/17/2012

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
09/17/2012	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

Notice of Allowability	Application No.	Applicant(s)	
	12/380,778	RALEIGH, GREGORY G.	
	Examiner	Art Unit	
	ANDREW JOSEPH RUDY	3687	

-- 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 28 August 2012 IDS*.
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 *36 and 38-65*.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

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

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ 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. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/ANDREW JOSEPH RUDY/
Primary Examiner
Art Unit: 3687

Issue Classification	Application/Control No.	Applicant(s)/Patent under Reexamination	
	12/380,778	RALEIGH, GREGORY G.	
	Examiner	Art Unit	
	ANDREW JOSEPH RUDY	3687	

ISSUE CLASSIFICATION

ORIGINAL						CROSS REFERENCE(S)							
CLASS				SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)							
709				217	709	224							
INTERNATIONAL CLASSIFICATION					704	34							
G	0	6	F	15/173	455	406							
H	0	4	M	11/00									
				/									
				/									
				/									

XXXXXXXXXXXXXXXXXXXXXXXXXXXX (Assistant Examiner) (Date)		Total Claims Allowed: 29
(Legal Instruments Examiner) (Date)	/Andrew Joseph Rudy/ 9/5/2012 (Primary Examiner) (Date)	O.G. Print Claim(s): 1 / O.G. Print Fig.: 3

☐ 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
	1		31	25	61		91		121		151		181
	2		32	26	62		92		122		152		182
	3		33	27	63		93		123		153		183
	4		34	28	64		94		124		154		184
	5		35	29	65		95		125		155		185
	6	1	36		66		96		126		156		186
	7		37		67		97		127		157		187
	8	2	38		68		98		128		158		188
	9	3	39		69		99		129		159		189
	10	4	40		70		100		130		160		190
	11	5	41		71		101		131		161		191
	12	6	42		72		102		132		162		192
	13	7	43		73		103		133		163		193
	14	8	44		74		104		134		164		194
	15	9	45		75		105		135		165		195
	16	10	46		76		106		136		166		196
	17	11	47		77		107		137		167		197
	18	12	48		78		108		138		168		198
	19	13	49		79		109		139		169		199
	20	14	50		80		110		140		170		200
	21	15	51		81		111		141		171		201
	22	16	52		82		112		142		172		202
	23	17	53		83		113		143		173		203
	24	18	54		84		114		144		174		204
	25	19	55		85		115		145		175		205
	26	20	56		86		116		146		176		206
	27	21	57		87		117		147		177		207
	28	22	58		88		118		148		178		208
	29	23	59		89		119		149		179		209
	30	24	60		90		120		150		180		210

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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP004

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	7984130		2011-07-19	Bogineni, Kalyani et al.	
	2	8019687		2011-09-13	Wang, Feng Chi et al.	
	3	8144591		2012-03-27	Ghai, Rajat et al.	
	4	7336960		2008-02-26	Zavalkovsky, Arthur et al.	
	5	8194549		2012-06-05	Huber, Kurt Donald et al.	
	6	6606744		2003-08-12	Mikurak, Michael G.	
	7	8200775		2012-06-12	Moore, James F.	
	8	8135392		2012-03-13	Marcellino, Chris 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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP004

	9	7953808		2011-05-31	Sharp, Christopher Brooke et al.	

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

U.S.PATENT APPLICATION PUBLICATIONS Remove

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	20030220984		2003-11-27	Jones, Paul David et al.	
	3	20040021697		2004-02-05	Beaton, Brian Finlay et al.	
	4	20070061243		2007-03-15	Ramer, Jorey et al.	
	5	20070282896		2007-12-06	Wydroug, Zoe M. et al.	
	6	20080184127		2008-07-31	Rafey, Richter A. et al.	
	7	20090013157		2009-01-08	Beaule, Stephane	
	8	20090079699		2009-03-26	Sun, Jian	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP004

	9	20110126141		2011-05-26	King, Bennett M. et al.		
	10	20080132201		2008-06-05	Karlberg, Johan		

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

FOREIGN PATENT DOCUMENTS Remove

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							☐

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

NON-PATENT LITERATURE DOCUMENTS Remove

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		☐

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

EXAMINER SIGNATURE

Examiner Signature	/Andrew Joseph Rudy/	Date Considered	09/05/2012

*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.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

Electronic Acknowledgement Receipt	
EFS ID:	13610490
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
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:	RALEP004 [26WV-160485]
Receipt Date:	28-AUG-2012
Filing Date:	02-MAR-2009
Time Stamp:	19:52:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$595
RAM confirmation Number	6085
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)	

Electronic Patent Application Fee Transmittal	
Application Number:	12380778
Filing Date:	02-Mar-2009
Title of Invention:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP004 [26WV-160485]
Filed as Small Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Petition fee- 37 CFR 1.17(h) (Group III)	1464	1	130	130
Request for continued examination	2801	1	465	465
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Adjustment date: 09/14/2012 SDIRETA1 12380778
08/29/2012 INTEFSH 00006085 505876
02 FC:2801 465.00 CR

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	12380778
Filing Date	2009-03-02
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy
Attorney Docket Number	RALEP004

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					

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	20080081606		2008-04-03	COLE, Terry L.	
	2	20090248883		2009-10-01	SURYANARAYANA, Lalitha 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]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							☐

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

NON-PATENT LITERATURE DOCUMENTS

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy
	Attorney Docket Number	RALEP004

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		☐

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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy
	Attorney Docket Number	RALEP004

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).

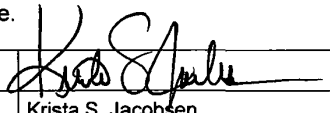
☐ See attached certification statement.

☒ 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)	2012-09-05
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 Patent Application Fee Transmittal	
Application Number:	12380778
Filing Date:	02-Mar-2009
Title of Invention:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP004 [26WV-160485]
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:				
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:	13667430
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
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:	RALEP004 [26WV-160485]
Receipt Date:	05-SEP-2012
Filing Date:	02-MAR-2009
Time Stamp:	19:17:15
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	9643
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	Transmittal Letter	P004Trans.pdf	295798 63e315a95cb2b890a1fc665b1d9ee9c8cb27c9d7	no	1
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	P004IDS.pdf	684260 435470baa148515b94698f6d4c13feeb7b69fbe8	no	3
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Fee Worksheet (SB06)	fee-info.pdf	30813 91ce2cca69c35e3a21dae755ce2e73c10dcbfebb	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1010871		

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.

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: 4

Application Number	12/380,778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. Raleigh
Art Unit	3687 Conf. No.: 9622
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP004

ENCLOSURES *(Check all that apply)*

- [x] Fee Transmittal Form
  - [ ] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [x] 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	September 5, 2012	Reg. No.	59374

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	September 5, 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.

PTO/SB/30EFS (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 contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	12380778	Filing Date	2009-03-02	Docket Number (if applicable)	RALEP004	Art Unit	3687
First Named Inventor	Gregory G. Raleigh			Examiner Name	Andrew J. Rudy		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☐ Amendment/Reply

☒ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☒ Other 1. Certification and Request for Consideration of an IDS Filed After Payment of the Issue Fee Under the QPIDS Program; 2. Petition to Withdraw and Application from Issue After Payment of Issue Fee Under 37 CRF 1.313(c)

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 505876

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

PTO/SB/30EFS (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 contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Krista S. Jacobsen/	Date (YYYY-MM-DD)	2012-08-28
Name	Krista S. Jacobsen	Registration Number	59374

This collection of information is required by 37 CFR 1.114. 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.

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 the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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	12380778
Filing Date	2009-03-02
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy, Andrew J
Attorney Docket Number	RALEP004

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	7984130		2011-07-19	Bogineni, Kalyani et al.	
	2	8019687		2011-09-13	Wang, Feng Chi et al.	
	3	8144591		2012-03-27	Ghai, Rajat et al.	
	4	7336960		2008-02-26	Zavalkovsky, Arthur et al.	
	5	8194549		2012-06-05	Huber, Kurt Donald et al.	
	6	6606744		2003-08-12	Mikurak, Michael G.	
	7	8200775		2012-06-12	Moore, James F.	
	8	8135392		2012-03-13	Marcellino, Chris et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP004

	9	7953808		2011-05-31	Sharp, Christopher Brooke et al.	

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

U.S.PATENT APPLICATION PUBLICATIONS Remove

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	20030220984		2003-11-27	Jones, Paul David et al.	
	3	20040021697		2004-02-05	Beaton, Brian Finlay et al.	
	4	20070061243		2007-03-15	Ramer, Jorey et al.	
	5	20070282896		2007-12-06	Wydroug, Zoe M. et al.	
	6	20080184127		2008-07-31	Rafey, Richter A. et al.	
	7	20090013157		2009-01-08	Beaule, Stephane	
	8	20090079699		2009-03-26	Sun, Jian	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP004

	9	20110126141		2011-05-26	King, Bennett M. et al.	
	10	20080132201		2008-06-05	Karlberg, Johan	

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

FOREIGN PATENT DOCUMENTS Remove

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							☐

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

NON-PATENT LITERATURE DOCUMENTS Remove

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		☐

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

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP004

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	/Krista S. Jacobsen/	Date (YYYY-MM-DD)	2012-08-28
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.**

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 Patent Application Fee Transmittal

Application Number:	12380778
Filing Date:	02-Mar-2009
Title of Invention:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP004 [26WV-160485]

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Petition fee- 37 CFR 1.17(h) (Group III)	1464	1	130	130
Request for continued examination	2801	1	465	465
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**595**

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

Decision Date : August 28, 2012

In re Application of :

Gregory Raleigh

DECISION ON PETITION
UNDER CFR 1.313(c)(2)

Application No : 12380778

Filed : 02-Mar-2009

Attorney Docket No : RALEP004 [26WV-160485]

This is an electronic decision on the petition under 37 CFR 1.313(c)(2), filed August 28, 2012 , to withdraw the above-identified application from issue after payment of the issue fee.

The petition is **GRANTED.**

The above-identified application is withdrawn from issue for consideration of a submission under 37 CFR 1.114 (request for continued examination). See 37 CFR 1.313(c)(2).

Petitioner is advised that the issue fee paid in this application cannot be refunded. If, however, this application is again allowed, petitioner may request that it be applied towards the issue fee required by the new Notice of Allowance.

Telephone inquiries concerning this decision should be directed to the Patent Electronic Business Center (EBC) at 866-217-9197.

This application file is being referred to Technology Center AU 3687 for processing of the request for continuing examination under 37 CFR 1.114 .

Office of Petitions

Electronic Acknowledgement Receipt	
EFS ID:	13610490
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
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:	RALEP004 [26WV-160485]
Receipt Date:	28-AUG-2012
Filing Date:	02-MAR-2009
Time Stamp:	19:52:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$595
RAM confirmation Number	6085
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	Petition automatically granted by EFS	petition-request.pdf	32004 c4a0bc2680ca9e5e8a19b8aae606e466c527a384	no	2
Warnings:					
Information:					
2	Transmittal Letter	Trans.pdf	309673 e086c4640f0334311cddf07f150a659084052a7c	no	1
Warnings:					
Information:					
3	Quick Path Information Disclosure Statement	CertandQPIDSReq.pdf	349985 60b1181b9227c167491ac29d48efc4d6be51ea8f	no	1
Warnings:					
Information:					
4	Request for Continued Examination (RCE)	RCE.pdf	697923 5121ab220e0e22542f252bc605ab4f357ce89925	no	3
Warnings:					
Information:					
5	Information Disclosure Statement (IDS) Form (SB08)	IDS.pdf	612681 cae9d760fd6fd31f032ea1f43b2307f0482e1dd1	no	5
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	32604 5d258db8ec8ef5b21c1d760771972089871f21294	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	2034870		

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: PET.AUTO Document Description: Petition automatically granted by EFS-Web	PTO/SB/140 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**PETITION TO WITHDRAW AN APPLICATION FROM ISSUE AFTER PAYMENT OF THE ISSUE FEE UNDER 37 CFR 1.313(c)**
Application Number	12380778
Filing Date	02-Mar-2009
First Named Inventor	Gregory Raleigh
Art Unit	3687
Examiner Name	ANDREW RUDY
Attorney Docket Number	RALEP004 [26WV-160485]
Title	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT

An application may be withdrawn from issue for further action upon petition by the applicant. To request that the Office withdraw an application from issue, applicant must file a petition under this section including the fee set forth in § 1.17(h) and a showing of good and sufficient reasons why withdrawal of the application from issue is necessary.

APPLICANT HEREBY PETITIONS TO WITHDRAW THIS APPLICATION FROM ISSUE UNDER 37 CFR 1.313(c).

A grantable petition requires the following items:
(1) Petition fee; and
(2) One of the following reasons:
(a) Unpatentability of one or more claims, which must be accompanied by an unequivocal statement that one or more claims are unpatentable, an amendment to such claim or claims, and an explanation as to how the amendment causes such claim or claims to be patentable;
(b) Consideration of a request for continued examination in compliance with § 1.114 (for a utility or plant application only); or
(c) Express abandonment of the application. Such express abandonment may be in favor of a continuing application, but not a CPA under 37 CFR 1.53(d).

Petition Fee

☐ Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

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

☒ Applicant(s) status remains as SMALL ENTITY.

☐ Applicant(s) status remains as other than SMALL ENTITY

Reason for withdrawal from issue

◯ One or more claims are unpatentable ◉ Consideration of a request for continued examination (RCE) (List of Required Documents and Fees) ◯ Applicant hereby expressly abandons the instant application (any attorney/agent signing for this reason must have power of attorney pursuant to 37 CFR 1.32(b)).
RCE request,submission, and fee. ☐ I certify, in accordance with 37 CFR 1.4(d)(4) that : The RCE request ,submission, and fee have already been filed in the above-identified application on ☒ Are attached.
THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES I certify, in accordance with 37 CFR 1.4(d)(4) that I am: ◉ An attorney or agent registered to practice before the Patent and Trademark Office who has been given power of attorney in this application. ◯ An attorney or agent registered to practice before the Patent and Trademark Office, acting in a representative capacity. ◯ A sole inventor ◯ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors ◯ A joint inventor; all of whom are signing this e-petition ◯ The assignee of record of the entire interest that has properly made itself of record pursuant to 37 CFR 3.71

Signature	/Krista S. Jacobsen/
Name	Krista S. Jacobsen
Registration Number	59374

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	12/380778
Filing Date	2009-03-02
First Named Inventor	Gregory G. Raleigh
Art Unit	3687 Conf. No. 9622
Examiner Name	Andrew J. Rudy
Attorney Docket Number	RALEP004

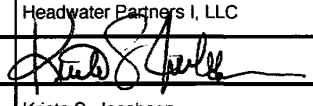
ENCLOSURES *(Check all that apply)*

- [x] Fee Transmittal Form
  - [ ] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [x] 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
- [x] Petition to Withdraw from issue
- [ ] 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
- [x] Other Enclosure(s) (please Identify below):
  1. Conditional Request for Continued Examination
  2. Cert. & Req. for Consideration of an IDS Filed After Pymt. of the Issue Fee under QPIDS program

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 28, 2012	Reg. No.	59374

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 28, 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 Patent Application Fee Transmittal	
Application Number:	12380778
Filing Date:	02-Mar-2009
Title of Invention:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP004 [26WV-160485]
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:				
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:	13610582
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
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:	RALEP004 [26WV-160485]
Receipt Date:	28-AUG-2012
Filing Date:	02-MAR-2009
Time Stamp:	19:54:03
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	6105
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	Fee Worksheet (SB06)	fee-info.pdf	30811 ae03c100a7ec1af9929e18a1b99c3a35a9a70159	no	2

Warnings:	
Information:	
Total Files Size (in bytes):	30811

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

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

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/380,778	03/02/2009	Gregory G. Raleigh	26WV-160485 [RALEP004]

CONFIRMATION NO. 9622

107265
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

POA ACCEPTANCE LETTER

OC000000056057229

Date Mailed: 08/21/2012

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/08/2012.

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.

/sleutchit/

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

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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
12/380,778	03/02/2009	Gregory G. Raleigh	26WV-160485 [RALEP004]

CONFIRMATION NO. 9622

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

POWER OF ATTORNEY NOTICE

OC000000056057160

Date Mailed: 08/21/2012

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/08/2012.

- 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).

/sleutchit/

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

RECEIVED
CENTRAL FAX CENTER
AUG 0 8 2012

PTO/SB/80 (11-08)
Approved for use through 11/30/2011. OMB 0651-0035
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

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

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

RECEIVED
CENTRAL FAX CENTER
AUG 08 2012

PTO/SB/96 (08-09)
Approved for use through 09/30/2008, OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Gregory G. Raleigh

Application No./Patent No.: 12/380,778 Filed/Issue Date: March 2, 2009

Entitled: Verifiable Device Assisted Service Usage Billing With Integrated Accounting, Mediation Accounting, and Multi-Account

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 022796, Frame 0689, 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 — August 8, 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.

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

RECEIVED
CENTRAL FAX CENTER
AUG 0 8 2012

Date:	August 8, 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

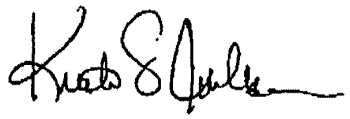
Fax

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 12/380,778.

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 8/8/2012 11:10:10 PM [Eastern Daylight Time] * SVR:W-PTOFAX-002/45 * DNIS:2738300 * CSID:16506108051 * DURATION (mm-ss):02-19

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.
12/380,778	03/02/2009	Gregory G. Raleigh	26WV-160485 [RALEP004]	9622

69849 7590 07/02/2012

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

EXAMINER	
RUDY, ANDREW J	
ART UNIT	PAPER NUMBER
3687	

MAIL DATE	DELIVERY MODE
07/02/2012	PAPER

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.

UNITED STATES DEPARTMENT OF COMMERCE
U.S. Patent and Trademark Office
Address : COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
12/380,778	02 March, 2009	RALEIGH, GREGORY G.	26WV-160485

[RALEP004]

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

EXAMINER	
ANDREW JOSEPH RUDY	
ART UNIT	PAPER
3687	20120628

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

Upon further review, Applicant's Informatin Disclosure Statement (IDS) submitted June 8, 2012 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
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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

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	6418147		2002-07-09	WIEDEMAN	
	2	6574465		2003-06-03	MARSH et al.	
	3	6765864		2004-07-20	NATARAJAN et al.	
	4	7069248		2006-06-27	HUBER	
	5	7366497		2008-04-29	NAGATA	
	6	7388950		2008-06-17	ELSEY et al.	
	7	7450927		2008-11-11	CRESWELL et al.	
	8	7499537		2009-03-03	ELSEY 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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

	9	7650137		2010-01-19	JOBS et al.	
	10	7693720		2010-04-06	KENNEWICK et al.	
	11	7734784		2010-06-08	ARAUJO et al.	
	12	7747699		2010-06-29	PRUEITT et al.	
	13	7792708		2010-09-07	ALVA	
	14	7822837		2010-10-26	URBAN et al.	
	15	7949529		2011-05-24	WEIDER et al.	
	16	8099077		2012-01-17	CHOWDHURY et al.	
	17	8170553		2012-05-01	BENNETT	

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

U.S.PATENT APPLICATION PUBLICATIONS Remove

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

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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

	1	20030046396		2003-03-06	RICHTER et al.	
	2	20040107360		2004-06-03	HERRMANN et al.	
	3	20070254675		2007-11-01	ZORLU OZER et al.	
	4	20080005285		2008-01-03	ROBINSON et al.	
	5	20090113514		2009-04-30	HU	
	6	20100103820		2010-04-29	FULLER et al.	

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

FOREIGN PATENT DOCUMENTS Remove

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							☐

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

NON-PATENT LITERATURE DOCUMENTS Remove

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]

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

	1		☐

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

EXAMINER SIGNATURE

Examiner Signature	/Andrew Joseph Rudy/	Date Considered	06/28/2012

*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.

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
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.
12/380,778	03/02/2009	Gregory G. Raleigh	26WV-160485 [RALEP004]	9622

69849 7590 06/18/2012

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

EXAMINER	
RUDY, ANDREW J	
ART UNIT	PAPER NUMBER
3687	
MAIL DATE	DELIVERY MODE
06/18/2012	PAPER

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.

UNITED STATES DEPARTMENT OF COMMERCE
U.S. Patent and Trademark Office
Address : COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
12/380,778	02 March, 2009	RALEIGH, GREGORY G.	26WV-160485

[RALEP004]

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

EXAMINER	
ANDREW JOSEPH RUDY	
ART UNIT	PAPER
3687	20120614

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

Applicant's Information Disclosure Statement (IDS) submitted June 8, 2012 has not been reviewed. The prosectuion on the merits of the application was closed prior to receipt of the IDS, i.e. the Notice of Allowance has already been sent to Applicant. Please note the Attached IDS.

Also, Applicant's IDS submitted June 18, 2010, page 3 of 4, reference "TTTT" was improperly indentified as "2008/0183." This reference was inadvertantly noted as being reviewed from the IDS that was part of the September 19, 2011 Non-Final Office Action. However, "2008/0183" was not reviewed by the Examiner.

/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
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	12380778
Filing Date	2009-03-02
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

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	6418147		2002-07-09	WIEDEMAN	
	2	6574465		2003-06-03	MARSH et al.	
	3	6765864		2004-07-20	NATARAJAN et al.	
	4	7069248		2006-06-27	HUBER	
	5	7366497		2008-04-29	NAGATA	
	6	7388950		2008-06-17	ELSEY et al.	
	7	7450927		2008-11-11	CRESWELL et al.	
	8	7499537		2009-03-03	ELSEY et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778 12380778 - GAU: 3687
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

	9	7650137		2010-01-19	JOBS et al.	
	10	7693720		2010-04-06	KENNEWICK et al.	
	11	7734784		2010-06-08	ARAUJO et al.	
	12	7747699		2010-06-29	PRUEITT et al.	
	13	7792708		2010-09-07	SILVA	
	14	7822837		2010-10-26	URBAN et al.	
	15	7949529		2011-05-24	WEIDER et al.	
	16	8099077		2012-01-17	CHOWDHURY et al.	
	17	8170553		2012-05-01	BENNETT	

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

U.S.PATENT APPLICATION PUBLICATIONS Remove

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

	1	20030046396		2003-03-06	RICHTER et al.	
	2	20040107360		2004-06-03	HERRMANN et al.	
	3	20070254675		2007-11-01	ZORLU OZER et al.	
	4	20080005285		2008-01-03	ROBINSON et al.	
	5	20090113514		2009-04-30	HU	
	6	20100103820		2010-04-29	FULLER et al.	

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

FOREIGN PATENT DOCUMENTS Remove

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							☐

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

NON-PATENT LITERATURE DOCUMENTS Remove

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]

EFS Web 2.1.17

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

	1		☐

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

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[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.

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)

69849 7590 06/06/2012
SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
379 Lytton Avenue
Palo Alto, CA 94301

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 filed in the U.S. Patent and Trademark Office via EFS-Web on the date indicated below.

Anne Collette	(Depositor's name)
/Anne Collette/	(Signature)
June 8, 2012	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/380,778	03/02/2009	Gregory G. Raleigh	26WV-160485 [RALEP004]	9622

TITLE OF INVENTION: VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1740	$300	$0	$2040	09/06/2012

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 Sheppard, Mullin, Richter & Hampton LLP
2
3

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document 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 City, 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 50-4561 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ☑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
- ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

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

Authorized Signature /Marc A. Sockol/ Date June 8, 2012

Typed or printed name Marc A. Sockol Registration No. 40823

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.

PATENT
Docket No.: 26WV-160485 [RALEP004]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Gregory G. RALEIGH	Examiner: Andrew J. Rudy
Serial No.: 12/380,778	Art Unit: 3687
Filed: March 2, 2009	Conf. No.: 9622
Title: VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT	

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

NOTICE OF CHANGE OF ENTITY STATUS FROM LARGE TO SMALL

Dear Sir:

The Applicant is now entitled to claim small entity status for the above-referenced patent application, and shall henceforth pay fees due at the small entity rate.

Please change your records to reflect this change in entity status.

No fee should be required for this change of entity status, but if such fee is determined to be owed, please charge Deposit Account No. 50-4561 for the same.

Respectfully submitted,

Date: June 8, 2012

By: _____

Marc A. Sockol
Reg. No. 40,823
Customer Number 69849
Sheppard Mullin Richter & Hampton LLP
379 Lytton Avenue
Palo Alto, CA 94301
Telephone: (650) 815-2600

W02-WEST:1ATC1\405543186.1

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	12380778
Filing Date	2009-03-02
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

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	6418147		2002-07-09	WIEDEMAN	
	2	6574465		2003-06-03	MARSH et al.	
	3	6765864		2004-07-20	NATARAJAN et al.	
	4	7069248		2006-06-27	HUBER	
	5	7366497		2008-04-29	NAGATA	
	6	7388950		2008-06-17	ELSEY et al.	
	7	7450927		2008-11-11	CRESWELL et al.	
	8	7499537		2009-03-03	ELSEY et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

	9	7650137		2010-01-19	JOBS et al.	
	10	7693720		2010-04-06	KENNEWICK et al.	
	11	7734784		2010-06-08	ARAUJO et al.	
	12	7747699		2010-06-29	PRUEITT et al.	
	13	7792708		2010-09-07	ALVA	
	14	7822837		2010-10-26	URBAN et al.	
	15	7949529		2011-05-24	WEIDER et al.	
	16	8099077		2012-01-17	CHOWDHURY et al.	
	17	8170553		2012-05-01	BENNETT	

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

U.S.PATENT APPLICATION PUBLICATIONS Remove

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

	1	20030046396		2003-03-06	RICHTER et al.	
	2	20040107360		2004-06-03	HERRMANN et al.	
	3	20070254675		2007-11-01	ZORLU OZER et al.	
	4	20080005285		2008-01-03	ROBINSON et al.	
	5	20090113514		2009-04-30	HU	
	6	20100103820		2010-04-29	FULLER et al.	

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

FOREIGN PATENT DOCUMENTS Remove

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							☐

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

NON-PATENT LITERATURE DOCUMENTS Remove

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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

	1		☐

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

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

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	/Marc A. Sockol/	Date (YYYY-MM-DD)	2012-06-08
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.**

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 Patent Application Fee Transmittal	
Application Number:	12380778
Filing Date:	02-Mar-2009
Title of Invention:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Marc A. Sockol/Anne Collette
Attorney Docket Number:	26WV-160485 [RALEP004]
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	870	870
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**1350**

Electronic Acknowledgement Receipt	
EFS ID:	12974125
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
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-160485 [RALEP004]
Receipt Date:	08-JUN-2012
Filing Date:	02-MAR-2009
Time Stamp:	18:08:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$1350
RAM confirmation Number	5404
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 1.16 (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		26WV-160485.pdf	329715 4afcb5d78c09b07a6897bc5477af12c1e4361327	yes	3
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Transmittal Letter		1	1	
	Issue Fee Payment (PTO-85B)		2	2	
	Post Allowance Communication - Incoming		3	3	
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	26WV-160485_IDS.pdf	612709 39acb864b257f896b192140c962eea3978ea3b1f	no	6
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	33850 c8381e9361732bb2db130535655c1ffe91f52744	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	976274		

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

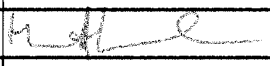
Application Number	12/380,778
Filing Date	2009-03-02
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

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):
  1. Fee(s) Transmittal Form PTOL-85
  2. Notice of Change of Entity Status

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Sheppard, Mullin, Richter & Hampton LLP		
Signature			
Printed name	Marc A. Sockol		
Date	June 8, 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			
Typed or printed name	Anne Collette	Date	June 8, 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.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

69849 7590 06/06/2012

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

EXAMINER	
RUDY, ANDREW J	
ART UNIT	PAPER NUMBER
3687	

DATE MAILED: 06/06/2012

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/380,778	03/02/2009	Gregory G. Raleigh	26WV-160485 [RALEP0041]	9622

TITLE OF INVENTION: VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1740	$300	$0	$2040	09/06/2012

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

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

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

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

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

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

If the SMALL ENTITY is shown as NO:

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

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

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

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

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

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

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

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

69849 7590 06/06/2012

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

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.
12/380,778	03/02/2009	Gregory G. Raleigh	26WV-160485 [RALEP0041]	9622

TITLE OF INVENTION: VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1740	$300	$0	$2040	09/06/2012

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).

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

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

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

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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.

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.
12/380,778	03/02/2009	Gregory G. Raleigh	26WV-160485 [RALEP004]	9622

69849 7590 06/06/2012

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

EXAMINER	
RUDY, ANDREW J	

ART UNIT	PAPER NUMBER
3687	

DATE MAILED: 06/06/2012

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

The Patent Term Adjustment to date is 363 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 363 day(s).

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

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

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

Privacy Act Statement

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

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

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

Notice of Allowability	Application No.	Applicant(s)	
	12/380,778	RALEIGH, GREGORY G.	
	Examiner	Art Unit	
	ANDREW JOSEPH RUDY	3687	

-- 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 21 May 2012 Amendment*.
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 *36 and 38-65*.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

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

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ 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. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 09 May 2012
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/ANDREW JOSEPH RUDY/
Primary Examiner, Art Unit 3687

Notice of References Cited	Application/Control No. 12/380,778	Applicant(s)/Patent Under Reexamination RALEIGH, GREGORY G.	
	Examiner ANDREW JOSEPH RUDY	Art Unit 3687	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-8,099,517	01-2012	Jia et al.	709/245
*	B	US-8,095,666	01-2012	Schmidt et al.	709/227
*	C	US-8,023,425	09-2011	Raleigh, Gregory G.	370/252
*	D	US-7,797,401	09-2010	Stewart et al.	709/219
*	E	US-7,647,047	01-2010	Moghaddam et al.	455/434
*	F	US-7,610,328	10-2009	Haase et al.	709/201
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

Issue Classification	Application/Control No.	Applicant(s)/Patent under Reexamination	
	12/380,778	RALEIGH, GREGORY G.	
	Examiner	Art Unit	
	ANDREW JOSEPH RUDY	3687	

ISSUE CLASSIFICATION

ORIGINAL						CROSS REFERENCE(S)							
CLASS				SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)							
709				217	709	224							
INTERNATIONAL CLASSIFICATION					705	34							
G	0	6	F	15/173	455	406							
H	0	4	M	11/00									
				/									
				/									
				/									

XXXXXXXXXXXXXXXXXXXXXXXXX (Assistant Examiner) (Date)	/Andrew Joseph Rudy/ 5/30/2012 (Primary Examiner) (Date)	**Total Claims Allowed: 29**
(Legal Instruments Examiner) (Date)		O.G. Print Claim(s): 1 / O.G. Print Fig.: 3

☐ **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
	1		31	25	61		91		121		151		181
	2		32	26	62		92		122		152		182
	3		33	27	63		93		123		153		183
	4		34	28	64		94		124		154		184
	5		35	29	65		95		125		155		185
	6	1	36		66		96		126		156		186
	7		37		67		97		127		157		187
	8	2	38		68		98		128		158		188
	9	3	39		69		99		129		159		189
	10	4	40		70		100		130		160		190
	11	5	41		71		101		131		161		191
	12	6	42		72		102		132		162		192
	13	7	43		73		103		133		163		193
	14	8	44		74		104		134		164		194
	15	9	45		75		105		135		165		195
	16	10	46		76		106		136		166		196
	17	11	47		77		107		137		167		197
	18	12	48		78		108		138		168		198
	19	13	49		79		109		139		169		199
	20	14	50		80		110		140		170		200
	21	15	51		81		111		141		171		201
	22	16	52		82		112		142		172		202
	23	17	53		83		113		143		173		203
	24	18	54		84		114		144		174		204
	25	19	55		85		115		145		175		205
	26	20	56		86		116		146		176		206
	27	21	57		87		117		147		177		207
	28	22	58		88		118		148		178		208
	29	23	59		89		119		149		179		209
	30	24	60		90		120		150		180		210

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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

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	7620162		2009-11-17	AARON 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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

	9	8023425		2011-09-20	RALEIGH, Gregory G.	

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

U.S.PATENT APPLICATION PUBLICATIONS Remove

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	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.	
	6	20080010452		2008-01-10	HOLTZMAN et al.	
	7	20080060066		2008-03-06	WYNN et al.	
	8	20080062900		2008-03-13	RAO	

 ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

	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	20090068984		2009-03-12	BURNETT	
	16	20090077622		2009-03-19	BAUM et al.	
	17	20090286507		2009-11-19	O'NEAL et al.	
	18	20090288140		2009-11-19	HUBER et al.	
	19	20100042675		2010-02-18	FUJII	

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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

	20	20100191576		2010-07-29	RALEIGH, Gregory G.	
	21	20100191612		2010-07-29	RALEIGH, Gregory G.	
	22	20100192212		2010-07-29	RALEIGH, Gregory G.	
	23	20100195503		2010-08-05	RALEIGH, Gregory G.	
	24	20100325420		2010-12-23	KANEKAR	

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

FOREIGN PATENT DOCUMENTS Remove

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		☐

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

NON-PATENT LITERATURE DOCUMENTS Remove

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		☐

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

EXAMINER SIGNATURE			
Examiner Signature	/Andrew Joseph Rudy/	Date Considered	05/30/2012

*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.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	12/380,778	RALEIGH, GREGORY G.	
	Examiner	Art Unit	
	ANDREW JOSEPH RUDY	3687	

SEARCHED			
Class	Subclass	Date	Examiner
search	updated	5/29/2012	AJR
709	224,226	5/30/2012	AJR

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner
709	**217,224**	**5/30/2012**	**AJR**
705	30,34	5/30/2012	AJR
455	406	5/30/2012	AJR

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Continuity data reviewed.	5/29/2012	AJR

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Gregory G. Raleigh	Examiner:	Andrew J. Rudy
Serial No.:	12/380,778	Art Unit:	3687
Filed:	March 2, 2009	Conf. No.:	9622
Title:	Verifiable Device Assisted Service Usage Billing With Integrated Accounting, Mediation Accounting, and Multi-Account		

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

SUPPLEMENTAL AMENDMENT AFTER FINAL

Sir:

In response to the Examiner's voicemail request of May 29, 2012, Applicant requests the application be amended as follows:

Amendments to the Abstract begin on page 2 of this paper.

Remarks start at page 3.

Please amend the abstract as follows:

~~**VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT**~~

ABSTRACT OF THE DISCLOSURE

~~[00547]~~ ~~Various embodiments are disclosed for a services policy communication system and method. In some embodiments, a communications device implements a service policy for assisting billing for the communications device use of a service on a network; and monitors use of the service based on the service policy, in which a local service usage is synchronized with a network based service usage.~~ Methods and apparatuses are disclosed for enabling a first end-user communications device to use a plurality of applications to access a plurality of data services via a plurality of data access networks; storing a first service policy for assisting with separately accounting for a use of a first data service of the plurality of data services by the first end-user communications device via a first particular combination of one of the plurality of applications and one of the plurality of data access networks; using the first service policy to monitor the use of the first data service by the first end-user communications device via the first particular combination to separately account for the use of the first data service via the first particular combination; and displaying by the first end-user communications device first service usage information based on the separate accounting.

REMARKS

Applicant thanks the Examiner for the voicemail of May 29, 2012, requesting that Applicant amend the abstract of the application to reflect the language of claim 1. In response, Applicant is amending the abstract to reflect the language of claim 1.

CONCLUSION

The Applicant respectfully requests entry of the amendments as provided herein. If the Examiner has any questions or needs any additional information, the Examiner is invited to telephone the undersigned.

The Commissioner is authorized to charge any fee deficiency or credit any overpayment to Deposit Account 50-4561.

Respectfully submitted,

Date: May 29, 2012 By: _____

Marc A. Sockol, Reg. No. 40,823
Attorney for Applicant
Customer Number 69849
Sheppard, Mullin, Richter & Hampton LLP
379 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: May 29, 2012 By: _____
Linda K. Brost

Electronic Acknowledgement Receipt	
EFS ID:	12883753
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account
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-160485 [RALEP004]
Receipt Date:	29-MAY-2012
Filing Date:	02-MAR-2009
Time Stamp:	17:42:00
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		160485-RALEP004-SupplAmendAfterFinal-052912.pdf	99996 89c6ec6a2742cb7cf48a72a29606de5e2df588e5	yes	4

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	1
	Amendment After Final	2	4
Warnings:			
Information:			
	Total Files Size (in bytes):	99996	

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
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)

Application Number	12/380,778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. Raleigh
Art Unit	3687 Conf. No. 9622
Examiner Name	Andrew J. Rudy
Total Number of Pages in This Submission: 4	Attorney Docket Number: 26WV-160485 [RALEP004]

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
- ☐ Fee Attached
- ☒ Supplemental Amendment (3 pgs.)
- ☒ After Final
- ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement with PTO/SB/08a/b (3 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):

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	May 29, 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	Linda K. Brost		
Typed or printed name	Linda K. Brost	Date	May 29, 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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Gregory G. RALEIGH Serial No.: 12/380,778 Filed: March 2, 2009 Title: VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT	Examiner: Andrew J. Rudy Art Unit: 3687 Conf. No.: 9622

AMENDMENT AFTER FINAL

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

Sir:

In response to the Final Office Action dated May 10, 2012, the deadline for response ending on August 10, 2012, please amend the above-identified application as follows:

AMENDMENTS TO THE CLAIMS

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

In the claims:

1-35. (Canceled)

36. (Previously presented) A method, comprising:

enabling a first end-user communications device to use a plurality of applications to access a plurality of data services via a plurality of data access networks;

storing a first service policy for assisting with separately accounting for a use of a first data service of the plurality of data services by the first end-user communications device via a first particular combination of one of the plurality of applications and one of the plurality of data access networks;

using the first service policy to monitor the use of the first data service by the first end-user communications device via the first particular combination to separately account for the use of the first data service via the first particular combination; and

displaying by the first end-user communications device first service usage information based on the separate accounting.

37. (Canceled)

38. (Previously presented) The method of claim 36, wherein the plurality of applications comprises

an application dedicated to access the first data service, and

a browser.

39. (Currently amended) The method of claim 36, wherein the plurality of data access networks comprises

a wireless fidelity (WiFi) network, and

a cellular network.

40. (Previously presented) The method of claim 36, wherein the plurality of data access networks comprises

a home network, and

a roaming network.

41. (Previously presented) The method of claim 36, wherein the usage information includes information relative to a threshold of use.

42. (Previously presented) The method of claim 36, wherein the usage information includes aggregated information for a set of data services of the plurality of data services, the set of data services including the first data service.

43. (Previously presented) The method of claim 36, wherein the usage information includes aggregated information for a set of at least two applications of the plurality of applications, the set of at least two applications including the one of the plurality of applications.

44. (Previously presented) The method of claim 36, wherein the usage information includes information aggregated for a set of at least two data access networks of the plurality of data access networks, the set of at least two data access networks including the one of the plurality of data access networks.

45. (Previously presented) The method of claim 36, further comprising controlling access rights to the first data service based on the separate accounting.

46. (Previously presented) The method of claim 45, wherein the controlling access rights includes controlling access rights via the one of the plurality of applications.

47. (Previously presented) The method of claim 45, wherein the controlling access rights includes controlling access rights via the one of the plurality of data access networks.

48. (Previously presented) The method of claim 45, wherein the controlling access rights includes reducing a quality of service component.

49. (Previously presented) The method of claim 36, wherein the first data service comprises a device data communication set that uses one or more particular data protocols or one or more particular data content types.

50. (Previously presented) The method of claim 49, wherein at least one of the one or more particular data protocols comprises a simple mail transfer protocol (SMTP), a hypertext transfer protocol (HTTP), a secure socket layer (SSL) protocol, a transmission control protocol (TCP), an Internet protocol (IP), a user datagram protocol (UDP), a file transfer protocol (FTP), or a post office protocol (POP).

51. (Previously presented) The method of claim 49, wherein at least one of the one or more particular data content types comprises streaming media, streaming audio, streaming video, digital voice, voice over IP, digital audio, digital video, a digital image, a media file, a game file, an image file, a map file, an application file or a digital transaction file.

52. (Previously presented) The method of claim 36, wherein the one of the plurality of applications comprises a user software program, an operating system software program, an operating system software component or system function, or a firmware component or system function.

53. (Previously presented) An end-user communications device, comprising:

memory storing a plurality of applications configured to access a plurality of data services via a plurality of data access networks, and a first service policy configured to assist with separately accounting for a use of a first data service of the plurality of data services via a first particular combination of one of the plurality of applications and one of the plurality of data access networks;

a processor configured to use the first service policy to monitor the use of the first data service via the first particular combination to separately account for the use of the first data service via the first particular combination; and

a user interface configured to display first service usage information based on the separate accounting.

54. (Previously presented) The device of claim 53, wherein the plurality of applications comprises

an application dedicated to access the first data service, and

a browser.

55. (Currently amended) The device of claim 53, wherein the plurality of data access networks comprises

a wireless fidelity (WiFi) network, and

a cellular network.

56. (Previously presented) The device of claim 53, wherein the plurality of data access networks comprises

a home network, and

a roaming network.

57. (Previously presented) The device of claim 53, wherein the usage information includes information relative to a threshold of use.

58. (Previously presented) The device of claim 53, wherein the usage information includes aggregated information for a set of data services of the plurality of data services, the set of data services including the first data service.

59. (Previously presented) The device of claim 53, wherein the usage information includes aggregated information for a set of at least two applications of the plurality of applications, the set of at least two applications including the one of the plurality of applications.

60. (Previously presented) The device of claim 53, wherein the usage information includes information aggregated for a set of at least two data access networks of the plurality of data access networks, the set of at least two data access networks including the one of the plurality of data access networks.

61. (Previously presented) The device of claim 53, wherein the first data service comprises a device data communication set that uses one or more particular data protocols or one or more particular data content types.

62. (Previously presented) The device of claim 61, wherein at least one of the one or more particular data protocols comprises a simple mail transfer protocol (SMTP), a hypertext transfer protocol (HTTP), a secure socket layer (SSL) protocol, a transmission control protocol (TCP), an Internet protocol (IP), a user datagram protocol (UDP), a file transfer protocol (FTP), or a post office protocol (POP).

63. (Previously presented) The device of claim 61, wherein at least one of the one or more particular data content types comprises streaming media, streaming audio, streaming video, digital voice, voice over IP, digital audio, digital video, a digital image, a media file, a game file, an image file, a map file, an application file or a digital transaction file.

64. (Previously presented) The device of claim 53, wherein the one of the plurality of applications comprises a user software program, an operating system software program, an operating system software component or system function, or a firmware component or system function.

65. (Previously presented) An end-user communications device, comprising:

memory storing a plurality of applications configured to access a plurality of data services via a plurality of data access networks, and a first service policy configured to assist with separately accounting for a use of a first data service of the plurality of data services via a first particular combination of one of the plurality of applications and one of the plurality of data access networks;

means for using the first service policy to monitor the use of the first data service via the first particular combination to separately account for the use of the first data service via the first particular combination; and

means for displaying first service usage information based on the separate accounting.

REMARKS

Claims 36 and 38-65 were pending and rejected. Claims 39 and 55 are being amended. Reconsideration is respectfully requested.

Applicant thanks the Examiner for the telephonic interview of May 18, 2012, during which the Examiner, the undersigned, and Krista S. Jacobsen, Head Counsel for the assignee, discussed the 35 USC § 112 rejections. Agreement was reached that the specification supports the claims, and that (with the addition of "wireless fidelity" in claims 39 and 55) Applicant has overcome the 35 USC § 112, first and second paragraph, rejections.

During the interview, Applicant directed the Examiner's attention to support in the specification for each element rejected by the Examiner.

In support of "a first end-user communications device," Applicant directed the Examiner's attention to Figure 3 and to paragraphs [00115] and [00484].

In support of "a plurality of data services," Applicant directed the Examiner's attention to Figure 3, Figure 47A, and paragraph [00386].

In support of "a plurality of data access networks," Applicant directed the Examiner's attention to Figure 3 and paragraph [00115].

In support of "a first service policy for assisting with separately accounting," Applicant directed the Examiner's attention to paragraphs [0075], [00115], [00341], and [00484].

In support of "a first data service of the plurality of data services by the first end-user," Applicant directed the Examiner's attention to Figure 3 and paragraphs [00115] and [00484].

In support of "displaying by the first end-user communications device first service usage information based on the separate accounting," Applicant directed the Examiner's attention to paragraphs [00115] and [00341].

To address the Examiner's rejection under 35 U.S.C. § 112, second paragraph, of claims 39 and 55 for the indefinite use of the term "WiFi," Applicant is amending claims 39 and 55 to indicate that "WiFi" stands for "wireless fidelity." Agreement was reached that this amendment would overcome the rejections.

Having overcome all outstanding rejections, including showing that the independent claims were supported and definite as is, Applicant respectfully requests a notice of allowance.

The Examiner stated that he would perform an updated prior art search to supplement the search performed on May 7, 2012. Because all outstanding rejections were overcome without amending the claims (aside from a minor amendment to indicate that "WiFi" means "wireless fidelity," which did not alter the scope of any claim), Applicant respectfully suggests that, if the Examiner were to raise new rejections or objections and issue an Office Action, it would be proper for that Office Action to be non-final, since any new rejections would not have been necessitated by Applicant's response.

If the Examiner has any questions or needs any additional information, the Examiner is invited to contact the undersigned.

Respectfully submitted,

Date: May 21, 2012 By: /Marc A. Sockol/

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

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 and addressed to MS AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313 on:

Date: May 21, 2012 By: Valerie Cohen

Electronic Acknowledgement Receipt

EFS ID:	12830360
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	69849
Filer:	Marc A. Sockol/Valerie Cohen
Filer Authorized By:	Marc A. Sockol
Attorney Docket Number:	26WV-160485 [RALEP004]
Receipt Date:	21-MAY-2012
Filing Date:	02-MAR-2009
Time Stamp:	20:31:05
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	Miscellaneous Incoming Letter	Transmittal.pdf	24498 8f4d72470d4a1aafa77600df9c3c85250bdc3485	no	1

Warnings:	
Information:	

2		Response.pdf	46165 4ed31310f8e30d120392774a387654a631e0c4e2	yes	8

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment After Final	1	1
	Claims	2	6
	Applicant Arguments/Remarks Made in an Amendment	7	8

Warnings:	
Information:	
Total Files Size (in bytes):	70663

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
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	12/380,778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. RALEIGH
Art Unit	3687 Conf. No. 9622
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☒ Amendment/Reply (8 pages)
  - ☒ 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 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 **OTHER ENCLOSURES CON'T**

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	/Marc A. Sockol/		
Printed name	Marc A. Sockol		
Date	May 21, 2012	Reg. No.	40,823

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this correspondence is being filed electronically via EFS-Web and addressed to MS AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313 on the date shown below.

Signature	Valerie Cohen		
Typed or printed name	Valerie Cohen	Date	May 21, 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
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/380,778	Filing Date 03/02/2009	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ 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

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
AMENDMENT	05/21/2012	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 29	Minus	** 37	= 0	X $ =		OR	X $60=	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $ =		OR	X $250=	0
	☐ 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	0

		(Column 1)		(Column 2)	(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		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:
/TONYA MCBRIDE/

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/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
12/380,778	03/02/2009	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ 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	05/21/2012	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 29	Minus	** 37	= 0	X $ =		OR	X $60=	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $ =		OR	X $250=	0
	☐ 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	0

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:
/TONYA MCBRIDE/

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.

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.
12/380,778	03/02/2009	Gregory G. Raleigh	26WV-160485 [RALEP004]	9622

69849 7590 05/10/2012

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

EXAMINER	
RUDY, ANDREW J	
ART UNIT	PAPER NUMBER
3687	
MAIL DATE	DELIVERY MODE
05/10/2012	PAPER

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.

Office Action Summary	Application No.	Applicant(s)	
	12/380,778	RALEIGH, GREGORY G.	
	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 *13 April 2012 and 13 January 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) *36 and 38-65* 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) *36 and 38-65* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ 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

Response to Amendment

1. Applicant cancelled claims 1-35 and 37. Applicant added claims 38-65. Thus, claims 36 and 38-65 are pending. Pursuant to Applicant's March 19, 2012 Amendment and REMARKS, the September 19, 2011 Non-Final rejection is withdrawn.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 36 and 38-65 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 36, line 2, "a first end user communications device" is not clearly supported from the descriptive portion of the specification, nor the drawing figures.

Claim 36, lines 2-3, "a plurality of data services" is not clearly supported from the descriptive portion of the specification, nor the drawing figures.

Claim 36, line 3, "a plurality of data access networks" is not clearly supported from the descriptive portion of the specification, nor the drawing figures.

Claim 36, line 4, “a first service policy for assisting with separately accounting” is not clearly supported from the descriptive portion of the specification, nor the drawing figures.

Claim 36, lines 5-6, “a first data service of the plurality of data services by the first end-user” is not clearly supported from the descriptive portion of the specification, nor the drawing figures.

Claim 36, lines 12-13, are not clearly supported from the descriptive portion of the specification, nor the drawing figures.

Applicant’s independent claims 53 and 65 contain similar issues.

Clarification is required.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> 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.

5. Claims 36 and 38-65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The above noted comments regarding the 35 USC 112, first paragraph, lend the claims not clear and indefinite.

Claims 39 and 55, “WiFI” need to be properly identified.

6. Applicant's January 6, 2012 and March 19, 2012 Information Disclosure Statements (IDS's) have been reviewed. Note the attached IDS's.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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.

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

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	12/380,778	RALEIGH, GREGORY G.	
	Examiner	Art Unit	
	ANDREW JOSEPH RUDY	3687	

SEARCHED			
Class	Subclass	Date	Examiner
search	updated	5/7/2012	AJR

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Continuity data reviewed.	5/7/2012	AJR

PTO/SB/08a (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 Apt of 1995 no Persons are required to respond to a collection of information unless it contains a valid OMR control number

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 2

Complete if Known	
Application Number	12/380,778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

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
		7,174,174	02/06/2007	BORIS et al	
		7,797,204	09/14/2010	BALENT, Bruce F.	
		7,957,511	06/07/2011	DRUDIS et al	
		2004/0132427	07/08/2004	LEE et al	
		2008/0147454	06/19/2008	WALKER, et al.	
		2009/0005005	01/01/2009	FORSTALL et al	
		2009/0180391	07/16/2009	PETERSEN et al	
		2010/0017506	01/21/2010	FADELL	
		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	/Andrew Joseph Rudy/	Date Considered	05/08/2012

*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.

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 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, 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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

PTO/SB/08b (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 Apt of 1995 no Persons are required to respond to a collection of information unless it contains a valid OMR control number

Substitute for form 1449B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 2 of 2

Complete if Known	
Application Number	12/380,7778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

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]
		Search Report and Written Opinion mailed March 2, 2010 from International Serial Number PCT/US2010/021231 filed January 15, 2010.	

Examiner Signature	/Andrew Joseph Rudy/	Date Considered	05/08/2012

*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.
This collection of information is required by 37 CFR 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 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, 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.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

PTO/SB/08a (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 Apt of 1995 no Persons are required to respond to a collection of information unless it contains a valid OMR control number

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 3

Complete if Known	
Application Number	12/380,778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

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
		6,658,254	12-02-2003	PURDY, et al.	
		6,785,889	08-31-2004	WILLIAMS	
		6,829,696	12-07-2004	BALMER et al	
		6,998,985	02-14-2006	REISMAN 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	
		7,324,447	01-29-2008	MORFORD	
		7,421,004	09-02-2008	FEHER, Kamilo	
		7,486,185	02-03-2009	CULPEPPER et al	
		7,580,857	08-25-2009	VanFLEET, 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	
		8,015,133	09-06-2011	WU, et al	
		8,015,234	09-06-2011	LUM 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	/Andrew Joseph Rudy/	Date Considered	05/08/2012

*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.

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 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, 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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

PTO/SB/08a (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 Apt of 1995 no Persons are required to respond to a collection of information unless it contains a valid OMR control number

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 2 of 3

Complete if Known	
Application Number	12/380,778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

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
		2002/0120540	08-29-2002	KENDE et al	
		2002/0131404	09-19-2002	MEHTA 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	
		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	
		2008/0162637	07-03-2008	ADAMCZYK et al	
		2008/0167027	07-10-2008	GAUTIER et al	
		2008/0180391	07-16-2009	PETERSEN et al	
		2008/0318547	12-25-2008	BALLOU 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.	

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	/Andrew Joseph Rudy/	Date Considered	05/08/2012

*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.

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 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, 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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

PTO/SB/08a (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 Apt of 1995 no Persons are required to respond to a collection of information unless it contains a valid OMR control number

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 3 of 3

Complete if Known	
Application Number	12/380,778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

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
		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.	

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	/Andrew Joseph Rudy/	Date Considered	05/08/2012

*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.

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 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, 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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

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	12380778
Filing Date	2009-03-02
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

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	7620162		2009-11-17	AARON et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

	9	8023425		2011-09-20	RALEIGH, Gregory G.	

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

U.S.PATENT APPLICATION PUBLICATIONS Remove

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	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.	
	6	20080010452		2008-01-10	HOLTZMAN et al.	
	7	20080060066		2008-03-06	WYNN et al.	
	8	20080062900		2008-03-13	RAO	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

	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	20090068984		2009-03-12	BURNETT	
	16	20090077622		2009-03-19	BAUM et al.	
	17	20090286507		2009-11-19	O'NEAL et al.	
	18	20090288140		2009-11-19	HUBER et al.	
	19	20100042675		2010-02-18	FUJII	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

	20	20100191576		2010-07-29	RALEIGH, Gregory G.	
	21	20100191612		2010-07-29	RALEIGH, Gregory G.	
	22	20100192212		2010-07-29	RALEIGH, Gregory G.	
	23	20100195503		2010-08-05	RALEIGH, Gregory G.	
	24	20100325420		2010-12-23	KANEKAR	

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

FOREIGN PATENT DOCUMENTS Remove

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		☐

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

NON-PATENT LITERATURE DOCUMENTS Remove

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		☐

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

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	12380778
	Filing Date	2009-03-02
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J. Rudy
	Attorney Docket Number	26WV-160485 [RALEP004]

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	/Marc A. Sockol/	Date (YYYY-MM-DD)	2012-05-09
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.**

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 Patent Application Fee Transmittal	
Application Number:	12380778
Filing Date:	02-Mar-2009
Title of Invention:	Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Marc A. Sockol/Anne Collette
Attorney Docket Number:	26WV-160485 [RALEP004]
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:				
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:	12743105
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account
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-160485 [RALEP004]
Receipt Date:	09-MAY-2012
Filing Date:	02-MAR-2009
Time Stamp:	18:57:33
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	7714
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 1.16 (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	Transmittal Letter	26WV-160485_Transmittal.pdf	90699 8b7da83325ba4ff088308258852985b6a59ef57e	no	1
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	26WV-160485_IDS.pdf	612953 84e0ce482e2ea5c876315b7fb1dbf8e111adcdcb	no	7
Warnings:					
Information:					
3	Foreign Reference	F28-WO2010-088413A1.pdf	8105145 eaf404d7cb2a7b4a94c9dc61b6560fc490913e29	no	97
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30523 6d29228fcd9b52a7d8b6f48b72e398b736bee50f	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	8839320		

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)

Application Number	12/380,778
Filing Date	2009-03-02
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

Total Number of Pages in This Submission: 8*

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 9, 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	5/9/12

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.**

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Gregory G. Raleigh	Examiner:	Andrew J. Rudy
Serial No.:	12/380,778	Art Unit:	3687
Filed:	March 2, 2009	Conf. No.:	9622
Title:	Verifiable Device Assisted Service Usage Billing with Integrated Accounting, Mediation Accounting, and Multi-Account		

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

AMENDMENT AND RESPONSE

Sir:

In response to the Office Action dated September 19, 2012, the deadline for response ending on March 19, 2012 with the enclosed request for a three-month extension of time, please amend the above-identified application as follows:

Listing of Claims begins on page 2.

Remarks start at page 7.

In the Claims:

1-35. (Canceled)

36. (Currently amended) A method, comprising:

enabling a first end-user communications device to use a plurality of applications to access a plurality of data services via a plurality of data access networks;

storing ~~implementing~~ a first service policy for assisting with separately accounting ~~billing~~ for a ~~first communications device~~ use of a first data service of the plurality of data services by the first end-user communications device via a first particular combination of one of the plurality of applications and one of the plurality of data access ~~a first~~ networks; ~~and~~

using the first service policy to monitor[[ing]] the use of the first data service by the first end-user communications device via the first particular combination to separately account for the use of the first data service via the first particular combination ~~based on the first service policy using a processor of the network device~~; and

displaying by the first end-user communications device first service usage information based on the separate accounting.

37. (Canceled)

38. (New) The method of claim 36, wherein the plurality of applications comprises
an application dedicated to access the first data service, and
a browser.

39. (New) The method of claim 36, wherein the plurality of data access networks comprises
a WiFi network, and
a cellular network.

40. (New) The method of claim 36, wherein the plurality of data access networks comprises
a home network, and
a roaming network.

41. (New) The method of claim 36, wherein the usage information includes information relative to a threshold of use.

42. (New) The method of claim 36, wherein the usage information includes aggregated information for a set of data services of the plurality of data services, the set of data services including the first data service.

43. (New) The method of claim 36, wherein the usage information includes aggregated information for a set of at least two applications of the plurality of applications, the set of at least two applications including the one of the plurality of applications.

44. (New) The method of claim 36, wherein the usage information includes information aggregated for a set of at least two data access networks of the plurality of data access networks, the set of at least two data access networks including the one of the plurality of data access networks.

45. (New) The method of claim 36, further comprising controlling access rights to the first data service based on the separate accounting.

46. (New) The method of claim 45, wherein the controlling access rights includes controlling access rights via the one of the plurality of applications.

47. (New) The method of claim 45, wherein the controlling access rights includes controlling access rights via the one of the plurality of data access networks.

48. (New) The method of claim 45, wherein the controlling access rights includes reducing a quality of service component.

49. (New) The method of claim 36, wherein the first data service comprises a device data communication set that uses one or more particular data protocols or one or more particular data content types.

50. (New) The method of claim 49, wherein at least one of the one or more particular data protocols comprises a simple mail transfer protocol (SMTP), a hypertext transfer protocol (HTTP), a secure socket layer (SSL) protocol, a transmission control protocol (TCP), an Internet protocol (IP), a user datagram protocol (UDP), a file transfer protocol (FTP), or a post office protocol (POP).

51. (New) The method of claim 49, wherein at least one of the one or more particular data content types comprises streaming media, streaming audio, streaming video, digital voice, voice over IP, digital audio, digital video, a digital image, a media file, a game file, an image file, a map file, an application file or a digital transaction file.

52. (New) The method of claim 36, wherein the one of the plurality of applications comprises a user software program, an operating system software program, an operating system software component or system function, or a firmware component or system function.

53. (New) An end-user communications device, comprising:

memory storing a plurality of applications configured to access a plurality of data services via a plurality of data access networks, and a first service policy configured to assist with separately accounting for a use of a first data service of the plurality of data services via a first particular combination of one of the plurality of applications and one of the plurality of data access networks;

a processor configured to use the first service policy to monitor the use of the first data service via the first particular combination to separately account for the use of the first data service via the first particular combination; and

a user interface configured to display first service usage information based on the separate accounting.

54. (New) The device of claim 53, wherein the plurality of applications comprises

an application dedicated to access the first data service, and

a browser.

55. (New) The device of claim 53, wherein the plurality of data access networks comprises
a WiFi network, and
a cellular network.

56. (New) The device of claim 53, wherein the plurality of data access networks comprises
a home network, and
a roaming network.

57. (New) The device of claim 53, wherein the usage information includes information relative to a threshold of use.

58. (New) The device of claim 53, wherein the usage information includes aggregated information for a set of data services of the plurality of data services, the set of data services including the first data service.

59. (New) The device of claim 53, wherein the usage information includes aggregated information for a set of at least two applications of the plurality of applications, the set of at least two applications including the one of the plurality of applications.

60. (New) The device of claim 53, wherein the usage information includes information aggregated for a set of at least two data access networks of the plurality of data access networks, the set of at least two data access networks including the one of the plurality of data access networks.

61. (New) The device of claim 53, wherein the first data service comprises a device data communication set that uses one or more particular data protocols or one or more particular data content types.

62. (New) The device of claim 61, wherein at least one of the one or more particular data protocols comprises a simple mail transfer protocol (SMTP), a hypertext transfer protocol (HTTP), a secure socket layer (SSL) protocol, a transmission control protocol (TCP), an

Internet protocol (IP), a user datagram protocol (UDP), a file transfer protocol (FTP), or a post office protocol (POP).

63. (New) The device of claim 61, wherein at least one of the one or more particular data content types comprises streaming media, streaming audio, streaming video, digital voice, voice over IP, digital audio, digital video, a digital image, a media file, a game file, an image file, a map file, an application file or a digital transaction file.

64. (New) The device of claim 53, wherein the one of the plurality of applications comprises a user software program, an operating system software program, an operating system software component or system function, or a firmware component or system function.

65. (New) An end-user communications device, comprising:

memory storing a plurality of applications configured to access a plurality of data services via a plurality of data access networks, and a first service policy configured to assist with separately accounting for a use of a first data service of the plurality of data services via a first particular combination of one of the plurality of applications and one of the plurality of data access networks;

means for using the first service policy to monitor the use of the first data service via the first particular combination to separately account for the use of the first data service via the first particular combination; and

means for displaying first service usage information based on the separate accounting.

REMARKS

Claims 1-37 were pending and rejected. Claims 1-35 and 37 are being canceled. Claim 36 is being amended. Claims 38-65 are being added. Claims 36 and 38-65 are now pending. Reconsideration is respectfully requested.

In paragraphs 2 and 3, the Examiner rejected claims 1-35 under 35 USC § 103 as obvious over Fascenda in view of Lazaridis. Claims 1-35 are being canceled, and intends to pursue these claims in a continuation. This rejection is now moot.

In paragraph 4, the Examiner rejected claims 36 and 37 under 35 USC § 102 as anticipated by Fascenda.

Fascenda describes a system for locally tracking network usage and enforcing usage plans at a client device. A unique physical key, or token, is installed at a client device of one or more networks. The key comprises a usage application and one or more access parameters designated the conditions and/or limits of a particular network usage plan. Upon initial connection to the network, the usage application grants or denies access to the network based on an analysis of the current values of the access parameters. Therefore, network usage tracking and enforcement is made simple and automatic without requiring any back-end servers on the network while still providing ultimate flexibility in changing billing plans for any number of users at any time.

Claim 1 as amended recites as follows:

36. A method, comprising:
enabling a first end-user communications device to use a plurality of applications to access a plurality of data services via a plurality of data access networks;
storing a first service policy for assisting with separately accounting for use of a first data service of the plurality of data services by the first end-user communications device via a first particular combination of one of the plurality of applications and one of the plurality of data access networks;
using the first service policy to monitor the use of the first data service by the first end-user communications device via the first particular combination to

separately account for the use of the first data service via the first particular combination; and

displaying by the first end-user communications device first service usage information based on the separate accounting.

Claim 1 as amended requires that the method use a first service policy to monitor the use of a first data service of a plurality of data services by a first end-user communications device via a combination of one of the plurality of applications and one of the plurality of data access networks to separately account for the use of the first data service via the particular combination. Independent claims 53 and 65 newly added contain similar limitations. Fascenda does not describe this. Accordingly, Applicant respectfully submits that claims 1, 53 and 65 are patentable over Fascenda for at least these reasons, and respectfully requests the rejection be withdrawn. Since claims 28-52 and 54-64 depend from claims 1 and 53, respectively, Applicant respectfully submits that they are patentable over Fascenda for at least the same reasons, and respectfully requests the rejection be withdrawn.

CONCLUSION

The 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 telephone the undersigned.

The Commissioner is authorized to charge any fee deficiency or credit any overpayment to Deposit Account 50-4561.

Respectfully submitted,

Date: March 19, 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

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 19, 2012 By: _____
Linda K. Brost

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Gregory G. Raleigh Serial No.: 12/380,778 Filed: March 2, 2009	Examiner: Andrew J. Rudy Art Unit: 3687
Title: Verifiable Device Assisted Service Usage Billing With Integrated Accounting, Mediation Accounting, and Multi-Account	

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

INFORMATION DISCLOSURE STATEMENT PURSUANT TO 37 C.F.R. §§1.97-1.98 WITH FEE

Sirs:

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 submitted after receiving the first office action but before an action closing prosecution on the merits. Accordingly, please charge Deposit Account No. 50-4561 in the amount of $180.00 as specified in 37 CFR §1.97(c) and 37 CFR §1.17(p).

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 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.

If for any reason an insufficient fee has been paid, please charge the insufficiency to Deposit Account No. **50-4561**.

Respectfully submitted,

Date: March 19, 2012

By: _____

Marc A. Sockol
Reg. No. 40,823
Customer Number 69849
Sheppard, Mullin, Richter & Hampton LLP
379 Lytton Avenue
Palo Alto, CA 94301-1432
(650) 815-2600

PTO/SB/08a (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 Apt of 1995 no Persons are required to respond to a collection of information unless it contains a valid OMR control number

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 2

Complete if Known	
Application Number	12/380,778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

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
		7,174,174	02/06/2007	BORIS et al	
		7,797,204	09/14/2010	BALENT, Bruce F.	
		7,957,511	06/07/2011	DRUDIS et al	
		2004/0132427	07/08/2004	LEE et al	
		2008/0147454	06/19/2008	WALKER, et al.	
		2009/0005005	01/01/2009	FORSTALL et al	
		2009/0180391	07/16/2009	PETERSEN et al	
		2010/0017506	01/21/2010	FADELL	
		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	

*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.

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 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, 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

PTO/SB/08b (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 Apt of 1995 no Persons are required to respond to a collection of information unless it contains a valid OMR control number

Substitute for form 1449B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 2 of 2

Complete if Known	
Application Number	12/380,7778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

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]
		Search Report and Written Opinion mailed March 2, 2010 from International Serial Number PCT/US2010/021231 filed January 15, 2010.	

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.
This collection of information is required by 37 CFR 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 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, 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.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:
MICHAEL J. SCHALLOP
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD.
SUITE 200
CUPERTINO, CA 95014

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)

Date of mailing *(day/month/year)*	02 MAR 2010
Applicant's or agent's file reference: RALEP004PCT	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No.: PCT/US 10/21231	International filing date *(day/month/year)*: 15 January 2010 (15.01.2010)
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 8270

   For more detailed instructions, see the notes on the accompanying sheet.

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 the 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 the applicant's 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**

   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 as provided in Rules 90*bis*.1 and 90*bis*.3, respectively, before the completion of the technical preparations for international publication.

   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. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

   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.

   See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

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/220 (January 2004) *(See notes on accompanying sheet)*

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference RALEP004PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 10/21231	International filing date *(day/month/year)* 15 January 2010 (15.01.2010)	(Earliest) Priority Date *(day/month/year)* 28 January 2009 (28.01.2009)
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 2 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 10/21231

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06F 21/00 (2010.01)
USPC - 705/52
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)
USPC - 705/52

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 705/52; 713/150; 463/40; 370/235, 392, 401; 455/420; 726/1; 709/225 – text search, see search terms below

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST (PGPB,USPT,EPAB,JPAB); Google; Search Terms Used:
track, monitor, usage, service, policy, plan, bill, cost, projection, estimate, wireless, mobile, device, limit, overage, deep packet inspection, exceed, data, voice, network chatter, offset, server, verify

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 2004/0073672 A1 (FASCENDA) 15 April 2004 (15.04.2004), especially Fig 2, 3; para [0016], [0033]-[0038], [0041], [0044]-[0045]	36, 37 ------ 1 - 35
Y	US 2006/0143098 A1 (LAZARIDIS) 29 June 2006 (29.06.2006), especially Fig 4, 7, 12; para [0075]-[0076], [0078]-[0080], [0096], [0099], [0105]	1 - 35
A	US 2003/0224781 A1 (MILFORD et al.) 04 December 2003 (04.12.2003), entire document	1 - 37
A	US 2008/0189760 A1 (ROSENBERG et al.) 07 August 2008 (07.08.2008), entire document	1 - 37
A	US 2005/0246282 A1 (NASLUND et al.) 03 November 2005 (03.11.2005), entire document	1 - 37
A	US 2008/0316923 A1 (FEDDERS et al.) 25 December 2008 (25.12.2008), entire document	1 - 37

☐ 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
17 February 2010 (17.02.2010)	02 MAR 2010
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)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: MICHAEL J. SCHALLOP
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD.
SUITE 200
CUPERTINO, CA 95014

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	02 MAR 2010

Applicant's or agent's file reference	FOR FURTHER ACTION
RALEP004PCT	See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US 10/21231	15 January 2010 (15.01.2010)	28 January 2009 (28.01.2009)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G06F 21/00 (2010.01)
USPC - 705/52

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 the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form 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.

3. For further details, see notes to 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	17 February 2010 (17.02.2010)	Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2009)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 10/21231

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:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 10/21231

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	1 - 35	YES
	Claims	36, 37	NO
Inventive step (IS)	Claims	none	YES
	Claims	1 - 37	NO
Industrial applicability (IA)	Claims	1 - 37	YES
	Claims	none	NO

2. Citations and explanations:

Claims 36 and 37 lack novelty under PCT Article 33(2) as being anticipated by US 2004/0073672 A1 (Fascenda).

Regarding claim 36, Fascenda discloses a method, comprising: implementing a first service policy for assisting billing for a first communications device use of a first service on a first network (see Fig 3 and para [0016], [0035] -- 'application platform 245'); and monitoring use of the first service by the first communications device based on the first service policy using a processor of the network device (see para [0035]).

Regarding claim 37, Fascenda discloses a computer program product, the computer program product being embodied in a computer readable storage medium and comprising computer instructions for: implementing a first service policy for assisting billing for a first communications device use of a first service on a first network (see Fig 3 and para [0016], [0035] -- 'application platform 245'); and monitoring use of the first service by the first communications device based on the first service policy (see para [0035]).

Claims 1 - 35 lack an inventive step under PCT Article 33(3) as being obvious over Fascenda in view of US 2006/0143098 A1 (Lazaridis).

Regarding claim 1, Fascenda discloses a system, comprising: a processor of a communications device (see Fig 2 and para [0033]) configured to: implement a first service policy for assisting billing for the communications device use of a first service on a first network (see Fig 3 and para [0016], [0035] -- 'application platform 245'); and monitor use of the first service based on the first service policy (see para [0035]); and a memory of the communications device coupled to the processor and configured to provide the processor with instructions (see Fig 3 and para [0037] -- 'secure storage 246'). Fascenda does not disclose wherein a local service usage is synchronized with a network based service usage. However, Lazaridis discloses wherein a local service usage is synchronized with a network based service usage (see Fig 4 and para [0080] -- 'updating usage data in the device database 254'). It would have been obvious to one skilled in the art to combine the method of Fascenda with the updating of usage data in the device database of Lazaridis, because Fascenda and Lazaridis are directed to system and method for delivery and management of mobile services. Furthermore, users benefit from methods that include updating of usage data in the device database, because such methods facilitate 'accurate usage tracking' (see Fascenda para [0041]).

Regarding claim 2, Fascenda and Lazaridis discloses the system recited in claim 1. Lazaridis further discloses wherein the processor of the communications device is further configured to: determine bill by account information based on the monitored use of the first service (see para [0076], [0079]); and report the bill by account information (see para [0096]).

Regarding claim 3, Fascenda and Lazaridis discloses the system recited in claim 1. Lazaridis further discloses wherein the processor of the communications device is further configured to: determine bill by account information based on the monitored use of the first service (see para [0076], [0079]), wherein the bill by account information associates the monitored use of the first service based on one or more of the following: application type, content type, network address identifier, transaction, and network chatter (see para [0078]); and report the bill by account information (see para [0096]).

Regarding claim 4, Fascenda and Lazaridis discloses the system recited in claim 1. Lazaridis further discloses wherein the processor of the communications device is further configured to: determine bill by account information based on the monitored use of the first service (see para [0076], [0079]); and send a billing report to a billing server (see para [0080]), wherein the billing report includes billing allocations based on one or more of the following: service usage information for an ambient service, service usage information for a transaction based service, service usage information for a partner application, and service usage information for network chatter (see para [0078]).

Regarding claim 5, Fascenda and Lazaridis discloses the system recited in claim 1. Lazaridis further discloses wherein the processor of the communications device is further configured to: report a cost of service usage for the communications device based on one or more of the following: a network address identifier, an application type, a service type, a content type, a time of day, and an associated service usage level (see para [0078]-[0079]).

-- Continued --

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 10/21231

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:
Box No. V-2. Citations and explanations:

Regarding claim 6, Fascenda and Lazaridis discloses the system recited in claim 1. Lazaridis further discloses wherein the processor of the communications device is further configured to: determine a cost projection for a projected service usage for the communications device (see para [0079] -- 'provide cost estimates for services'). Fascenda further discloses wherein the cost projection excludes service usage costs for the communications device that are related to one or more of the following: network chatter and bill by account (see para [0045] -- 'message notifying the user that the usage account on that network has expired', 'redirected to the network billing website').

Regarding claim 7, Fascenda and Lazaridis discloses the system recited in claim 1. Lazaridis further discloses wherein the processor of the communications device is further configured to: determine a cost projection for a projected service usage for the communications device (see para [0079] -- 'provide cost estimates for services'); and display a notification, the notification including the cost projection (see Fig 12 and para [0096]).

Regarding claim 8, Fascenda and Lazaridis discloses the system recited in claim 1. Fascenda further discloses wherein the processor of the communications device is further configured to: determine if the monitored use of the first service exceeds a service usage limit setting of a first service plan associated with the communications device (see para [0044]), wherein the use of the first service results in a service cost overage (see para [0045] -- 'purchase additional usage'), and wherein the service usage limit setting is stored in the communications device (see para [0037]), and the service usage limit setting is associated with a service usage level record stored in a network device (see para [0038], [0045] -- 'new NUFS is downloaded'); and billing for the service cost overage (see para [0045]).

Regarding claim 9, Fascenda and Lazaridis discloses the system recited in claim 1. Lazaridis further discloses wherein the processor of the communications device is further configured to: receive network based service usage information (see para [0080]). Fascenda further discloses determine if the monitored use of the first service exceeds a service usage limit setting of a first service plan associated with the communications device using the network based service usage information (see para [0044]), wherein the use of the first service results in a service cost overage (see para [0045] -- 'purchase additional usage'), and wherein the service usage limit setting is stored in the communications device (see para [0037]), and the service usage limit setting is associated with a service usage level record stored in a network device (see para [0038], [0045] -- 'new NUFS is downloaded'); and billing for the service cost overage (see para [0045]).

Regarding claim 10, Fascenda discloses a method, comprising: implementing a first service policy for assisting billing for the communications device use of a first service on a first network (see Fig 3 and para [0016], [0035] -- 'application platform 245'); and monitoring use of the first service using a processor of the communications device based on the first service policy (see para [0035]). Fascenda does not disclose wherein a local service usage is synchronized with a network based service usage. However, Lazaridis discloses wherein a local service usage is synchronized with a network based service usage (see Fig 4 and para [0080] -- 'updating usage data in the device database 254'). It would have been obvious to one skilled in the art to combine the method of Fascenda with the updating of usage data in the device database of Lazaridis, because Fascenda and Lazaridis are directed to system and method for delivery and management of mobile services. Furthermore, users benefit from methods that include updating of usage data in the device database, because such methods facilitate 'accurate usage tracking' (see Fascenda para [0041]).

Regarding claim 11, Fascenda discloses a computer program product, the computer program product being embodied in a computer readable storage medium and comprising computer instructions for: implementing a first service policy for assisting billing for the communications device use of a first service on a first network (see Fig 3 and para [0016], [0035] -- 'application platform 245'); and monitoring use of the first service based on the first service policy (see para [0035]). Fascenda does not disclose wherein a local service usage is synchronized with a network based service usage. However, Lazaridis discloses wherein a local service usage is synchronized with a network based service usage (see Fig 4 and para [0080] -- 'updating usage data in the device database 254'). It would have been obvious to one skilled in the art to combine the method of Fascenda with the updating of usage data in the device database of Lazaridis, because Fascenda and Lazaridis are directed to system and method for delivery and management of mobile services. Furthermore, users benefit from methods that include updating of usage data in the device database, because such methods facilitate 'accurate usage tracking' (see Fascenda para [0041]).

Regarding claim 12, Fascenda discloses a system, comprising: a processor of a communications device (see Fig 2 and para [0033]) configured to: implement a first service policy for assisting billing for the communications device use of a first service on a first network (see Fig 3 and para [0016], [0035] -- 'application platform 245'); and monitor use of the first service based on the first service policy (see para [0035]); and a memory of the communications device coupled to the processor and configured to provide the processor with instructions (see Fig 3 and para [0037] -- 'secure storage 246'). Fascenda does not disclose wherein the implementation of the first service policy is verified. However, Lazaridis does not disclose wherein the implementation of the first service policy is verified (see Fig 4 and para [0080] -- 'updating usage data in the device database 254'). It would have been obvious to one skilled in the art to combine the method of Fascenda with the updating of usage data in the device database of Lazaridis, because Fascenda and Lazaridis are directed to system and method for delivery and management of mobile services. Furthermore, users benefit from methods that include updating of usage data in the device database, because such methods facilitate 'accurate usage tracking' (see Fascenda para [0041]).

-- Continued --

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 10/21231

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:
Box No. V-2. Citations and explanations:

Regarding claim 13, Fascenda discloses a system, comprising: a processor of a communications device (see Fig 2 and para [0033]) configured to: implement a first billing policy for assisting billing for the communications device use of a first service on a first network (see Fig 3 and para [0016], [0035] -- 'application platform 245') ; and monitor use of the first service based on the first billing policy (see para [0035]); and a memory of the communications device coupled to the processor and configured to provide the processor with instructions (see Fig 3 and para [0037] -- 'secure storage 246'). Fascenda does not disclose wherein the implementation of the first billing policy is verified based at least on a periodic synchronization of a local service usage with a network based service usage. However, Lazaridis discloses wherein the implementation of the first billing policy is verified based at least on a periodic synchronization of a local service usage with a network based service usage (see Fig 4 and para [0080] -- 'updating usage data in the device database 254'). It would have been obvious to one skilled in the art to combine the method of Fascenda with the updating of usage data in the device database of Lazaridis, because Fascenda and Lazaridis are directed to system and method for delivery and management of mobile services. Furthermore, users benefit from methods that include updating of usage data in the device database, because such methods facilitate 'accurate usage tracking' (see Fascenda para [0041]).

Regarding claim 14, Fascenda discloses a system, comprising: a processor of a network device (see Fig 2 and para [0033]) configured to: implement a first service policy for assisting billing for a first communications device use of a first service on a first network (see Fig 3 and para [0016], [0035] -- 'application platform 245'); and monitor use of the first service by the first communications device based on the first service policy (see para [0035]); and a memory of the network device coupled to the processor and configured to provide the processor with instructions (see Fig 3 and para [0037] -- 'secure storage 246'). Fascenda does not disclose wherein a local service usage is synchronized with a network based service usage. However, Lazaridis discloses wherein a local service usage is synchronized with a network based service usage (see Fig 4 and para [0080] -- 'updating usage data in the device database 254'). It would have been obvious to one skilled in the art to combine the method of Fascenda with the updating of usage data in the device database of Lazaridis, because Fascenda and Lazaridis are directed to system and method for delivery and management of mobile services. Furthermore, users benefit from methods that include updating of usage data in the device database, because such methods facilitate 'accurate usage tracking' (see Fascenda para [0041]).

Regarding claim 15, Fascenda and Lazaridis discloses the system recited in claim 14. Fascenda further discloses wherein the processor of the network device is further configured to: monitor service usage by the first communications device to bill by account (see para [0038]).

Regarding claim 16, Fascenda and Lazaridis discloses the system recited in claim 14. Lazaridis further discloses wherein the processor of the network device is further configured to: monitor service usage by the first communications device to facilitate bill by account (see para [0080]), wherein the bill by account for the first service is controlled by a service provider, a mobile virtual network operator, or a virtual service provider (see para [0105]).

Regarding claim 17, Fascenda and Lazaridis discloses the system recited in claim 14. Lazaridis further discloses wherein the processor of the network device is further configured to: receive a billing report including device based service usage billing information from the first communications device (see para [0080]); verify the billing report (see Fig 4 and para [0080] -- 'updating usage data in the device database 254'); and send the billing report to a billing server (see para [0080]).

Regarding claim 18, Fascenda and Lazaridis discloses the system recited in claim 14. Lazaridis wherein the processor of the network device is further configured to: collect a plurality of network based service usage measurements for the first communications device (see para [0080] -- 'usage can be tracked via the service request module 138'); receive a billing report including a plurality of device based service usage measurements from the first communications device (see para [0080] -- 'central network node 252 can track usage'); and compare the plurality of network based service usage measurements and plurality of the device based service usage measurements to verify the billing report (see Fig 4 and para [0080] -- 'updating usage data in the device database 254).

Regarding claim 19, Fascenda and Lazaridis discloses the system recited in claim 14. Lazaridis further discloses wherein the processor of the network device is further configured to: determine bill by account information for a plurality of service usage measurements for the first communications device (see para [0079]); and report the bill by account information to a billing server (see para [0080]).

Regarding claim 20, Fascenda and Lazaridis discloses the system recited in claim 14. Lazaridis further discloses wherein the processor of the network device is further configured to: determine bill by account information for a plurality of service usage measurements for the first communications device (see para [0079]), wherein the bill by account information categorizes service usage based on one or more of the following: application type, content type, website, transaction and network chatter (see para [0078]-[0079]); and report the bill by account information to a billing server (see para [0080]).

Regarding claim 21, Fascenda and Lazaridis discloses the system recited in claim 14. Lazaridis further discloses wherein the processor of the network device is further configured to: determine bill by account information for a plurality of service usage measurements for the first communications device; (see para [0079]) and send a billing report (see para [0080]), wherein the billing report includes billing allocations based on one or more of the following: service usage information for an ambient service, service usage information for a transaction based service, service usage information for a partner application, and service usage information for network chatter (see para [0078]-[0079]).

Regarding claim 22, Fascenda and Lazaridis discloses the system recited in claim 14. Lazaridis further discloses wherein the processor of the network device is further configured to: report billing for service usage information for the first communications device based on one or more of the following: network address identifier, application, service type, content type, time of day and associated service usage level (see para [0078]-[0079]).

-- Continued --

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 10/21231

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:
Box No. V-2. Citations and explanations:

Regarding claim 23, Fascenda and Lazaridis discloses the system recited in claim 14. Fascenda further discloses wherein the processor of the network device is further configured to: determine if the use of the first service by the first communications device exceeds a service usage limit for a first service plan associated with the first communications device (see para [0044]), wherein the use of the first service by the first communications device results in a service cost overage (see para [0045] -- 'purchase additional usage'); and billing for the service cost overage (see para [0045]).

Regarding claim 24, Fascenda and Lazaridis discloses the system recited in claim 14. Fascenda further discloses wherein the processor of the network device is further configured to: associate a service usage limit record with a service usage limit setting (see para [0044]), wherein the service usage limit setting is based on a service usage limit of a first service plan associated with the first communications device (see para [0037]), and wherein the service usage limit setting is stored in the first communications device (see para [0037]), and the service usage limit record is stored in the network device (see para [0038], [0045] -- 'new NUFS is downloaded'); determine if the use of the first service by the first communications device exceeds the service usage limit setting (see para [0044]), wherein the use of the first service by the first communications device results in a service cost overage (see para [0045] -- 'purchase additional usage'); and billing for the service cost overage (see para [0045]).

Regarding claim 25, Fascenda and Lazaridis discloses the system recited in claim 14. Fascenda further discloses wherein the processor of the network device is further configured to: associate a service usage limit record with a service usage limit setting (see para [0044]), wherein the service usage limit setting is based on a service usage limit of a first service plan associated with the first communications device (see para [0037]), and wherein the service usage limit setting is stored in the first communications device (see para [0037]), and the service usage limit record is stored in the network device (see para [0038], [0045] -- 'new NUFS is downloaded'); determine if the use of the first service by the first communications device exceeds the service usage limit setting using network based service usage information (see para [0044]), wherein the use of the first service by the first communications device results in a service cost overage (see para [0045] -- 'purchase additional usage'); and billing for the service cost overage (see para [0045]).

Regarding claim 26, Fascenda and Lazaridis discloses the system recited in claim 14. Fascenda further discloses wherein the processor of the network device is further configured to: associate a service usage limit record with a service usage limit setting (see para [0044]), wherein the service usage limit setting is based on a service usage limit for the first communications device that is received or requested from a billing system, an intermediary billing system, or the first communications device (see para [0037]-[0038]), and wherein the service usage limit setting is stored in the first communications device (see para [0037]), and the service usage limit record is stored in the network device (see para [0045] -- 'new NUFS is downloaded'); determine if the use of the first service by the first communications device exceeds the service usage limit setting using network based service usage information (see para [0044]), wherein the use of the first service by the first communications device results in a service cost overage (see para [0045] -- 'purchase additional usage'); and billing for the service cost overage (see para [0045]).

Regarding claim 27, Fascenda and Lazaridis discloses the system recited in claim 14. Lazaridis further discloses wherein the processor of the network device is further configured to: determine a cost projection for a projected service usage for the first communications device (see para [0079] -- 'provide cost estimates for services'). Fascenda further discloses wherein the cost projection excludes service usage costs for the first communications device that are related to one or more of the following: network chatter and bill by account (see para [0045] -- 'message notifying the user that the usage account on that network has expired', 'redirected to the network billing website').

Regarding claim 28, Fascenda and Lazaridis discloses the system recited in claim 14. Lazaridis further discloses wherein the processor of the network device is further configured to: determine a cost projection for a projected service usage for the first communications device (see para [0079] -- 'provide cost estimates for services'); and send a notification to the first communications device, the notification including the cost projection (see Fig 12 and para [0096]).

Regarding claim 29, Fascenda and Lazaridis discloses the system recited in claim 14. Lazaridis further discloses wherein the processor of the network device is further configured to: perform deep packet inspection to monitor service usage by the first communications device based on the first service policy (see para [0080] -- 'data flow', 'central network node 252 can track usage'); send a notification to the first communications device, the notification including the monitored service usage by the first communications device (see Fig 12 and para [0099]); and report billing for the monitored service usage by the first communications device to the first communications device or to a billing server (see para [0079]).

Regarding claim 30, Fascenda and Lazaridis discloses the system recited in claim 14. Lazaridis further discloses wherein the processor of the network device is further configured to: perform deep packet inspection to monitor service usage by the first communications device based on the first service policy (see para [0080] -- 'data flow', 'central network node 252 can track usage'); send a notification to the first communications device, the notification including the monitored service usage by the first communications device (see Fig 12 and para [0099]); implement a deep packet control policy based on the first service policy (see Fig 7 and para [0075]); store the monitored service usage in a service usage history based on the first service policy (see para [0075]); and determine billing for the monitored service usage based on the first service policy (see para [0079]).

-- Continued --

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 10/21231

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:
Box No. V-2. Citations and explanations:

Regarding claim 31, Fascenda and Lazaridis discloses the system recited in claim 14. Lazaridis further discloses wherein the processor of the network device is further configured to: perform deep packet inspection to monitor service usage by the first communications device based on the first service policy; send a notification to the first communications device, the notification including the monitored service usage by the first communications device (see para [0080] -- 'data flow', 'central network node 252 can track usage'); implement a deep packet control policy based on the first service policy (see Fig 7 and para [0075]); store the monitored service usage in a service usage history based on the first service policy (see para [0075]); determine billing for the monitored service usage based on the first service policy (see para [0075]); and communicate with a service processor located on the first communications device using a service control server link (see para [0096]).

Regarding claim 32, Fascenda and Lazaridis discloses the system recited in claim 14. Lazaridis further discloses a billing server (see para [0078]); and a service usage monitoring aggregation and billing intermediary server in communication with the first communications device (see para [0080]), wherein the service usage monitoring aggregation and billing intermediary server collects device based service usage information and network based service usage information (see para [0080]), and wherein the intermediate service usage monitoring aggregation server is integrated with or in communication with the billing server (see para [0080]).

Regarding claim 33, Fascenda and Lazaridis discloses the system recited in claim 14. Lazaridis further discloses collect device based service usage information and network based service usage information (see para [0080]), wherein the network based service usage information is based at least in part on a CDR information feed (see para [0080] -- 'data flow'); and determine a billing offset based on the collected device service usage information and network based service usage information (see para [0079] -- 'various pricing strategies'; para [0080] -- 'updating usage data in the device database 254'), wherein the billing offset is reported to one or more of the following: a billing server, a billing intermediary server, and the first communications device (see para [0079]-[0080]).

Regarding claim 34, Fascenda discloses a system, comprising: a processor of a network device configured to: implement a first service policy for assisting billing for the first communications device use of a first service on a first network (see Fig 3 and para [0016], [0035] -- 'application platform 245'); and monitor use of the first service by the first communications device based on the first service policy (see para [0035]); and a memory of the network device coupled to the processor and configured to provide the processor with instructions (see Fig 3 and para [0037] -- 'secure storage 246'). Fascenda does not disclose wherein the implementation of the first service policy is verified. However, Lazaridis discloses wherein the implementation of the first service policy is verified (see Fig 4 and para [0080] -- 'updating usage data in the device database 254'). It would have been obvious to one skilled in the art to combine the method of Fascenda with the updating of usage data in the device database of Lazaridis, because Fascenda and Lazaridis are directed to system and method for delivery and management of mobile services. Furthermore, users benefit from methods that include updating of usage data in the device database, because such methods facilitate 'accurate usage tracking' (see Fascenda para [0041]).

Regarding claim 35, Fascenda discloses a system, comprising: a processor of a network device configured to: implement a first billing policy for assisting billing for the first communications device use of a first service on a first network (see Fig 3 and para [0016], [0035] -- 'application platform 245'); and monitor use of the first service by the first communications device based on the first billing policy (see para [0035]); and a memory of the network device coupled to the processor and configured to provide the processor with instructions (see Fig 3 and para [0037] -- 'secure storage 246'). Fascenda does not disclose wherein the implementation of the first billing policy is verified based at least on a periodic synchronization of a local service usage located on the first communications device with a network based service usage. However, Lazaridis discloses wherein the implementation of the first billing policy is verified based at least on a periodic synchronization of a local service usage located on the first communications device with a network based service usage (see Fig 4 and para [0080] -- 'updating usage data in the device database 254'). It would have been obvious to one skilled in the art to combine the method of Fascenda with the updating of usage data in the device database of Lazaridis, because Fascenda and Lazaridis are directed to system and method for delivery and management of mobile services. Furthermore, users benefit from methods that include updating of usage data in the device database, because such methods facilitate 'accurate usage tracking' (see Fascenda para [0041]).

Claims 1-37 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

Electronic Patent Application Fee Transmittal

Application Number:	12380778
Filing Date:	02-Mar-2009
Title of Invention:	Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Marc A. Sockol/Linda Brost
Attorney Docket Number:	26WV-160485 [RALEP004]

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:				
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	635	635

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**815**

Electronic Acknowledgement Receipt	
EFS ID:	12341015
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account
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-160485 [RALEP004]
Receipt Date:	19-MAR-2012
Filing Date:	02-MAR-2009
Time Stamp:	19:46:21
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$815
RAM confirmation Number	7171
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		160485-RALEP004-AmendandRespNotofChgofEntityStatusIDS-031912.pdf	719318 ff4089043e1c0619025d5567e1eb024f1b2c22d1	yes	26

Multipart Description/PDF files in .zip description

Document Description	Start	End
Transmittal Letter	1	1
Miscellaneous Incoming Letter	2	2
Extension of Time	3	3
Amendment/Req. Reconsideration-After Non-Final Reject	4	4
Claims	5	9
Applicant Arguments/Remarks Made in an Amendment	10	12
Miscellaneous Incoming Letter	13	14
Information Disclosure Statement (IDS) Form (SB08)	15	16
Non Patent Literature	17	26

Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32401 b234a4eeab266d4f565edf7bee5fe64f5bcbe228	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	751719		

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
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	26

Application Number	12/380,778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. Raleigh
Art Unit	3687 Conf. No. 9622
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
- ☐ Fee Attached
- ☒ Amendment/Reply (9 pgs.)
- ☐ After Final
- ☐ Affidavits/declaration(s)
- ☒ Extension of Time Request (1 pg.)
- ☐ Express Abandonment Request
- ☒ Information Disclosure Statement with PTO/SB/08a/b (4 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):

  Notice of Change of Entity Status from Large to Small (1 pg.); copy of International Search Report and Written Opinion for PCT/US2010/021231 (10 pgs.)

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	March 19, 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	Linda K Brost		
Typed or printed name	Linda K. Brost	Date	March 19, 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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Gregory G. Raleigh	Examiner:	Andrew J. Rudy
Serial No.:	12/380,778	Art Unit:	3687
Filed:	March 2, 2009	Conf. No.:	9622
Title:	Verifiable Device Assisted Service Usage Billing with Integrated Accounting, Mediation Accounting, and Multi-Account		

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

NOTICE OF CHANGE OF ENTITY STATUS FROM LARGE TO SMALL

Dear Sir:

The Applicant herein is now entitled to claim small entity status for the above-referenced patent application, and shall henceforth pay fees due at the small entity rate, including those paid for extension and extra claim fees with respect to the Amendment and Response which has also been filed on this date.

Please change your records to reflect this change in entity status.

No fee should be required for this change of entity status, but if such fee is determined to be owed, please charge Deposit Account No. 50-4561 for the same.

Respectfully submitted,

Date: March 19, 2012

By: _____

Marc A. Sockol
Reg. No. 40,823
Customer Number 69849
Sheppard Mullin Richter & Hampton LLP
379 Lytton Avenue
Palo Alto, CA 94301-1432
Telephone: (650) 815-2600

PTO/SB/22 (09-11)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARMENT OF COMMERCE
Under the paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless if displays a valid OMB control number.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)	Docket Number (Optional) 26WV-160485 [RALEP004]
Application Number: 12/380,778	Filed: March 2, 2009
For: Verifiable Device Assisted Service Usage Billing with Integrated Accounting, Mediation Accounting, and Multi-Account	
Art Unit: 3687	Examiner: Andrew J. Rudy

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	
☐	One month (37 CFR 1.17(a)(1))	$150	$75	$
☐	Two months (37 CFR 1.17(a)(2))	$560	$280	$
☒	Three months (37 CFR 1.17(a)(3))	$1270	$635	$ 635.00
☐	Four months (37 CFR 1.17(a)(4))	$1980	$990	$
☐	Five months (37 CFR 1.17(a)(5))	$2690	$1345	$

☒ Applicant claims small entity status. See 37 CFR 1.27.

☐ 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 50-4561.

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.

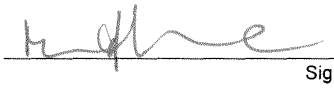
I am the

☐ applicant/inventor.

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

☒ attorney or agent of record. Registration Number 40,823

☐ attorney or agent under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____.



Signature — March 19, 2012 (Date)

Marc A. Sockol, Reg. No. 40,823 (Typed or printed name) — (650) 815-2600 (Telephone Number)

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

☒ Total of 1 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.**

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
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/380,778	Filing Date 03/02/2009	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ 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	03/19/2012	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 29	Minus	** 37	= 0	X $ =		OR	X $60=	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $ =		OR	X $250=	0
	☐ 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	0

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:
/STEFANIE BRYCE/

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)
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 Apt of 1995 no Persons are required to respond to a collection of information unless it contains a valid OMR control number

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 3

Complete if Known	
Application Number	12/380,778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

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
		6,658,254	12-02-2003	PURDY, et al.	
		6,785,889	08-31-2004	WILLIAMS	
		6,829,696	12-07-2004	BALMER et al	
		6,998,985	02-14-2006	REISMAN 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	
		7,324,447	01-29-2008	MORFORD	
		7,421,004	09-02-2008	FEHER, Kamilo	
		7,486,185	02-03-2009	CULPEPPER et al	
		7,580,857	08-25-2009	VanFLEET, 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	
		8,015,133	09-06-2011	WU, et al	
		8,015,234	09-06-2011	LUM 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	

*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.

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 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, 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

PTO/SB/08a (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 Apt of 1995 no Persons are required to respond to a collection of information unless it contains a valid OMR control number

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 2 of 3

Complete if Known	
Application Number	12/380,778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

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
		2002/0120540	08-29-2002	KENDE et al	
		2002/0131404	09-19-2002	MEHTA 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	
		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	
		2008/0162637	07-03-2008	ADAMCZYK et al	
		2008/0167027	07-10-2008	GAUTIER et al	
		2008/0180391	07-16-2009	PETERSEN et al	
		2008/0318547	12-25-2008	BALLOU 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.	

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.

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 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, 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

PTO/SB/08a (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 Apt of 1995 no Persons are required to respond to a collection of information unless it contains a valid OMR control number

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 3 of 3

Complete if Known	
Application Number	12/380,778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

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
		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.	

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.

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 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, 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

Electronic Patent Application Fee Transmittal	
Application Number:	12380778
Filing Date:	02-Mar-2009
Title of Invention:	Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Marc A. Sockol/Linda Brost
Attorney Docket Number:	26WV-160485 [RALEP004]
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:				
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:	11782859
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account
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-160485 [RALEP004]
Receipt Date:	06-JAN-2012
Filing Date:	02-MAR-2009
Time Stamp:	19:29:49
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	6144
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		160485-RALEP004-IDS-010612.pdf	195641 e61d3ad44ef20fd27db6fea1a97c3aa45c725309	yes	6
	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	6	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30566 edb98618d379eca2bce28c05803273678b6db035	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	226207		

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.

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	6

Application Number	12/380,778
Filing Date	March 2, 2009
First Named Inventor	Gregory G. Raleigh
Art Unit	3687 Conf. No. 9622
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160485 [RALEP004]

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 (5 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):

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 6, 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	Linda K. Brost		
Typed or printed name	Linda K. Brost	Date	January 6, 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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Gregory G. Raleigh Serial No.: 12/380,778 Filed: March 2, 2009	Examiner: Andrew J. Rudy Art Unit: 3687
Title: Verifiable Device Assisted Service Usage Billing With Integrated Accounting, Mediation Accounting, and Multi-Account	

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

INFORMATION DISCLOSURE STATEMENT PURSUANT TO 37 C.F.R. §§1.97-1.98 WITH FEE

Sirs:

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 submitted after receiving the first office action but before an action closing prosecution on the merits. Accordingly, please charge Deposit Account No. 50-4561 in the amount of $180.00 as specified in 37 CFR §1.97(c) and 37 CFR §1.17(p).

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 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.

If for any reason an insufficient fee has been paid, please charge the insufficiency to Deposit Account No. **50-4561**.

Respectfully submitted,

Date: January 6, 2012 By: _____

Marc A. Sockol
Reg. No. 40,823
Customer Number 69849
Sheppard, Mullin, Richter & Hampton LLP
379 Lytton Avenue
Palo Alto, CA 94301-1432
(650) 815-2600

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.
12/380,778	03/02/2009	Gregory G. Raleigh	RALEP004	9622

69849 7590 09/19/2011

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

EXAMINER	
RUDY, ANDREW J	
ART UNIT	PAPER NUMBER
3687	

MAIL DATE	DELIVERY MODE
09/19/2011	PAPER

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.

Office Action Summary	Application No.	Applicant(s)	
	12/380,778	RALEIGH, GREGORY G.	
	Examiner	Art Unit	
	ANDREW J. 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 _____.

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) 1-37 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) 1-37 is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ 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

1. Claims 1-37 are pending.

Claim Rejections - 35 USC § 103

2. 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.

3. Claims 1-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over, US Fascenda, US 7,574,731, in view of Lazaridis, US 2006/0143098.

Fascenda discloses, e.g. Figs. 2-7 and related text, a network billing device, a first network, e.g. 245, in a communication network. Fascenda does not specifically disclose a local service usage synchronized with a network based service usage for the communication device.

Lazaridis discloses, e.g. Figs. 1-12 and related text, a local service usage synchronized with a network based service usage for the communication device, the communication device designed to bill cost of service by account information determined by the monitored usage.

To have provided a local service usage synchronized with a network based service usage for the communication device, the communication device designed to bill

cost of service by account information determined by the monitored usage for Fascenda, would have been obvious to one of ordinary skill in the art in of Lazaridis.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 36 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Fascenda, US 7,574,731.

Fascenda discloses, e.g. Figs. 2-7 and related text, a network billing device, a first network, e.g. 245, in a communication network.

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 J. 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 J RUDY/
Primary Examiner, Art Unit 3687

Notice of References Cited	Application/Control No. 12/380,778	Applicant(s)/Patent Under Reexamination RALEIGH, GREGORY G.	
	Examiner ANDREW J. RUDY	Art Unit 3687	Page 1 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-8,010,081	08-2011	Roskowski, Steve	455/406
*	B	US-8,010,080	08-2011	Thenthiruperai et al.	455/406
*	C	US-7,848,768	12-2010	Omori et al.	455/503
*	D	US-7,720,505	05-2010	Gopi et al.	455/552.1
*	E	US-7,668,903	02-2010	Edwards et al.	709/203
*	F	US-7,620,065	11-2009	Falardeau, Eric	370/465
*	G	US-7,617,516	11-2009	Huslak et al.	725/95
*	H	US-7,574,731	08-2009	Fascenda, Anthony C.	726/2
*	I	US-7,450,591	11-2008	Korling et al.	370/395.43
*	J	US-7,280,818	10-2007	Clayton, Steve	455/407
*	K	US-7,027,408	04-2006	Nabkel et al.	370/252
*	L	US-6,920,455	07-2005	Weschler, Paul	1/1
*	M	US-6,603,969	08-2003	Vuoristo et al.	455/433

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

Notice of References Cited	Application/Control No. 12/380,778	Applicant(s)/Patent Under Reexamination RALEIGH, GREGORY G.	
	Examiner ANDREW J. RUDY	Art Unit 3687	Page 2 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,449,479	09-2002	Sanchez, Eduardo	455/433
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

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.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	1	of	2	Atty Docket No.	RALEP004

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

FOREIGN PATENT DOCUMENTS					
Examiner Initials	Cite No.	Foreign Patent Document Country Code–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
	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

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, page(s), volume-issue number(s), publisher, city and/or country where published	T^2
	2F	HARTMANN et al., Agent-Based Banking Transactions & Information Retrieval-What about Performance Issues? 1999	
	2G	VAN EIJK, et al., GigaMobile, Agent Technology for Designing Personalized Mobile Service Brokerage, July 1, 2002	
	2H	YU LI, Dedicated E-Reading Devices: The State of the Art and Challenges, Scroll, Vol. 1, No. 1, 2008	
	2I	DIKAIAKOS et al., A Distributed Middleware Infrastructure for Personalized Services, November 24, 2003	
	2J	RAO et al., Evolution of Mobile Location-Based Services, Communication of the ACM, December 2003	
	2K	CHANDRASEKHAR et al., Femtocell Networks: A Survey, June 28, 2008	
	2L	HOSSAIN et al., Gain-Based Selection of Ambient Media Services in Pervasive Environments, 2008	
	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	
	2O	STEPHAN STEGLICH, I-Centric User Interaction, November 21, 2003	
	2P	HAN et al., Information Collection Services for Qos-Aware Mobile Applications, 2005	
	2Q	ALONISTIOTI et al., Intelligent Architectures Enabling Flexible Service Provision and Adaptability, 2002	
	2R	ROLF OPPLIGER, Internet Security: Firewalls and Bey, Communications of the ACM, May 1997, Vol. 40. No.5	

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.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	2	of	2	Atty Docket No.	RALEP004

Examiner	/Andrew Joseph Rudy/	Date Considered	09/12/2011

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.

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

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	12380778
Filing Date	2009-03-02
First Named Inventor	RALEIGH, Gregory G.
Art Unit	3687
Examiner Name	RUDY, Andrew J.
Attorney Docket Number	26WV-160485 [P004]

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	6651101		2003-11-18	GAI et al	
	2	7290283		2007-10-30	COPELAND III, John A.	
	3	7401338		2008-07-15	BOWEN et al	
	4	7197321		2007-03-27	ERSKINE et al	
	5	7516219		2009-04-07	MOGHADDAM et al	
	6	7647047		2010-01-12	MOGHADDAM et al	
	7	7929960		2011-04-19	MARTIN et al	
	8	7937069		2011-05-03	RASSAM, Frederic	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	3687
	Examiner Name	RUDY, Andrew J.
	Attorney Docket Number	26WV-160485 [P004]

	9	6563806		2003-05-13	YANO et al	
	10	6532235		2003-03-11	BENSON et al	
	11	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	20090125619		2009-05-14	ANTANI, Snehal S.	
	2	20080212470		2008-09-04	CASTANEDA et al	
	3	20080183812		2008-07-31	PAUL et al	
	4	20060178918		2006-08-10	MIKURAK	
	5	20040103193		2004-05-27	PANDYA et al	
	6	20050183143		2005-08-18	ANDERHOLM et al	

FS 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	12380778
	Filing Date	2009-03-02
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	3687
	Examiner Name	RUDY, Andrew J.
	Attorney Docket Number	26WV-160485 [P004]

	7	20070294395		2007-12-20	STRUB et al	
	8	20090287921		2009-11-19	ZHU et al	
	9	20060085543		2006-04-01	HRASTAR et al	
	10	20080059474		2008-03-01	LIM, Keng	
	11	20080066149		2008-03-01	LIM, Keng	
	12	20080066150		2008-03-01	LIM, Keng	
	13	20080167033		2008-07-10	BECKERS, Michel	
	14	20070298764		2007-12-27	CLAYTON	
	15	20090054030		2009-02-26	GOLDS	

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]

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	12380778
	Filing Date	2009-03-02
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	3687
	Examiner Name	RUDY, Andrew J.
	Attorney Docket Number	26WV-160485 [P004]

	1							☐

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	09/12/2011

*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./

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.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	1	of	2	Atty Docket No.	RALEP004

U.S. Patent Documents

Examiner Initials	Cite No.	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
	A.	US 2003/0088671	05-08-2003	KLINKER et al.	
	B.	US 2007/0248100	10-25-2007	ZUBERI et al.	
	C.	US 2008/0130534	06-05-2008	Tazuko Tomioka	
	D.	US 7,747,240	06-29-2010	BRISCOE et al.	
	E.	US 2006/0236095	10-19-2006	SMITH et al.	
	F.	US 2009/0054030	02-26-2009	Golds	
	G.	US 6,952,428	10-04-2005	NECKA et al.	
	H.	US 2010/0043068	02-18-2010	VARADHAN et al.	
	I.	US 2010/0071053	03-18-2010	ANSARI et al.	
	J.	US 2003/0005112	01-03-2003	Krautkremer	
	K.	US 2006/0045245	03-02-2006	AARON et al.	
	L.	US 2007/0076616	04-05-2007	NGO et al.	
	M.	US 2006/0190314	08-24-2006	Hernandez	
	N.	US 2009/0271514	10-29-2009	THOMAS et al.	
	O.	US 6,684,244	01-27-2004	GOLDMAN et al.	
	P.	US 2005/0055291	03-10-2005	BEVENTE et al.	
	Q.	US 2006/0019632	01-26-2006	CUNNINGHAM et al.	
	R.	US 2005/0238046	10-27-2005	HASSAN et al.	
	S.	US 5,577,100	11-19-1996	McGREGOR et al.	
	T.	US 6,198,915	03-06-2001	McGREGOR et al.	
	U.	US 6,650,887	11-18-2003	McGREGOR et al.	
	V.	US 7,245,901	07-17-2007	McGREGOR et al.	
	W.	US 7,373,136	05-13-2008	WATLER et al.	
	X.	US 6,725,031	04-20-2004	WATLER et al.	
	Y.	US 2002/0022472	02-21-2002	WATLER et al.	
	Z.	US 6,532,579	03-11-2003	SATO et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document Country Code–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
	AA.	WO 1999/065185	12-16-1999	British Telecommunications	

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, page(s), volume-issue number(s), publisher, city and/or country where published	T^2
	BB.		

Examiner	/Andrew Joseph Rudy/	Date Considered	09/12/2011

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.

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.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	1	of	1	Atty Docket No.	RALEP004

U.S. Patent Documents					
Examiner Initials	Cite No.	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
	A.				
	B.				
	C.				
	D.				
	E.				
	F.				
	G.				
	H.				

FOREIGN PATENT DOCUMENTS					
Examiner Initials	Cite No.	Foreign Patent Document Country Code–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
	I.	WO 2007/018363	08-02-2006	Upresto, Inc.	
	J.				

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, page(s), volume-issue number(s), publisher, city and/or country where published	T^2
	K.		
	L.		
	M.		
	N.		
	O.		
	P.		
	Q.		
	R.		
	S.		

Examiner	/Andrew Joseph Rudy/	Date Considered	09/12/2011

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.

T^2 = Applicant is to place a check mark here if English language Translation is attached

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
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 9622

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/380,778	03/02/2009 RULE	705	3687	RALEP004

APPLICANTS
Gregory G. Raleigh, Woodside, CA;

**** CONTINUING DATA ***************************
This appln 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 ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****
03/19/2009

Foreign Priority claimed	☐ Yes ☑ No	☐ Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
35 USC 119(a-d) conditions met	☐ Yes ☑ No		CA	106	37	10
Verified and Acknowledged	/ANDREW JOSEPH RUDY/ Examiner's Signature	Initials				

ADDRESS
SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
390 Lytton Avenue
Palo Alto, CA 94301
UNITED STATES

TITLE
Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account

FILING FEE RECEIVED	FEES: Authority has been given in Paper	☐ All Fees
5264	No._____ to charge/credit DEPOSIT ACCOUNT	☐ 1.16 Fees (Filing)
	No._____ for following:	☐ 1.17 Fees (Processing Ext. of time)
		☐ 1.18 Fees (Issue)
		☐ Other _____
		☐ Credit

BIB (Rev. 05/07).

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.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	1	of	4	Atty Docket No.	RALEP004

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
	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	
	DD.	US 2006/0143098	06-29-2006	Lazaridis	
	EE.	US 6,098,878	08-08-2000	DENT et al.	
	FF.	US 2004/0198331	10-07-2004	COWARD et al.	
	GG.	US 2003/0004937	01-02-2003	SALMENKAITA et al.	
	HH.	US 2005/0107091	05-19-2005	VANNITHAMBY et al.	
	II.	US 2003/0224781	12-04-2003	MILFORD et al.	
	JJ.	US 2008/0189760	08-07-2008	ROSENBERG et al.	
	KK.	US 2005/0246282	11-03-2005	NASLUND et al.	
	LL.	US 2008/0316923	12-25-2008	FEDDERS et al.	
	MM.	US 2006/0026679	02-02-2006	Zakas	
	NN.	US 2008/0082643	04-03-2008	STORRIE et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

Substitute for form 1449/PTO				Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*				Application No.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	2	of	4	Atty Docket No.	RALEP004

	OO.	US 2007/0140275	06-21-2007	BOWMAN et al.	
	PP.	US 2003/0182435	09-25-2003	REDLICH et al.	
	QQ.	US 6,263,055	07-17-2001	GARLAND et al.	
	RR.	US 5,940,472	08-17-1999	NEWMAN et al.	
	SS.	US 2008/0318550	12-25-2008	Deatley	
	TT.	US 2008/0298230	12-01-2008	LUFT et al.	
	UU.	US 2007/0220251	09-20-2007	ROSENBERG et al.	
	VV.	US 2007/0100981	05-03-2007	ADAMCZYK et al.	
	WW.	US 2007/0022289	01-25-2007	ALT et al.	
	XX.	US 2008/0095339	04-24-2008	ELLIOTT et al.	
	YY.	US 2006/0233166	10-19-2006	BOU-DIAB et al.	
	ZZ.	US 2008/0168523	07-10-2008	ANSARI et al.	
	AAA.	US 2006/0183462	08-17-2006	KOLEHAINEN et al.	
	BBB.	US 2006/0165060	07-27-2006	Dua	
	CCC.	US 2008/0177998	07-24-2008	APSANGI et al.	
	DDD.	US 2008/0064367	03-13-2008	NATH et al.	
	EEE.	US 2004/0168052	08-26-2004	CLISHAM et al.	
	FFF.	US 2005/0198377	09-08-2005	FERGUSON et al.	
	GGG.	US 2005/0216421	09-29-2005	BARRY et al.	
	HHH.	US 2006/0218395	09-28-2006	Maes	
	III.	US 2005/0055309	03-10-2005	WILLIAMS et al.	
	JJJ.	US 2003/0050837	03-13-2003	Kim	
	KKK.	US 2005/0266825	12-01-2005	Clayton	
	LLL.	US 2006/0178917	08-10-2006	Mikurak	
	MMM.	US 2007/0055694	03-08-2007	RUGE et al.	
	NNN.	US 2005/0097516	05-05-2005	DONNELLY et al.	
	OOO.	US 7,356,337	04-08-2008	Florence	
	PPP.	US 2007/0019670	01-25-2007	Falardeau	
	QQQ.	US 2004/0127200	07-01-2004	SHAW et al.	
	RRR.	US 2005/0166043	07-28-2005	ZHANG et al.	
	SSS.	US 7,349,695	03-25-2008	OOMMEN et al.	
	TTT.	US 2004/0098715	05-20-2004	AGHERA et al.	
	UUU.	US 2006/0072646	04-06-2006	FEHER et al.	
	VVV.	US 2006/0206904	09-14-2006	WATKINS et al.	
	WWW.	US 2005/0060266	03-17-2005	DEMELLO et al.	
	XXX.	US 6,047,268	04-04-2000	BARTOLI et al.	
	YYY.	US 6,639,975	10-28-2003	O'NEAL et al.	
	ZZZ.	US 6,539,082	03-25-2003	LOWE et al.	
	AAAA.	US 2008/0134330	06-05-2008	KAPOOR et al.	
	BBBB.	US 2004/0047358	03-11-2004	CHEN et al.	
	CCCC.	US 2007/0274327	11-29-2007	KAARELA et al.	
	DDDD.	US 2003/0161265	08-28-2003	CAO et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

Substitute for form 1449/PTO				Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*				Application No.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	3	of	4	Atty Docket No.	RALEP004

	EEEE.	US 2008/0305793	12-11-2008	GALLAGHER et al.	
	FFFF.	US 2008/0083013	04-03-2008	SOLIMAN et al.	
	GGGG.	US 2004/0030705	02-12-2004	BOWMAN-AMUAH et al.	
	HHHH.	US 6,574,321	06-03-2003	COX et al.	
	IIII.	US 2006/0291477	12-28-2006	CROAK et al.	
	JJJJ.	US 2005/0266880	12-01-2005	Gupta	
	KKKK.	US 2003/0229900	12-11-2003	Reisman	
	LLLL.	US 2007/0198656	08-23-2007	MAZZAFERRI et al.	
	MMMM.	US 2003/0182420	09-25-2003	JONES et al.	
	NNNN.	US 2008/0225748	09-18-2008	KHEMANI et al.	
	OOOO.	US 2005/0250508	11-10-2005	GUO et al.	
	PPPP.	US 2008/0127304	05-29-2008	GINTER et al.	
	QQQQ.	US 7,289,489	10-30-2007	KUNG et al.	
	RRRR.	US 2003/0050070	03-13-2003	MASHINSKY et al.	
	SSSS.	US 6,996,076	02-07-2006	FORBES et al.	
	TTTT.	US 2008/0183	07-31-2008	PAUL et al.	
	UUUU.	US 2007/0226225	09-27-2007	YIU et al.	
	VVVV.	US 2007/0130315	06-07-2007	FRIEND et al.	
	WWWW.	US 2008/0059743	03-06-2008	BYCHKOV et al.	
	XXXX.	US 2008/0132268	06-05-2008	CHOI-GROGAN et al.	
	YYYY.	US 2003/0133408	07-17-2003	CHENG et al.	
	ZZZZ.	US 2005/0128967	06-16-2005	Scobbie	
	AAAAA.	US 2007/0140113	06-21-2007	Gemelos	
	BBBBB.	US 2002/0138601	09-26-2002	PIPONIUS et al.	
	CCCCC.	US 2002/0176377	11-28-2002	Hamilton	
	DDDDD.	US 2006/0034256	02-16-2006	ADDAGATLA et al.	
	EEEEE.	US 2005/0228985	10-13-2005	YLIKOSKI et al.	
	FFFFF.	US 2007/0036312	02-15-2007	CAI et al.	
	GGGGG.	US 2004/0082346	04-29-2004	SKYTT et al.	
	HHHHH.	US 7,142,876	11-28-2006	TROSSEN et al.	
	IIIII.	US 2008/0005561	01-03-2008	BROWN et al.	
	JJJJJ.	US 2007/0101426	05-03-2007	LEE et al.	
	KKKKK.	US 2008/0222692	09-11-2008	ANDERSSON et al.	
	LLLLL.	US 2008/0160958	04-03-2008	ABICHANDANI et al.	
	MMMMM	US 2006/0048223	03-02-2006	LEE et al.	
	NNNNN.	US 2007/0104126	5-10-2007	CALHOUN et al.	
	OOOOO.	US 2007/0243862	10-18-2007	COSKUN et al.	
	PPPPP.	US 2008/0109679	05-08-2008	WRIGHT et al.	
	QQQQQ.	US 2006/0242685	10-26-2006	HEARD et al.	
	RRRRR.	US 2008/0130656	06-05-2008	KIM et al.	
	SSSSS.	US 2005/0021995	01-27-2005	LAL et al.	
	TTTTT.	US 2008/0162704	04-03-2008	POPLETT et al.	

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.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	4	of	4	Atty Docket No.	RALEP004

	UUUUU.	US 2008/0229385	09-18-2008	FEDER et al.	
	VVVVV.	US 2008/0098062	04-24-2008	Balia	

FOREIGN PATENT DOCUMENTS					
Examiner Initials	Cite No.	Foreign Patent Document Country Code–Number–Kind Code (known)	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	
	1N	WO 2007/001833	01-04-2007	Symbol Technologies	
	1O	EP 1739518	06-29-2005	Research In Motion	
	1P	WO 2007/069245	06-21-2007	Yoggie Security	
	1Q	WO 2008/066419	06-05-2008	Telefonaktiebolaget LM Ericsson	
	1R	WO 2006/050758	05-18-2006	Telefonaktiebolaget LM Ericsson	

Examiner /Andrew Joseph Rudy/	Date Considered 09/12/2011

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.

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	12/380,778	RALEIGH, GREGORY G.	
	Examiner	Art Unit	
	ANDREW J. RUDY	3687	

SEARCHED			
Class	Subclass	Date	Examiner
370	235,392, 401	9/12/2011	AJR
455	406,407	9/12/2011	AJR
455	420	9/12/2011	AJR
455	432.1	9/12/2011	AJR
455	432.3,433	9/12/2011	AJR
705	30,34,52	9/12/2011	AJR
709	203,217	9/12/2011	AJR
709	223	9/12/2011	AJR
726	1,2	9/12/2011	AJR

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Continuity data reviewed.	9/12/2011	AJR
Inventor name search conducted.	9/12/2011	AJR
Bibliographic data updated.	9/12/2011	AJR

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.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	1	of	1	Atty Docket No.	RALEP004

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

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, page(s), volume-issue number(s), publisher, city and/or country where published	T^2
	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 IEEE802.11e 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	/Andrew Joseph Rudy/	Date Considered	09/12/2011

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.

T^2 = Applicant is to place a check mark here if English language Translation is attached

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

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	12380778
Filing Date	2009-03-02
First Named Inventor	RALEIGH, Gregory G.
Art Unit	3687
Examiner Name	RUDY, Andrew J.
Attorney Docket Number	26WV-160485 [P004]

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	6651101		2003-11-18	GAI et al	
	2	7290283		2007-10-30	COPELAND III, John A.	
	3	7401338		2008-07-15	BOWEN et al	
	4	7197321		2007-03-27	ERSKINE et al	
	5	7516219		2009-04-07	MOGHADDAM et al	
	6	7647047		2010-01-12	MOGHADDAM et al	
	7	7929960		2011-04-19	MARTIN et al	
	8	7937069		2011-05-03	RASSAM, Frederic	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	3687
	Examiner Name	RUDY, Andrew J.
	Attorney Docket Number	26WV-160485 [P004]

	9	6563806		2003-05-13	YANO et al	
	10	6532235		2003-03-11	BENSON et al	
	11	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	20090125619		2009-05-14	ANTANI, Snehal S.	
	2	20080212470		2008-09-04	CASTANEDA et al	
	3	20080183812		2008-07-31	PAUL et al	
	4	20060178918		2006-08-10	MIKURAK	
	5	20040103193		2004-05-27	PANDYA et al	
	6	20050183143		2005-08-18	ANDERHOLM et al	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	3687
	Examiner Name	RUDY, Andrew J.
	Attorney Docket Number	26WV-160485 [P004]

	7	20070294395		2007-12-20	STRUB et al	
	8	20090287921		2009-11-19	ZHU et al	
	9	20060085543		2006-04-01	HRASTAR et al	
	10	20080059474		2008-03-01	LIM, Keng	
	11	20080066149		2008-03-01	LIM, Keng	
	12	20080066150		2008-03-01	LIM, Keng	
	13	20080167033		2008-07-10	BECKERS, Michel	
	14	20070298764		2007-12-27	CLAYTON	
	15	20090054030		2009-02-26	GOLDS	

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]

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12380778
	Filing Date	2009-03-02
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	3687
	Examiner Name	RUDY, Andrew J.
	Attorney Docket Number	26WV-160485 [P004]

	1							☐

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	12380778
	Filing Date	2009-03-02
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	3687
	Examiner Name	RUDY, Andrew J.
	Attorney Docket Number	26WV-160485 [P004]

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)	2011-07-14
Name/Print	Marc 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:	10524239
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account
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:	RALEP004
Receipt Date:	14-JUL-2011
Filing Date:	02-MAR-2009
Time Stamp:	19:18:15
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		160485-RALEP004-IDS071411.pdf	343274 9811757ceb656a67637e1acca9671604dd102895	yes	14

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Information Disclosure Statement (IDS) Form (SB08)	1	6
	Non Patent Literature	7	14
Warnings:			
Information:			
	Total Files Size (in bytes):	343274	

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

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

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/380,778	03/02/2009	Gregory G. Raleigh	RALEP004

CONFIRMATION NO. 9622

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

POA ACCEPTANCE LETTER

OC000000046971245

Date Mailed: 04/11/2011

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/30/2011.

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.

/syemane/

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

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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
12/380,778	03/02/2009	Gregory G. Raleigh	RALEP004

CONFIRMATION NO. 9622

21912
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

POWER OF ATTORNEY NOTICE

OC000000046971206

Date Mailed: 04/11/2011

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/30/2011.

- 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).

/syemane/

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

PTO/SB/80 (11-08)
Approved for use through 11/30/2011. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

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

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:	9774252
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	21912
Filer:	Marc A. Sockol/Linda Brost
Filer Authorized By:	Marc A. Sockol
Attorney Docket Number:	RALEP004
Receipt Date:	30-MAR-2011
Filing Date:	02-MAR-2009
Time Stamp:	19:09:27
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		160485POAand3-73bStmt033011.pdf	150992 6fea04934d6c67b28446040eabf50fecac250ac1	yes	4

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Assignee showing of ownership per 37 CFR 3.73(b).	1	2
	Power of Attorney	3	4
Warnings:			
Information:			
	Total Files Size (in bytes):	150992	

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/96 (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.

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Gregory G. Raleigh

Application No./Patent No.: 12/380,778 Filed/Issue Date: March 2, 2009

Titled: Verifiable Device Assisted Service Usage Billing With Integrated Accounting, Mediation Accounting, and Multi-Account

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 023669, Frame 0724, 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 — Date: March 30, 2011

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.**

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.

Substitute for form 1449/PTO				Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*				Application No.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	1	of	1	Atty Docket No.	RALEP004

U.S. Patent Documents					
Examiner Initials	Cite No.	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
	A.				
	B.				
	C.				
	D.				
	E.				
	F.				
	G.				
	H.				

FOREIGN PATENT DOCUMENTS					
Examiner Initials	Cite No.	Foreign Patent Document Country Code–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
	I.	WO 2007/018363	08-02-2006	Upresto, Inc.	
	J.				

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, page(s), volume-issue number(s), publisher, city and/or country where published	T^2
	K.		
	L.		
	M.		
	N.		
	O.		
	P.		
	Q.		
	R.		
	S.		

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.

T^2 = Applicant is to place a check mark here if English language Translation is attached

Electronic Acknowledgement Receipt	
EFS ID:	8595042
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	21912
Filer:	Michael J. Schallop/Veronica Pula
Filer Authorized By:	Michael J. Schallop
Attorney Docket Number:	RALEP004
Receipt Date:	11-OCT-2010
Filing Date:	02-MAR-2009
Time Stamp:	13:28:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	RALEP004_IDS_Before_1st_OA.pdf	56561 a76b64a5f421bb7f48f9a6cd80518be05899753c	no	2
Warnings:					
Information:					

2	Information Disclosure Statement (IDS) Filed (SB/08)	RALEP004_IDS_SB08_before_1st_OA_3_.pdf	92064 e92a6ceb721595c08133c270c28318c4d5d15cd0	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Foreign Reference	RALE_Foreign_Ref_WO2007018363.pdf	1322623 37b720bd7d61efc44073aef18cbf624bab5e7d3b	no	37
Warnings:					
Information:					
		Total Files Size (in bytes):	1471248		

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

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

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

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

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor:	Gregory G. Raleigh	Examiner:	Dwayne D. Bost
Application No.:	12/380,778	Art Unit:	2617
Filed:	March 2, 2009	Docket No.:	RALEP004
Title:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT		

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §§1.56 AND 1.97(b) BEFORE MAILING OF A FIRST OFFICE ACTION

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

Dear Sir:

The references listed in the attached PTO SB/08, may be material to examination of the above-identified patent application. Applicants disclose these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application. Copies of the cited references are provided to the extent required by 37 CFR §1.98 and any applicable waivers.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is being filed (1) with the above-referenced application or (2) within three months of the filing date of the above-referenced application or (3) before the mailing date of a first Office Action on the merits or (4) before the mailing date of a first Office Action after filing of a Request for Continued Examination. Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-0685 (Order No. RALEP004).

Respectfully submitted,
VAN PELT, YI & JAMES LLP

/Michael J. Schallop/

Michael J. Schallop
Registration No. 44,319
V (408) 207-4762
F (408) 973-2595

10050 N. Foothill Blvd, Ste 200
Cupertino, CA 95014

Substitute for form 1449/PTO				Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*				Application No.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	1	of	2	Atty Docket No.	RALEP004

U.S. Patent Documents

Examiner Initials	Cite No.	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
	A.	US 2003/0088671	05-08-2003	KLINKER et al.	
	B.	US 2007/0248100	10-25-2007	ZUBERI et al.	
	C.	US 2008/0130534	06-05-2008	Tazuko Tomioka	
	D.	US 7,747,240	06-29-2010	BRISCOE et al.	
	E.	US 2006/0236095	10-19-2006	SMITH et al.	
	F.	US 2009/0054030	02-26-2009	Golds	
	G.	US 6,952,428	10-04-2005	NECKA et al.	
	H.	US 2010/0043068	02-18-2010	VARADHAN et al.	
	I.	US 2010/0071053	03-18-2010	ANSARI et al.	
	J.	US 2003/0005112	01-03-2003	Krautkremer	
	K.	US 2006/0045245	03-02-2006	AARON et al.	
	L.	US 2007/0076616	04-05-2007	NGO et al.	
	M.	US 2006/0190314	08-24-2006	Hernandez	
	N.	US 2009/0271514	10-29-2009	THOMAS et al.	
	O.	US 6,684,244	01-27-2004	GOLDMAN et al.	
	P.	US 2005/0055291	03-10-2005	BEVENTE et al.	
	Q.	US 2006/0019632	01-26-2006	CUNNINGHAM et al.	
	R.	US 2005/0238046	10-27-2005	HASSAN et al.	
	S.	US 5,577,100	11-19-1996	McGREGOR et al.	
	T.	US 6,198,915	03-06-2001	McGREGOR et al.	
	U.	US 6,650,887	11-18-2003	McGREGOR et al.	
	V.	US 7,245,901	07-17-2007	McGREGOR et al.	
	W.	US 7,373,136	05-13-2008	WATLER et al.	
	X.	US 6,725,031	04-20-2004	WATLER et al.	
	Y.	US 2002/0022472	02-21-2002	WATLER et al.	
	Z.	US 6,532,579	03-11-2003	SATO et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document Country Code–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
	AA.	WO 1999/065185	12-16-1999	British Telecommunications	

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, page(s), volume-issue number(s), publisher, city and/or country where published	T^2
	BB.		

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.

Substitute for form 1449/PTO				*Complete if Known*	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*				Application No.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	2	of	2	Atty Docket No.	RALEP004

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

Electronic Acknowledgement Receipt

EFS ID:	8574009
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	21912
Filer:	Michael J. Schallop/Veronica Pula
Filer Authorized By:	Michael J. Schallop
Attorney Docket Number:	RALEP004
Receipt Date:	06-OCT-2010
Filing Date:	02-MAR-2009
Time Stamp:	19:28:44
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	Transmittal Letter	RALEP004_IDS_Before_1st_OA.pdf	56561 a76b64a5f421bb7f48f9a6cd80518be05899753c	no	2
Warnings:					
Information:					

2	Foreign Reference	RALE_Foreign_Ref_WO9965185.pdf	6077071 f063cbb3e0f18a62f5135d7984e5251b75512 56c	no	49
Warnings:					
Information:					
3	Information Disclosure Statement (IDS) Filed (SB/08)	RALEP004_IDS_SB08_before_1st_OA_2.pdf	102819 4057c15e70ce86c76ea78a4821f773ac2534 7606	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
		Total Files Size (in bytes):	6236451		

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

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

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

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

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor:	Gregory G. Raleigh	Examiner:	Dwayne D. Bost
Application No.:	12/380,778	Art Unit:	2617
Filed:	March 2, 2009	Docket No.:	RALEP004
Title:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT		

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §§1.56 AND 1.97(b) BEFORE MAILING OF A FIRST OFFICE ACTION

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

Dear Sir:

The references listed in the attached PTO SB/08, may be material to examination of the above-identified patent application. Applicants disclose these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application. Copies of the cited references are provided to the extent required by 37 CFR §1.98 and any applicable waivers.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is being filed (1) with the above-referenced application or (2) within three months of the filing date of the above-referenced application or (3) before the mailing date of a first Office Action on the merits or (4) before the mailing date of a first Office Action after filing of a Request for Continued Examination. Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-0685 (Order No. RALEP004).

Respectfully submitted,
VAN PELT, YI & JAMES LLP

/Michael J. Schallop/

Michael J. Schallop
Registration No. 44,319
V (408) 207-4762
F (408) 973-2595

10050 N. Foothill Blvd, Ste 200
Cupertino, CA 95014

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
12/380,778	03/02/2009	Gregory G. Raleigh	RALEP004

CONFIRMATION NO. 9622

21912
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

PUBLICATION NOTICE

OC000000042805808

Title: Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account

Publication No.US-2010-0191576-A1
Publication Date:07/29/2010

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

Substitute for form 1449/PTO				Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*				Application No.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	1	of	4	Atty Docket No.	RALEP004

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
	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	
	DD.	US 2006/0143098	06-29-2006	Lazaridis	
	EE.	US 6,098,878	08-08-2000	DENT et al.	
	FF.	US 2004/0198331	10-07-2004	COWARD et al.	
	GG.	US 2003/0004937	01-02-2003	SALMENKAITA et al.	
	HH.	US 2005/0107091	05-19-2005	VANNITHAMBY et al.	
	II.	US 2003/0224781	12-04-2003	MILFORD et al.	
	JJ.	US 2008/0189760	08-07-2008	ROSENBERG et al.	
	KK.	US 2005/0246282	11-03-2005	NASLUND et al.	
	LL.	US 2008/0316923	12-25-2008	FEDDERS et al.	
	MM.	US 2006/0026679	02-02-2006	Zakas	
	NN.	US 2008/0082643	04-03-2008	STORRIE et al.	

Substitute for form 1449/PTO				Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*				Application No.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	2	of	4	Atty Docket No.	RALEP004

	OO.	US 2007/0140275	06-21-2007	BOWMAN et al.	
	PP.	US 2003/0182435	09-25-2003	REDLICH et al.	
	QQ.	US 6,263,055	07-17-2001	GARLAND et al.	
	RR.	US 5,940,472	08-17-1999	NEWMAN et al.	
	SS.	US 2008/0318550	12-25-2008	Deatley	
	TT.	US 2008/0298230	12-01-2008	LUFT et al.	
	UU.	US 2007/0220251	09-20-2007	ROSENBERG et al.	
	VV.	US 2007/0100981	05-03-2007	ADAMCZYK et al.	
	WW.	US 2007/0022289	01-25-2007	ALT et al.	
	XX.	US 2008/0095339	04-24-2008	ELLIOTT et al.	
	YY.	US 2006/0233166	10-19-2006	BOU-DIAB et al.	
	ZZ.	US 2008/0168523	07-10-2008	ANSARI et al.	
	AAA.	US 2006/0183462	08-17-2006	KOLEHAINEN et al.	
	BBB.	US 2006/0165060	07-27-2006	Dua	
	CCC.	US 2008/0177998	07-24-2008	APSANGI et al.	
	DDD.	US 2008/0064367	03-13-2008	NATH et al.	
	EEE.	US 2004/0168052	08-26-2004	CLISHAM et al.	
	FFF.	US 2005/0198377	09-08-2005	FERGUSON et al.	
	GGG.	US 2005/0216421	09-29-2005	BARRY et al.	
	HHH.	US 2006/0218395	09-28-2006	Maes	
	III.	US 2005/0055309	03-10-2005	WILLIAMS et al.	
	JJJ.	US 2003/0050837	03-13-2003	Kim	
	KKK.	US 2005/0266825	12-01-2005	Clayton	
	LLL.	US 2006/0178917	08-10-2006	Mikurak	
	MMM.	US 2007/0055694	03-08-2007	RUGE et al.	
	NNN.	US 2005/0097516	05-05-2005	DONNELLY et al.	
	OOO.	US 7,356,337	04-08-2008	Florence	
	PPP.	US 2007/0019670	01-25-2007	Falardeau	
	QQQ.	US 2004/0127200	07-01-2004	SHAW et al.	
	RRR.	US 2005/0166043	07-28-2005	ZHANG et al.	
	SSS.	US 7,349,695	03-25-2008	OOMMEN et al.	
	TTT.	US 2004/0098715	05-20-2004	AGHERA et al.	
	UUU.	US 2006/0072646	04-06-2006	FEHER et al.	
	VVV.	US 2006/0206904	09-14-2006	WATKINS et al.	
	WWW.	US 2005/0060266	03-17-2005	DEMELLO et al.	
	XXX.	US 6,047,268	04-04-2000	BARTOLI et al.	
	YYY.	US 6,639,975	10-28-2003	O'NEAL et al.	
	ZZZ.	US 6,539,082	03-25-2003	LOWE et al.	
	AAAA.	US 2008/0134330	06-05-2008	KAPOOR et al.	
	BBBB.	US 2004/0047358	03-11-2004	CHEN et al.	
	CCCC.	US 2007/0274327	11-29-2007	KAARELA et al.	
	DDDD.	US 2003/0161265	08-28-2003	CAO et al.	

Substitute for form 1449/PTO				Complete if Known	
				Application No.:	12/380,778
Information Disclosure Statement By Applicant				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
(Use as many sheets as necessary)				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	3	of	4	Atty Docket No.	RALEP004

	EEEE.	US 2008/0305793	12-11-2008	GALLAGHER et al.	
	FFFF.	US 2008/0083013	04-03-2008	SOLIMAN et al.	
	GGGG.	US 2004/0030705	02-12-2004	BOWMAN-AMUAH et al.	
	HHHH.	US 6,574,321	06-03-2003	COX et al.	
	IIII.	US 2006/0291477	12-28-2006	CROAK et al.	
	JJJJ.	US 2005/0266880	12-01-2005	Gupta	
	KKKK.	US 2003/0229900	12-11-2003	Reisman	
	LLLL.	US 2007/0198656	08-23-2007	MAZZAFERRI et al.	
	MMMM.	US 2003/0182420	09-25-2003	JONES et al.	
	NNNN.	US 2008/0225748	09-18-2008	KHEMANI et al.	
	OOOO.	US 2005/0250508	11-10-2005	GUO et al.	
	PPPP.	US 2008/0127304	05-29-2008	GINTER et al.	
	QQQQ.	US 7,289,489	10-30-2007	KUNG et al.	
	RRRR.	US 2003/0050070	03-13-2003	MASHINSKY et al.	
	SSSS.	US 6,996,076	02-07-2006	FORBES et al.	
	TTTT.	US 2008/0183	07-31-2008	PAUL et al.	
	UUUU.	US 2007/0226225	09-27-2007	YIU et al.	
	VVVV.	US 2007/0130315	06-07-2007	FRIEND et al.	
	WWWW.	US 2008/0059743	03-06-2008	BYCHKOV et al.	
	XXXX.	US 2008/0132268	06-05-2008	CHOI-GROGAN et al.	
	YYYY.	US 2003/0133408	07-17-2003	CHENG et al.	
	ZZZZ.	US 2005/0128967	06-16-2005	Scobbie	
	AAAAA.	US 2007/0140113	06-21-2007	Gemelos	
	BBBBB.	US 2002/0138601	09-26-2002	PIPONIUS et al.	
	CCCCC.	US 2002/0176377	11-28-2002	Hamilton	
	DDDDD.	US 2006/0034256	02-16-2006	ADDAGATLA et al.	
	EEEEE.	US 2005/0228985	10-13-2005	YLIKOSKI et al.	
	FFFFF.	US 2007/0036312	02-15-2007	CAI et al.	
	GGGGG.	US 2004/0082346	04-29-2004	SKYTT et al.	
	HHHHH.	US 7,142,876	11-28-2006	TROSSEN et al.	
	IIIII.	US 2008/0005561	01-03-2008	BROWN et al.	
	JJJJJ.	US 2007/0101426	05-03-2007	LEE et al.	
	KKKKK.	US 2008/0222692	09-11-2008	ANDERSSON et al.	
	LLLLL.	US 2008/0160958	04-03-2008	ABICHANDANI et al.	
	MMMMM	US 2006/0048223	03-02-2006	LEE et al.	
	NNNNN.	US 2007/0104126	5-10-2007	CALHOUN et al.	
	OOOOO.	US 2007/0243862	10-18-2007	COSKUN et al.	
	PPPPP.	US 2008/0109679	05-08-2008	WRIGHT et al.	
	QQQQQ.	US 2006/0242685	10-26-2006	HEARD et al.	
	RRRRR.	US 2008/0130656	06-05-2008	KIM et al.	
	SSSSS.	US 2005/0021995	01-27-2005	LAL et al.	
	TTTTT.	US 2008/0162704	04-03-2008	POPLETT et al.	

Substitute for form 1449/PTO				Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*				Application No.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	4	of	4	Atty Docket No.	RALEP004

	UUUUU.	US 2008/0229385	09-18-2008	FEDER et al.	
	VVVVV.	US 2008/0098062	04-24-2008	Balia	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document Country Code–Number–Kind Code *known)*	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	
	1N	WO 2007/001833	01-04-2007	Symbol Technologies	
	1O	EP 1739518	06-29-2005	Research In Motion	
	1P	WO 2007/069245	06-21-2007	Yoggie Security	
	1Q	WO 2008/066419	06-05-2008	Telefonaktiebolaget LM Ericsson	
	1R	WO 2006/050758	05-18-2006	Telefonaktiebolaget LM Ericsson	

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.

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

Electronic Acknowledgement Receipt	
EFS ID:	7808948
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	21912
Filer:	Michael J. Schallop/Veronica Pula
Filer Authorized By:	Michael J. Schallop
Attorney Docket Number:	RALEP004
Receipt Date:	18-JUN-2010
Filing Date:	02-MAR-2009
Time Stamp:	16:47:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	RALEP004_IDS_Before_1st_OA.pdf	56561 a76b64a5f421bb7f48f9a6cd80518be05899753c	no	2
Warnings:					
Information:					

2	Information Disclosure Statement (IDS) Filed (SB/08)	RALEP004_IDS_SB08_1.pdf	124551 abaf33c562407385c1507f64f29d54b3369af6c5	no	4
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Foreign Reference	RALE_Foreign_Ref_1A.pdf	6139391 ed22a6dbc67f09d4e7a5cb6045be867df9248ed8	no	49
Warnings:					
Information:					
4	Foreign Reference	RALE_Foreign_Ref_1B.pdf	2574136 928659e772683952081 97f68febcdb55b01b915b	no	15
Warnings:					
Information:					
5	Foreign Reference	RALE_Foreign_Ref_1C.pdf	505198 81b92d38869e61daf2868357bed0ea81e29663a3	no	11
Warnings:					
Information:					
6	Foreign Reference	RALE_Foreign_Ref_1D.pdf	3048845 57a0856b7ec9abac7180d86595149dec996defdc	no	26
Warnings:					
Information:					
7	Foreign Reference	RALE_Foreign_Ref_1E.pdf	4616315 3e83c534eb55e82e478505c4d44bde2a72430854	no	34
Warnings:					
Information:					
8	Foreign Reference	RALE_Foreign_Ref_1F.pdf	5048671 cbad7159446ac414f1eeeed8214ef71e2adae8b4	no	38
Warnings:					
Information:					
9	Foreign Reference	RALE_Foreign_Ref_1G.pdf	5170774 c71740b2cd110174f5014e05d84acde040a43046	no	42
Warnings:					
Information:					
10	Foreign Reference	RALE_Foreign_Ref_1H.pdf	4124139 10eff1864a09668c5404e62fec900f25955b630d	no	36

Warnings:					
Information:					
11	Foreign Reference	RALE_Foreign_Ref_1I.pdf	3025460 60217d3f2867e38ce94f8f73ab1808b6938ba537	no	19
Warnings:					
Information:					
12	Foreign Reference	RALE_Foreign_Ref_1J.pdf	2632528 9240d5a44ab7e0daac9512d49a555fab8a37fb7d	no	13
Warnings:					
Information:					
13	Foreign Reference	RALE_Foreign_Ref_1K.pdf	7862034 663c74d022b4640fef56b6d06154d0afc06193e8	no	51
Warnings:					
Information:					
14	Foreign Reference	RALE_Foreign_Ref_1L.pdf	1929799 84c3744ddeee061cbb6a630d437dd3fc9d5f0a42	no	15
Warnings:					
Information:					
15	Foreign Reference	RALE_Foreign_Ref_1M.pdf	7699736 96ac86f4bbbc63af508f95f33927856e8c2f44c9	no	54
Warnings:					
Information:					
16	Foreign Reference	RALE_Foreign_Ref_1N.pdf	5831365 52c7919ee8f61002b63607e0b1afbb1c30411471	no	41
Warnings:					
Information:					
17	Foreign Reference	RALE_Foreign_Ref_1O.pdf	941474 84b1feb984dd76f2b40de9e9bf24bca6cbc317aa	no	18
Warnings:					
Information:					
18	Foreign Reference	RALE_Foreign_Ref_1P.pdf	4880569 cf0b517f0ea17a760054e4b34ec60d67a2caf375	no	37
Warnings:					
Information:					
19	Foreign Reference	RALE_Foreign_Ref_1Q.pdf	5439339 547fe6d96444a8d3f0953a82899a468dcaa3c29b	no	37

Warnings:					
Information:					
20	Foreign Reference	RALE_Foreign_Ref_1R.pdf	7122128 4ad5c3416c210e3f1efbd1c3e886d2ae2ad8e879	no	52
Warnings:					
Information:					
			Total Files Size (in bytes):	78773013	

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

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

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

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

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor:	Gregory G. Raleigh	Examiner:	Dwayne D. Bost
Application No.:	12/380,778	Art Unit:	2617
Filed:	March 2, 2009	Docket No.:	RALEP004
Title:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT		

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §§1.56 AND 1.97(b) BEFORE MAILING OF A FIRST OFFICE ACTION

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

Dear Sir:

The references listed in the attached PTO SB/08, may be material to examination of the above-identified patent application. Applicants disclose these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application. Copies of the cited references are provided to the extent required by 37 CFR §1.98 and any applicable waivers.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is being filed (1) with the above-referenced application or (2) within three months of the filing date of the above-referenced application or (3) before the mailing date of a first Office Action on the merits or (4) before the mailing date of a first Office Action after filing of a Request for Continued Examination. Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-0685 (Order No. RALEP004).

Respectfully submitted,
VAN PELT, YI & JAMES LLP

/Michael J. Schallop/

Michael J. Schallop
Registration No. 44,319
V (408) 207-4762
F (408) 973-2595

10050 N. Foothill Blvd, Ste 200
Cupertino, CA 95014

Substitute for form 1449/PTO				Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*				Application No.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	1	of	1	Atty Docket No.	RALEP004

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

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, page(s), volume-issue number(s), publisher, city and/or country where published	T^2
	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 IEEE802.11e 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.

T^2 = Applicant is to place a check mark here if English language Translation is attached

Electronic Acknowledgement Receipt

EFS ID:	7816593
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	21912
Filer:	Michael J. Schallop/Veronica Pula
Filer Authorized By:	Michael J. Schallop
Attorney Docket Number:	RALEP004
Receipt Date:	18-JUN-2010
Filing Date:	02-MAR-2009
Time Stamp:	16:50:39
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	RALEP004_IDS_Before_1st_OA.pdf	56561 a76b64a5f421bb7f48f9a6cd80518be05899753c	no	2
Warnings:					
Information:					

2	Information Disclosure Statement (IDS) Filed (SB/08)	RALEP004_IDS_SB08_3.pdf	87021 6cf2fc0a9e16551d3202e345e5f54d0af8e9a87c	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Foreign Reference	RALE_Foreign_Ref_3A.pdf	7292666 bda2da57ab175aa54d24e9cd7699784789063e0a	no	55
Warnings:					
Information:					
4	Foreign Reference	RALE_Foreign_Ref_3B.pdf	4238695 2b1ac857c7db7ca12f5a92190a59fb4eac5e537a	no	29
Warnings:					
Information:					
5	NPL Documents	RALE_NPL_Ref_3C.pdf	117093 adaccc6f7b2b7c7891095a31e01c2a5c2182ad86	no	8
Warnings:					
Information:					
6	NPL Documents	RALE_NPL_Ref_3D.pdf	1817585 1b0cb7a0b41b1340ba9e48fa0ea77e27f1632f33	no	10
Warnings:					
Information:					
7	NPL Documents	RALE_NPL_Ref_3E.pdf	184255 2e2daf80298dda3e93323c4a7f91f1ec3e478c42	no	9
Warnings:					
Information:					
8	NPL Documents	RALE_NPL_Ref_3F.pdf	5141787 6ecd30cfa00263c87082d7274ae16e8caa198bf1	no	35
Warnings:					
Information:					
9	NPL Documents	RALE_NPL_Ref_3G.pdf	1451509 e95282786ba86e4a05ee8c793a9ec634aa5a654c	no	6
Warnings:					
Information:					
10	NPL Documents	RALE_NPL_Ref_3H.pdf	128010 8d35d15d27cc8636c1526980a75aa6a4a97a745d	no	9

Warnings:					
Information:					
11	NPL Documents	RALE_NPL_Ref_3I.pdf	112089 24c595d8153db4b6ba795d5be64c6f98b0573749	no	5
Warnings:					
Information:					
12	NPL Documents	RALE_NPL_Ref_3J.pdf	338617 74671591bbc19ab5364956f70d29b176cce30b1f	no	11
Warnings:					
Information:					
13	NPL Documents	RALE_NPL_Ref_3K.pdf	2587996 104930755650d3cb8fbbb63837dc7338fbc2bd3c	no	16
Warnings:					
Information:					
14	Transmittal Letter	RALE_NPL_Ref_3L.pdf	1050612 c5435588dd68fcddc7835e4dce1e6489894a398b	no	124
Warnings:					
Information:					
		Total Files Size (in bytes):	24604496		

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

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

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

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

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor:	Gregory G. Raleigh	Examiner:	Dwayne D. Bost
Application No.:	12/380,778	Art Unit:	2617
Filed:	March 2, 2009	Docket No.:	RALEP004
Title:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT		

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §§1.56 AND 1.97(b) BEFORE MAILING OF A FIRST OFFICE ACTION

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

Dear Sir:

The references listed in the attached PTO SB/08, may be material to examination of the above-identified patent application. Applicants disclose these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application. Copies of the cited references are provided to the extent required by 37 CFR §1.98 and any applicable waivers.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is being filed (1) with the above-referenced application or (2) within three months of the filing date of the above-referenced application or (3) before the mailing date of a first Office Action on the merits or (4) before the mailing date of a first Office Action after filing of a Request for Continued Examination. Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-0685 (Order No. RALEP004).

Respectfully submitted,
VAN PELT, YI & JAMES LLP

/Michael J. Schallop/

Michael J. Schallop
Registration No. 44,319
V (408) 207-4762
F (408) 973-2595

10050 N. Foothill Blvd, Ste 200
Cupertino, CA 95014

Substitute for form 1449/PTO				Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*				Application No.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	1	of	2	Atty Docket No.	RALEP004

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

FOREIGN PATENT DOCUMENTS					
Examiner Initials	Cite No.	Foreign Patent Document Country Code–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
	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

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, page(s), volume-issue number(s), publisher, city and/or country where published	T^2
	2F	HARTMANN et al., Agent-Based Banking Transactions & Information Retrieval-What about Performance Issues? 1999	
	2G	VAN EIJK, et al., GigaMobile, Agent Technology for Designing Personalized Mobile Service Brokerage, July 1, 2002	
	2H	YU LI, Dedicated E-Reading Devices: The State of the Art and Challenges, Scroll, Vol. 1, No. 1, 2008	
	2I	DIKAIAKOS et al., A Distributed Middleware Infrastructure for Personalized Services, November 24, 2003	
	2J	RAO et al., Evolution of Mobile Location-Based Services, Communication of the ACM, December 2003	
	2K	CHANDRASEKHAR et al., Femtocell Networks: A Survey, June 28, 2008	
	2L	HOSSAIN et al., Gain-Based Selection of Ambient Media Services in Pervasive Environments, 2008	
	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	
	2O	STEPHAN STEGLICH, I-Centric User Interaction, November 21, 2003	
	2P	HAN et al., Information Collection Services for Qos-Aware Mobile Applications, 2005	
	2Q	ALONISTIOTI et al., Intelligent Architectures Enabling Flexible Service Provision and Adaptability, 2002	
	2R	ROLF OPPLIGER, Internet Security: Firewalls and Bey, Communications of the ACM, May 1997, Vol. 40. No.5	

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.:	12/380,778
				Filing Date	March 2, 2009
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Dwayne D. Bost
Sheet	2	of	2	Atty Docket No.	RALEP004

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.

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

Electronic Acknowledgement Receipt

EFS ID:	7810882
Application Number:	12380778
International Application Number:	
Confirmation Number:	9622
Title of Invention:	Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	21912
Filer:	Michael J. Schallop/Veronica Pula
Filer Authorized By:	Michael J. Schallop
Attorney Docket Number:	RALEP004
Receipt Date:	18-JUN-2010
Filing Date:	02-MAR-2009
Time Stamp:	16:49:03
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	Transmittal Letter	RALEP004_IDS_Before_1st_OA.pdf	56561 a76b64a5f421bb7f48f9a6cd80518be05899753c	no	2
Warnings:					
Information:					

2	Information Disclosure Statement (IDS) Filed (SB/08)	RALEP004_IDS_SB08_2.pdf	89827 fb7333f7727784608e94c12cbef85abc7a52034d	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Foreign Reference	RALE_Foreign_Ref_2A.pdf	5821505 81bd528285eeb7055e34118b1c6f3ad0b406f580	no	34
Warnings:					
Information:					
4	Foreign Reference	RALE_Foreign_Ref_2B.pdf	4014433 6c150dbecf6e07e6e926c4953d9f7fa596419ee3	no	26
Warnings:					
Information:					
5	Foreign Reference	RALE_Foreign_Ref_2C.pdf	8969766 8a08a661fedb57f7c563ba498f498bb2309c2fc6	no	61
Warnings:					
Information:					
6	Foreign Reference	RALE_Foreign_Ref_2D.pdf	12405145 775980dffc4fd87b178f106d99003d7a52ddaca2	no	79
Warnings:					
Information:					
7	Foreign Reference	RALE_Foreign_Ref_2E.pdf	2436174 c0f643662921a19d681c882cd985d04b7837a8bd	no	21
Warnings:					
Information:					
8	NPL Documents	RALE_NPL_Ref_2F.pdf	219474 ebce1f8721f1fe656f69a3905f36d944f0f575a4	no	6
Warnings:					
Information:					
9	NPL Documents	RALE_NPL_Ref_2G.pdf	682711 8ee373cfd5a9d752aae23b4ea2fc1e12b949497c	no	77
Warnings:					
Information:					
10	NPL Documents	RALE_NPL_Ref_2H.pdf	137925 312ccdc04271430ed42b709573c0105d48599e5d	no	8

Warnings:					
Information:					
11	NPL Documents	RALE_NPL_Ref_2I.pdf	1378815 1d1b86ccc61e4d602380d993e4561849720eab8b	no	17
Warnings:					
Information:					
12	NPL Documents	RALE_NPL_Ref_2J.pdf	1319237 50d69a59a8af2531967879de03d70ef081c646f2	no	5
Warnings:					
Information:					
13	NPL Documents	RALE_NPL_Ref_2K.pdf	384366 ca4acdc0719ea1636b3d667e2aafd3397dfca7ef	no	23
Warnings:					
Information:					
14	NPL Documents	RALE_NPL_Ref_2L.pdf	3636374 8440928107fdb5d75ce06783a2192520dc545702	no	15
Warnings:					
Information:					
15	NPL Documents	RALE_NPL_Ref_2M.pdf	887279 5a30977e77dc57a16d92c2240fea93e245299f94	no	111
Warnings:					
Information:					
16	NPL Documents	RALE_NPL_Ref_2N.pdf	2190991 8ba9616337a9da73d1158dfaec561ac7bc23b576	no	219
Warnings:					
Information:					
17	NPL Documents	RALE_NPL_Ref_2O.pdf	22848329 5dfb6b37b9bdba2974aea1f1643a2cc9b9129f17	no	262
Warnings:					
Information:					
18	NPL Documents	RALE_NPL_Ref_2P.pdf	496028 a267ff12b9b336818993ff8b85da8e35a5708cc5	no	35
Warnings:					
Information:					
19	NPL Documents	RALE_NPL_Ref_2Q.pdf	1970806 2398c7ca475eec3e037b4ad60021644397a754ed	no	10

Warnings:					
Information:					
20	NPL Documents	RALE_NPL_Ref_2R.pdf	347340 e87bfc75fa6949a4c1ea09d431b076cdc1b55249	no	11
Warnings:					
Information:					
			Total Files Size (in bytes):	70293086	

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

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

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

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

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor:	Gregory G. Raleigh	Examiner:	Dwayne D. Bost
Application No.:	12/380,778	Art Unit:	2617
Filed:	March 2, 2009	Docket No.:	RALEP004
Title:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT		

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §§1.56 AND 1.97(b) BEFORE MAILING OF A FIRST OFFICE ACTION

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

Dear Sir:

The references listed in the attached PTO SB/08, may be material to examination of the above-identified patent application. Applicants disclose these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application. Copies of the cited references are provided to the extent required by 37 CFR §1.98 and any applicable waivers.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is being filed (1) with the above-referenced application or (2) within three months of the filing date of the above-referenced application or (3) before the mailing date of a first Office Action on the merits or (4) before the mailing date of a first Office Action after filing of a Request for Continued Examination. Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-0685 (Order No. RALEP004).

Respectfully submitted,
VAN PELT, YI & JAMES LLP

/Michael J. Schallop/

Michael J. Schallop
Registration No. 44,319
V (408) 207-4762
F (408) 973-2595

10050 N. Foothill Blvd, Ste 200
Cupertino, CA 95014

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
12/380,778	03/02/2009	Gregory G. Raleigh	RALEP004

CONFIRMATION NO. 9622

21912
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

NONPUBLICATION RESCISSION LETTER

OC000000040343432

Date Mailed: 03/02/2010

Communication Regarding Rescission Of Nonpublication Request and/or Notice of Foreign Filing

Applicant's rescission of the previously-filed nonpublication request and/or notice of foreign filing is acknowledged. The paper has been reflected in the Patent and Trademark Office's (USPTO's) computer records so that the earliest possible projected publication date can be assigned.

The projected publication date is 07/29/2010.

If applicant rescinded the nonpublication request before or on the date of "foreign filing,"[1] then no notice of foreign filing is required.

If applicant foreign filed the application after filing the above application and before filing the rescission, and the rescission did not also include a notice of foreign filing, then a notice of foreign filing (not merely a rescission) is required to be filed within 45 days of the date of foreign filing. See 35 U.S.C. § 122(b)(2)(B)(iii), and Clarification of the United States Patent and Trademark Office's Interpretation of the Provisions of 35 U.S.C. § 122(b)(2)(B)(ii)-(iv), 1272 Off. Gaz. Pat. Office 22 (July 1, 2003).

If a notice of foreign filing is required and is not filed within 45 days of the date of foreign filing, then the application becomes abandoned pursuant to 35 U.S.C. § 122(b)(2)(B)(iii). In this situation, applicant should either file a petition to revive or notify the Office that the application is abandoned. See 37 CFR 1.137(f). Any such petition to revive will be forwarded to the Office of Petitions for a decision. Note that the filing of the petition will not operate to stay any period of reply that may be running against the application.

Questions regarding petitions to revive should be directed to the Office of Petitions at (571) 272-3282.

[1] Note, for purpose of this notice, that "foreign filing" means "filing an application directed to the same invention in another country, or under a multilateral international agreement, that requires publication of applications 18 months after filing".

/hsarwari/

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

OPAP IAP4 FEB 16 2010 PATENT & TRADEMARK OFFICE

IFW

PTO/SB/36 (01-08)
Approved for use through 01/31/2008. 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.

RESCISSION OF PREVIOUS NONPUBLICATION REQUEST
(35 U.S.C. 122(b)(2)(B)(ii))
AND, IF APPLICABLE,
NOTICE OF FOREIGN FILING
(35 U.S.C. 122(b)(2)(B)(iii))

Send completed form to:
Mail Stop PG Pub
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
FAX: (571) 273-8300

Application Number	12/380,778
Filing Date	March 2, 2009
First Named Inventor	Greg G. Raleigh
Title	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
Atty Docket Number	RALEP004
Art Unit	2614
Examiner	Unknown

A request that the above-identified application not be published under 35 U.S.C. 122(b) (nonpublication request) was included with the above-identified application on filing pursuant to 35 U.S.C. 122(b)(2)(B)(i).
I hereby **rescind** the previous nonpublication request.

If a notice of foreign or international filing is or will be required by 35 U.S.C. 122(b)(2)(B)(iii) and 37 CFR 1.213(c), I hereby provide such notice. This notice is being provided no later than forty-five (**45**) days after the date of such foreign or international filing.

*If a notice of subsequent foreign or international filing required by 35 U.S.C. 122(b)(2)(B)(iii) and 37 CFR 1.213(c) was not filed within forty-five (**45**) days after the date of filing of the foreign or international application, the application is ABANDONED, and a petition to revive under 37 CFR 1.137(b) is required. See 37 CFR 1.137(f).*

Michael J. Schallop — Signature
2-11-10 — Date

Michael J. Schallop — Typed or printed name
44,319 — Registration Number, if applicable

408-207-4762 — Telephone Number

This request must be signed in compliance with 37 CFR 1.33(b).

If information or assistance is needed in completing this form, please contact the Pre-Grant Publication Division at (703)605-4283 or by e-mail at PGPub@USPTO.gov.

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop PG Pub, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

Signature: Jennifer C. Gross

Name (Print/Type): Jennifer C. Gross — Date: 2/11/2010

This collection of information is required by 37 CFR 1.213(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 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: Mail Stop PG Pub, 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.

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
12/380,778	03/02/2009	2614	5264	RALEP004	37	10

CONFIRMATION NO. 9622

21912
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

UPDATED FILING RECEIPT

OC000000036531782

Date Mailed: 06/19/2009

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;

Assignment For Published Patent Application

Gregory G. Raleigh

Power of Attorney: The patent practitioners associated with Customer Number 21912

Domestic Priority data as claimed by applicant

This appln 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

If Required, Foreign Filing License Granted: 03/19/2009

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/380,778**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No

Title

Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account

Preliminary Class

379

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

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).

Amendments

☐ Cancel in this application original claims _____ of the prior application before calculating the filing fee. (*At least one original independent claim must be retained.*)

Fee Calculation (37 CFR § 1.16)

					Small Entity			Large Entity	
					Rate	Fee		Rate	Fee
Filing Fees					x $165 = $		OR	x $330 = $	330
Search Fees					x $270 = $		OR	x $540 = $	540
Examination Fees					x $110 = $		OR	x $220 = $	220
CLAIMS	Filed.		Extra						
Total	27	Less 20	17		x $26 = $		OR	x $52 = $	884
Independent	10	Less 3	7		x $110 = $		OR	x $220 = $	1540
Multiple Dependent Claims			-0-		x $195 = $		OR	x $390 = $	
Declaration and Surcharge Fee					X $65 = $		OR	X $130 = $	130
Excess Page Fee									1350
					TOTAL FILING FEE $			TOTAL FILING FEE $	**4994.00**

☐ Applicants petition for an extension of time to respond under 37 CFR § 1.136(a) as follows:

	SMALL ENTITY			LARGE ENTITY	
	Rate	Add'l Fee		Rate	Add'l Fee
☐ Extension for Response within FIRST month	x $65 = $		OR	x $130 = $	
☐ Extension for Response within SECOND month	x $245 = $		OR	x $490 = $	
☐ Extension for Response within THIRD month	x $555 = $		OR	x $1110 = $	
☐ Extension for Response within FOURTH month	x $865 = $		OR	x $1730= $	
☐ Extension for Response within FIFTH month	x $1175 = $		OR	x $2350 = $	

☒ Check No. 4784 for $4994.00 is enclosed.

General Authorizations

☒ Applicants hereby make and generally authorize any Petitions for Extensions of Time as needed for this or any subsequent filings. The Commissioner is also authorized to charge any extension fees under 37 CFR §1.17 as needed to Deposit Account No. 50-0685 (Order No. RALEP004).

☒ The Commissioner is given general authorization to charge any fees or to credit any overpayment during the pendency of this application to Deposit Account No. 50-0685 (Order No. RALEP004).

☒ Please send correspondence to the following address:

06/15/2009 CCETIN 00000009 500685 12380778

01 FC:1081 270.00 DA

Customer No. 21912
VAN PELT, YI & JAMES LLP
10050 N. Foothill Blvd.
Suite 200
Cupertino, CA 95014

Date: 5-26-2009

Michael J. Schallop
Reg. No. 44,319

JUN 01 2009

IFW

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
12/380,778	03/02/2009	Gregory G. Raleigh	RALEP004

CONFIRMATION NO. 9622

21912
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

RECEIVED
MAR 31 2009
Van Pelt, Yi & James LLP

FORMALITIES LETTER

OC000000035092846

Date Mailed: 03/25/2009

VAN PELT, YI & JAMES
DOCKETED

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

06/01/2009 RMEBRAHT 00000006 12380778
01 FC:1011 330.00 OP
02 FC:1111 540.00 OP
03 FC:1311 220.00 OP
04 FC:1051 130.00 OP
05 FC:1202 884.00 OP
06 FC:1201 1540.00 OP
07 FC:1861 1850.00 OP

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 and pay any fees required 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 statutory basic filing fee is missing.
  *Applicant must submit $**330** to complete the basic filing fee for a non-small entity. If appropriate, applicant may make a written assertion of entitlement to small entity status and pay the small entity filing fee (37 CFR 1.27).*
- 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) 1-20, 22-23, 26A-38, 46-57, 59-61, 63-64.
  - Numbers, letters, and reference characters on the drawings must measure at least 0.32 cm (1/8 inch) in height. See Figure(s) 22-23, 26A-31, 32-46.
  - The drawings submitted to the Office are not electronically reproducible because portions of figures 1-15, 48-55, 57, 59, 61, 63 are missing and/or blurry.

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:

- Additional claim fees of **$2424** as a non-small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.
- 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 **$130** for a non-small entity, must be submitted with the missing items identified in this notice.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is **$4994** for a non-small entity

- **$330** Statutory basic filing fee.
- **$130** Surcharge.
- The application search fee has not been paid. Applicant must submit **$540** to complete the search fee.
- The application examination fee has not been paid. Applicant must submit **$220** to complete the examination fee for a non-small entity.
- The specification and drawings contain more than 100 pages. Applicant owes **$1350** for **234** pages in excess of **100** pages for a non-small entity.
- Total additional claim fee(s) for this application is **$2424**
  - **$1540** for **7** independent claims over 3.
  - **$884** for **17** total claims over 20.

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.

/mkanno/

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



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor:	Gregory G. Raleigh	Examiner:	Not Assigned
Application No.:	12/380,778	Art Unit:	2614
Filed:	March 2, 2009	Docket No.:	RALEP004
Title:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT		

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in a prepaid envelope addressed to: Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on: 5/26, 2009.

Veronica Pula

RESPONSE TO NOTICE TO FILE MISSING PARTS

MAIL STOP MISSING PARTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is a Response to Notice to File Missing Parts mailed **March 25, 2009.**

Application Elements:

☒ Declaration

☒ Newly executed (original or copy)

☐ Copy from a prior application (37 CFR 1.63(d) for a continuation or divisional). The entire disclosure of the prior application from which a copy of the declaration is herein supplied is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

☐ Deletion of inventors Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).

Accompanying Application Parts:

☐ Information Disclosure Statement with Form PTO/SB/08 ☐ Copies of IDS Citations

☒ Preliminary Amendment A (*New claims numbered after highest original claim in prior application.*)

☒ Return Receipt Postcard

☒ Copy of Notice to File Missing Parts of NonProvisional Application

☒ Other: One Hundred & Six (106) Replacement Drawings

Amendments

☐ Cancel in this application original claims _____ of the prior application before calculating the filing fee. (*At least one original independent claim must be retained.*)

Fee Calculation (37 CFR § 1.16)

					Small Entity			Large Entity	
					Rate	Fee		Rate	Fee
Filing Fees					x $165 = $		OR	x $330 = $	330
Search Fees					x $270 = $		OR	x $540 = $	540
Examination Fees					x $110 = $		OR	x $220 = $	220
CLAIMS	Filed.		Extra						
Total	27	Less 20	17		x $26 = $		OR	x $52 = $	884
Independent	10	Less 3	7		x $110 = $		OR	x $220 = $	1540
Multiple Dependent Claims			-0-		x $195 = $		OR	x $390 = $	
Declaration and Surcharge Fee					X $65 = $		OR	X $130 = $	130
Excess Page Fee									1350
					TOTAL FILING FEE $			TOTAL FILING FEE $	**4994.00**

☐ Applicants petition for an extension of time to respond under 37 CFR § 1.136(a) as follows:

	SMALL ENTITY			LARGE ENTITY	
	Rate	Add'l Fee		Rate	Add'l Fee
☐ Extension for Response within FIRST month	x $65 = $		OR	x $130 = $	
☐ Extension for Response within SECOND month	x $245 = $		OR	x $490 = $	
☐ Extension for Response within THIRD month	x $555 = $		OR	x $1110 = $	
☐ Extension for Response within FOURTH month	x $865 = $		OR	x $1730= $	
☐ Extension for Response within FIFTH month	x $1175 = $		OR	x $2350 = $	

☒ Check No. 4784 for $4994.00 is enclosed.

General Authorizations

☒ Applicants hereby make and generally authorize any Petitions for Extensions of Time as needed for this or any subsequent filings. The Commissioner is also authorized to charge any extension fees under 37 CFR §1.17 as needed to Deposit Account No. 50-0685 (Order No. RALEP004).

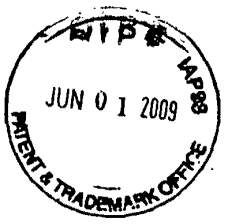
☒ The Commissioner is given general authorization to charge any fees or to credit any overpayment during the pendency of this application to Deposit Account No. 50-0685 (Order No. RALEP004).

☒ Please send correspondence to the following address:

Customer No. 21912
VAN PELT, YI & JAMES LLP
10050 N. Foothill Blvd.
Suite 200
Cupertino, CA 95014

Date: 5-26-2009

Michael J. Schallop
Reg. No. 44,319



DECLARATION AND POWER OF ATTORNEY FOR ORIGINAL U.S. PATENT APPLICATION

Attorney's Docket No. RALEP004

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT**, the specification of which,

(check one)

1. ☐ is attached hereto.

2. ☒ was filed on March 2, 2009 as U.S. Application No. 12/380,778 and was amended on _____.

3. ☐ was filed on _____ as International PCT Application No. _____ and was amended on _____.

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

For Assigned Inventions: I understand that the purpose of making this appointment is to permit prosecution of patent applications for the above-identified invention for the benefit of my assignee, and that this appointment does not create an attorney-client relationship between me and these appointees.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56.

I hereby claim foreign priority benefits under Title 35, United States code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s) Priority Benefits Claimed?

(Appl. No.)	(Country)	(Filing Date)	☐Yes ☐No

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below:

Prior Provisional Application(s)

61/206,354 (Application No.)	1/28/2009 (Filing Date)
61/206,944 (Application No.)	2/4/2009 (Filing Date)

61/207,393 (Application No.) 2/10/2009 (Filing Date)

61/207,739 (Application No.) 2/13/2009 (Filing Date)

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

Prior U.S. Application(s)

(Application No.)	(Filing Date)	(Status - patented, pending, abandoned)

And I hereby appoint the attorneys and/or agents associated with Customer No. **21912** as my principal attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Please Direct all Correspondence To: **Customer No. 21912**
VAN PELT, YI & JAMES LLP
10050 N. Foothill Blvd., Suite 200
Cupertino, CA 95014

Direct Telephone Calls To: **Michael J. Schallop at telephone number (408) 207-4762**

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

Full name of sole or first inventor	Gregory G. Raleigh				
Signature of sole or first inventor				Date:	March 24, 2009
Residence: City	Woodside	State:	CA	Citizenship:	United States
Mailing Address	131 Fox Hollow Rd., Woodside, CA 94062				

JUN 01 2009
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor:	Gregory G. Raleigh	Examiner:	Not Assigned
Application No.:	12/380,778	Art Unit:	2614
Filed:	March 2, 2009	Docket No.:	RALEP004
Title:	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT		

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in a prepaid envelope addressed to: Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

5/26, 2009.

Veronica Pula

PRELIMINARY AMENDMENT A

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

Dear Sir:

Prior to the examination of the application on the merits, please amend the application as follows:

AMENDMENTS TO THE SPECIFICATION

Please replace paragraph **[0001]**, with the following rewritten paragraph:

--This application claims priority to U.S. Provisional Patent Application No. 61/206,354 (Attorney Docket No. RALEP001+) entitled SERVICES POLICY COMMUNICATION SYSTEM AND METHOD filed January 28, 2009, U.S. Provisional Patent Application No. 61/206,944 (Attorney Docket No. RALEP002+) entitled SERVICES POLICY COMMUNICATION SYSTEM AND METHOD filed February 4, 2009, U.S. Provisional Application No. 61/207,393 (Attorney Docket No. RALEP003+) entitled SERVICES POLICY COMMUNICATION SYSTEM AND METHOD filed February 10, 2009, and U.S. Provisional Patent Application No. [[_____]] 61/207,739 (Attorney Docket No. RALEP004+) entitled SERVICES POLICY COMMUNICATION SYSTEM AND METHOD filed on February 13, 2009, which are incorporated herein by reference for all purposes. –

Please replace paragraph **[0026]**, with the following rewritten paragraph:

-- ~~Figure 22~~ Figures 22A through 22B provide[[s]] tables summarizing various service processor agents (and/or components/functions implemented in software and/or hardware) in accordance with some embodiments.--

Please replace paragraph **[0030]**, with the following rewritten paragraph:

--~~Figures 26A through 26E~~ Figures 26A through 26H provide tables summarizing various service processor heartbeat functions and parameters in accordance with some embodiments. --

Please replace paragraph **[0031]**, with the following rewritten paragraph

-- ~~Figures 27A through 27G~~ Figures 27A through 27P provide tables summarizing various device based service policy implementation verification techniques in accordance with some

embodiments.--

Please replace paragraph **[0032]**, with the following rewritten paragraph

-- ~~Figures 28A through 28C~~ Figures 28A through 28 E provide tables summarizing various techniques for protecting the device based service policy from compromise in accordance with some embodiments.--

Please replace paragraph **[0046]**, with the following rewritten paragraph

-- ~~Figures 42A through 42F~~ Figures 42A through 42J provide tables summarizing various service policy control commands in accordance with some embodiments. --

Please replace paragraph **[00318]**, with the following rewritten paragraph:

-- ~~Figure 22~~ Figures 22A through 22B provide[[s]] tables summarizing various service processor 115 agents (and/or components/functions implemented in software and/or hardware) in accordance with some embodiments. Many of these agents are similarly described above, and the table shown in ~~Figure 22~~ Figures 22A through 22B [[is]] are not intended to be an exhaustive summary of these agents, nor an exhaustive description of all functions that the agents perform or are described herein, but rather ~~Figure 22~~ Figures 22A through 22B [[is]] are provided as a summary aid in understanding the basic functions of each agent in accordance with some embodiments and how the agents interact with one another, with the service controller server elements, and/or with other network functions in certain embodiments to form a reliable device based service delivery solution and/or platform.--

Please replace paragraph **[00328]**, with the following rewritten paragraph:

--~~Figures 26A through 26E~~ Figures 26A through 26H provide tables summarizing various service processor heartbeat functions and parameters (e.g., implemented by various agents, components, and/or functions implemented in software and/or hardware) in accordance with some embodiments. Many of these heartbeat functions and parameters are similarly described above, and the tables shown in ~~Figures 26A-E~~ Figures 26A through 26H are not intended to be an exhaustive summary of these heartbeat functions and parameters, but rather are provided as an aid in understanding these functions and parameters in accordance with some heartbeat based embodiments described herein.--

Please replace paragraph **[00329]**, with the following rewritten paragraph:

-- ~~Figures 27A through 27G~~ Figures 27A through 27P provide tables summarizing various device based service policy implementation verification techniques in accordance with some embodiments. Many of these device based service policy implementation verification techniques are similarly described above, and the tables shown in ~~Figures 27A through 27G~~ Figures 27A through 27P are not intended to be an exhaustive summary of these device based service policy implementation verification techniques, but rather are provided as an aid in understanding these techniques in accordance with some device based service policy embodiments described herein.--

Please replace paragraph **[00330]**, with the following rewritten paragraph:

-- ~~Figures 28A through 28C~~ Figures 28A through 28E provide tables summarizing various techniques for protecting the device based service policy from compromise in accordance with some embodiments. Many of these techniques for protecting the device based service policy from compromise are similarly described above, and the tables shown in ~~Figures 28A-C~~ Figures 28A through 28E are not intended to be an exhaustive summary of these techniques for protecting the device based service policy from compromise, but rather are provided as an aid in understanding these techniques in accordance with some device based service policy embodiments described herein.--

Please replace paragraph **[00371]**, with the following rewritten paragraph:

-- ~~Figures 42A through 42F~~ Figures 42A through 42J provide tables summarizing various service policy control commands in accordance with some embodiments. Many of these service policy control commands are similarly described above, and the tables shown in ~~Figures 42A-F~~ Figures 42A through 42J are not intended to be an exhaustive summary of these service policy control commands and do not include summaries of all the embodiments described herein, but rather are provided as a summary aid in understanding these service policy control commands in accordance with various embodiments described herein.--

Please replace paragraph **[00530]**, with the following rewritten paragraph:

--It will now be apparent that billing can also be implemented with a single account

encompassing service usage for all users or end point devices connected to an intermediate networking device, or for individual users, end point devices, user groups or end point device groups connected to an intermediate networking device. As similarly described with respect to the service profile, this is accomplished by associating service usage events and associated billing events with [[a]] an end point device identifier, user identifier, end point device group identifier, and/or user group identifier. --

Please replace paragraph **[00542]**, with the following rewritten paragraph:

--In embodiments in which the end point device requires agent software, the software can be loaded at time of manufacture or during distribution, loaded later, and/or made available for download through the intermediate networking device. In the case in which the end point device agent SW is downloaded through the end point device, there can be locally cached copies of the SW for one or more OS variants stored in a cache on the intermediate networking device, with the cache being updated over the network at convenient or conducive times, or the software can be downloaded live over the network when it is needed by the end point device. Logging the service usage to download this software is another example in which bill by account functionality can be used to track network traffic that may not be desirable to bill to [[a]] an end point device owner or user, and bill by account functionality can be used to log and mediate such usage out of the user or end point device owner's bill.--

Please replace paragraph **[00544]**, with the following rewritten paragraph:

--In the case of a femto cell intermediate networking device, in some embodiments, it is desirable to facilitate handover from the WWAN network to the femto cell. In some embodiments, this provided in the intermediate networking device service processor 115 in a variety of ways. In some embodiments, the voice and data traffic is routed through a VPN tunnel controlled by the service processor 115 and connected to a network element, such as the transport gateway or another specified traffic concentration destination for the femto cell. In some embodiments, the voice traffic, the data traffic or both can be routed in secure or open Internet channels to different destinations, or the data can be routed directly to the Internet destination specified by the packets. In some embodiments, the femto cell intermediate networking device controls the femto cell frequencies or local frequency channel strength surveys over the intermediate networking device control channel. In some embodiments, the

service processor 115 has a VPN connection to a network base station hand off controller to assist in handoff to and from the WWAN network and/or has the capability to instruct the end point device and the base station handoff controller. In some embodiment, whenever an end point device authenticated for femto cell access is within range of the femto cell, the service provider desires to set up a service processor 115 profile to get the end point device to connect to the femto cell even if it has a strong signal with one or more WWAN base stations so that the WWAN traffic may be offloaded. In some embodiments, the service processor 115 can form a secure control plane link with network AAA functions to manage authorization and admission of end point devices the femto cell has not yet admitted, or the network policies can require re-authorization every time [[a]] an end point device attempts access. Once an end point device is connected to the femto cell intermediate networking device, the verifiable traffic monitoring, control and billing functions described herein can be applied to various application embodiments. For example, the intermediate networking device service policy verification techniques disclosed herein, as similarly described with respect to various device embodiments, can similarly be applied to the femto cell intermediate networking device embodiments. --

AMENDMENTS TO THE DRAWINGS

The attached sheets of drawings include Figures 22A through 22B. Figures 22A through 22B submitted herewith correspond to originally filed Figure 22. These sheets, which include Figures 22A through 22B, replace the original sheet which includes Figure 22.

The attached sheets of drawings include Figures 26A through 26H. Figures 26A through 26H submitted herewith correspond to originally filed Figure 26A through 26E. These sheets, which include Figures 26Athrough 26H, replace the original sheets which include Figure 26A through 26E.

The attached sheets of drawings include Figures 27A through 27P. Figures 27A through 27P submitted herewith correspond to originally filed Figure 27A through 27G. These sheets, which include Figures 27A through 27P, replace the original sheets which include Figure 27A through 26G.

The attached sheets of drawings include Figures 28A through 28E. Figures 28A through 28E submitted herewith correspond to originally filed Figure 28A through 28C. These sheets, which include Figures 28A through 28E, replace the original sheets which include Figure 28A through 28C.

The attached sheets of drawings include Figures 42A through 42J. Figures 42A through 42J submitted herewith correspond to originally filed Figure 42A through 42F. These sheets, which include Figures 42A through 42J, replace the original sheets which include Figure 42A through 42F.

REMARKS

The Specification has been amended to include the serial number for a provisional patent application to which this application claims priority and to correct typographical/clerical errors. The Specification has also been amended to correspond to the formal figures being filed herewith, in which, for example, certain figures providing various tables required additional pages to satisfy requirements for formal drawings. No new matter has been added.

If at any time the Examiner believes that an interview would be helpful, please contact the undersigned.

Respectfully submitted,

Dated: 5-26-2009

Michael J. Schallop
Registration No. 44,319
V 408-207-4762
F 408-973-2595

VAN PELT, YI & JAMES LLP
10050 N. Foothill Blvd., Suite 200
Cupertino, CA 95014

1/106

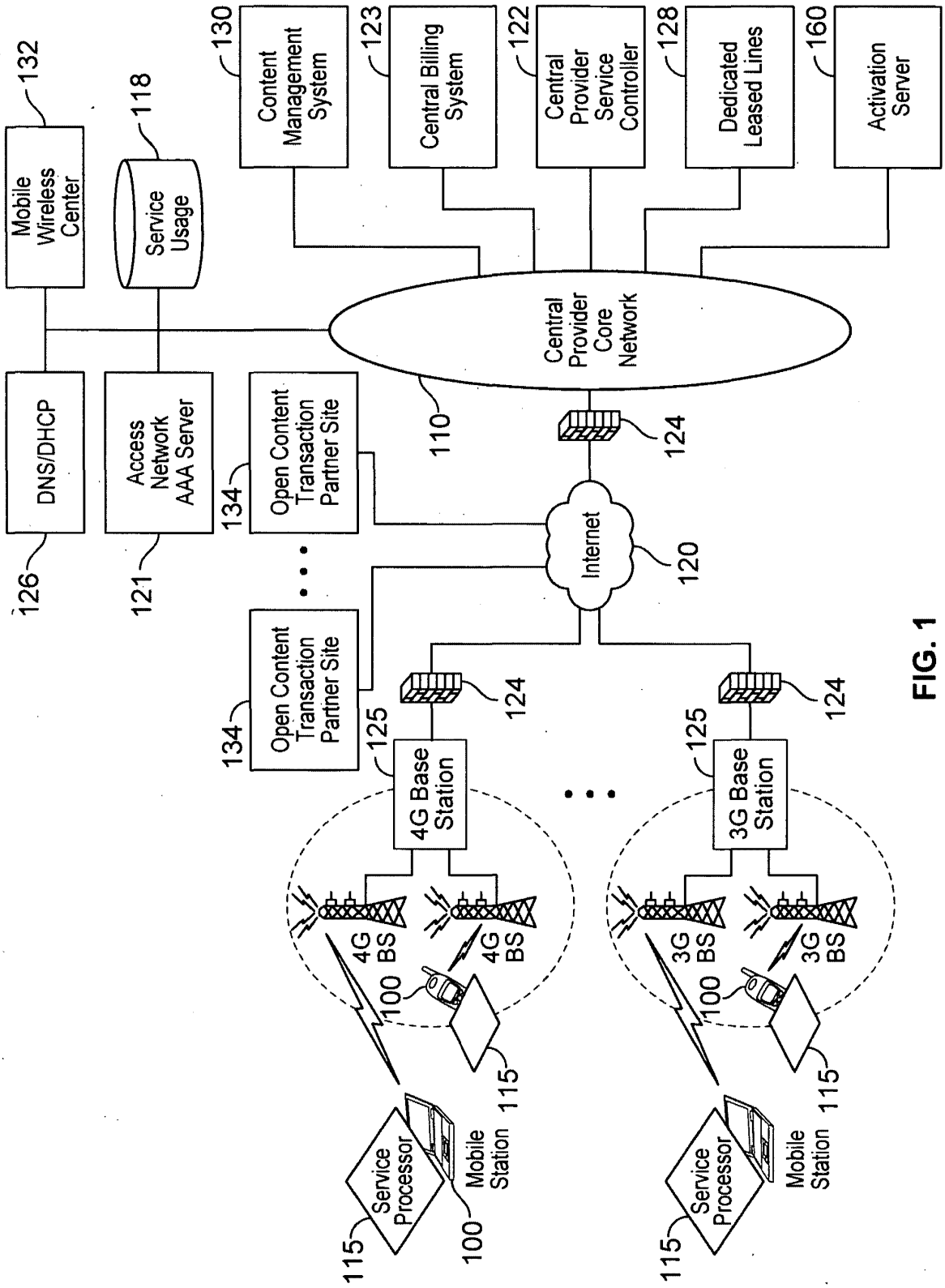

Content Management System
130
Central Billing System
123
Central Provider Service Controller
122
Dedicated Leased Lines
128
Activation Server
160
Mobile Wireless Center
132
Service Usage
118
Central Provider Core Network
110
DNS/DHCP
126
Access Network AAA Server
121
Open Content Transaction Partner Site
134
Internet
120
124
4G Base Station
3G Base Station
125
4G BS
3G BS
100
115
Service Processor
Mobile Station

FIG. 1

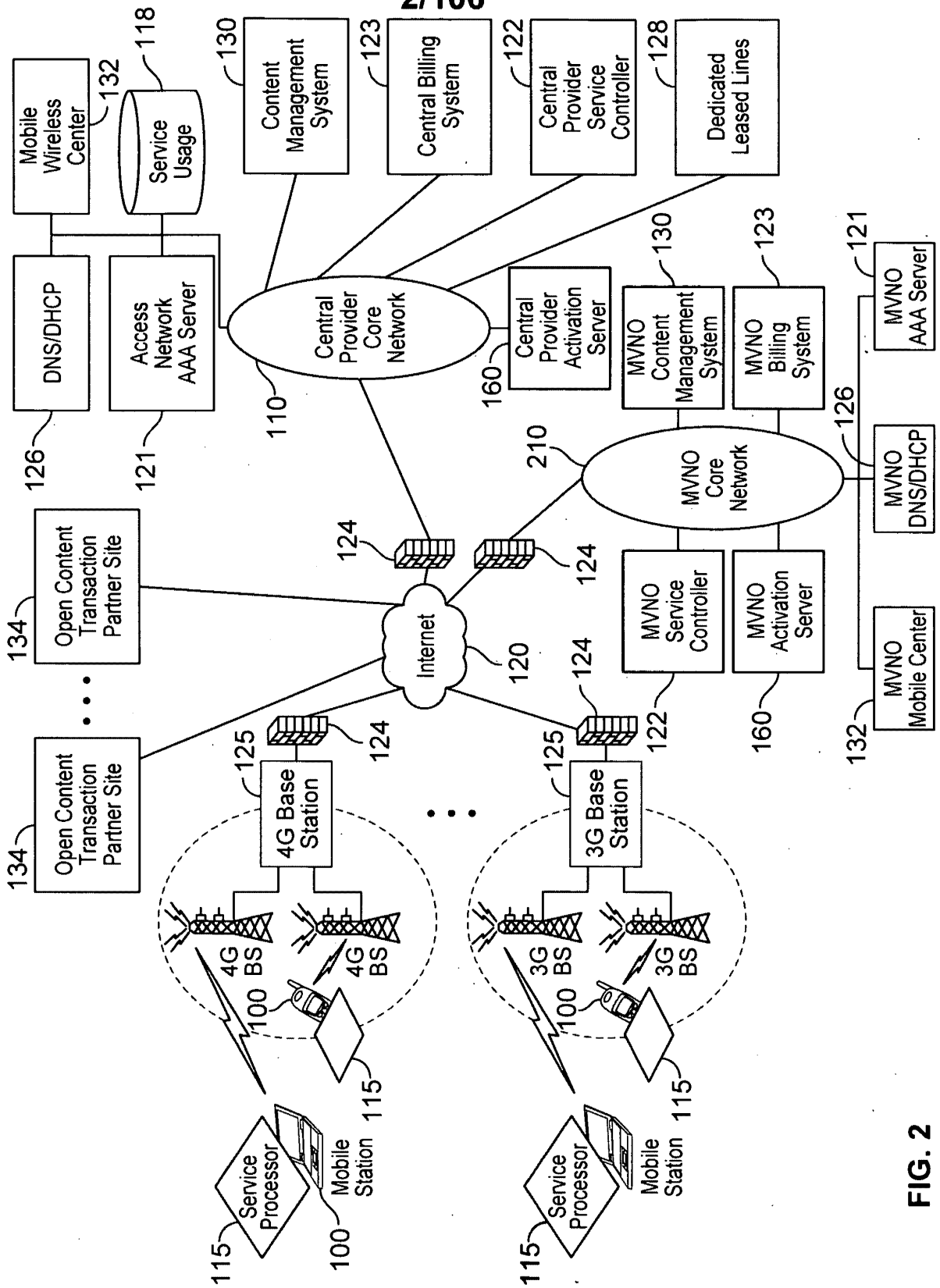

Mobile Wireless Center
132
Service Usage
118
Content Management System
130
Central Billing System
123
Central Provider Service Controller
122
Dedicated Leased Lines
128
DNS/DHCP
126
Access Network AAA Server
121
Central Provider Core Network
110
Central Provider Activation Server
160
MVNO Content Management System
130
MVNO Billing System
123
MVNO AAA Server
121
MVNO Core Network
210
MVNO DNS/DHCP
126
Open Content Transaction Partner Site
134
Internet
120
124
MVNO Service Controller
122
MVNO Activation Server
160
MVNO Mobile Center
132
4G Base Station
125
3G Base Station
125
4G BS
3G BS
100
115
Service Processor
Mobile Station

FIG. 2

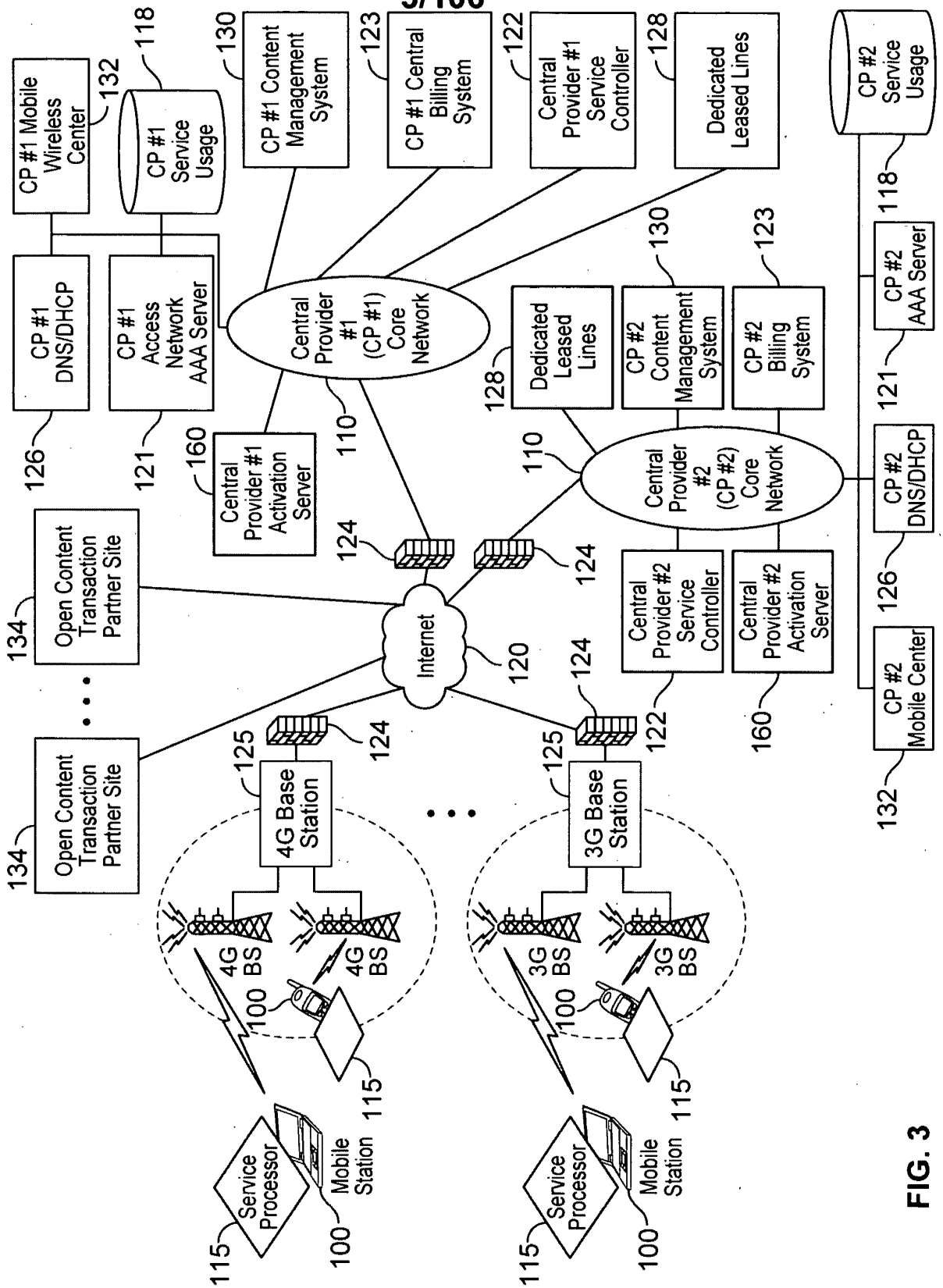

CP #1 Mobile Wireless Center
132
CP #1 Service Usage
118
CP #1 Content Management System
130
CP #1 Central Billing System
123
Central Provider #1 Service Controller
122
Dedicated Leased Lines
128
CP #2 Service Usage
CP #1 DNS/DHCP
126
CP #1 Access Network AAA Server
121
Central Provider #1 (CP #1) Core Network
110
Central Provider #1 Activation Server
160
CP #2 AAA Server
118
CP #2 Content Management System
130
CP #2 Billing System
123
Dedicated Leased Lines
128
Central Provider #2 (CP #2) Core Network
110
CP #2 DNS/DHCP
126
Open Content Transaction Partner Site
134
Internet
120
124
Central Provider #2 Service Controller
122
Central Provider #2 Activation Server
160
CP #2 Mobile Center
132
125
4G Base Station
3G Base Station
4G BS
3G BS
100
115
Service Processor
Mobile Station

FIG. 3

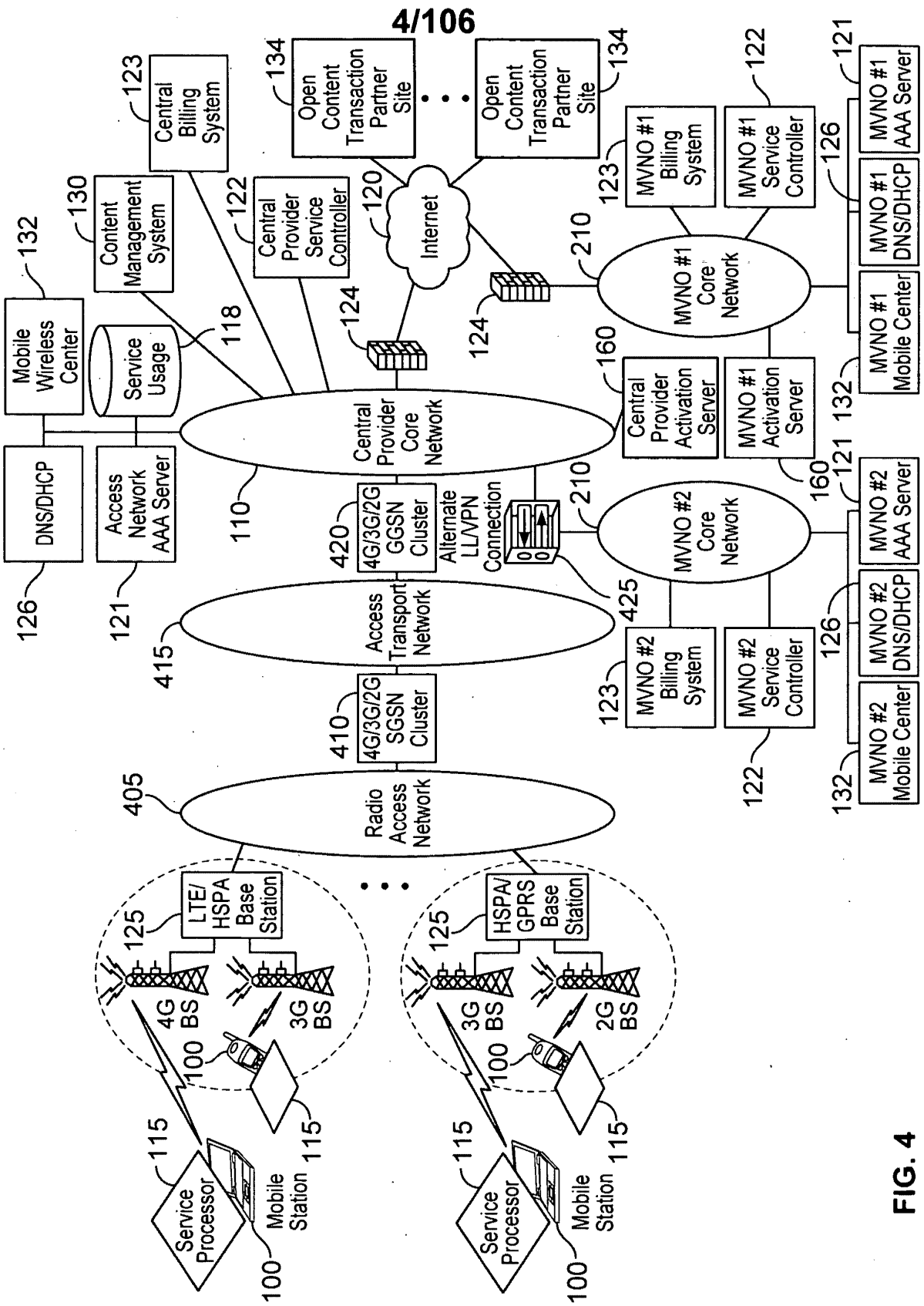

Mobile Wireless Center
132
DNS/DHCP
126
Content Management System
130
Service Usage
118
Access Network AAA Server
121
Central Billing System
123
Central Provider Service Controller
122
Central Provider Core Network
110
Open Content Transaction Partner Site
134
Internet
120
124
Central Provider Activation Server
160
4G/3G/2G GGSN Cluster
420
Alternate LL/VPN Connection
210
Access Transport Network
415
4G/3G/2G SGSN Cluster
410
425
Radio Access Network
405
LTE/ HSPA Base Station
125
HSPA/ GPRS Base Station
4G BS
3G BS
2G BS
100
115
Service Processor
Mobile Station
MVNO #1 Core Network
MVNO #1 Billing System
MVNO #1 Service Controller
MVNO #1 Activation Server
MVNO #1 Mobile Center
MVNO #1 DNS/DHCP
MVNO #1 AAA Server
MVNO #2 Core Network
MVNO #2 Billing System
MVNO #2 Service Controller
MVNO #2 Mobile Center
MVNO #2 DNS/DHCP
MVNO #2 AAA Server

FIG. 4

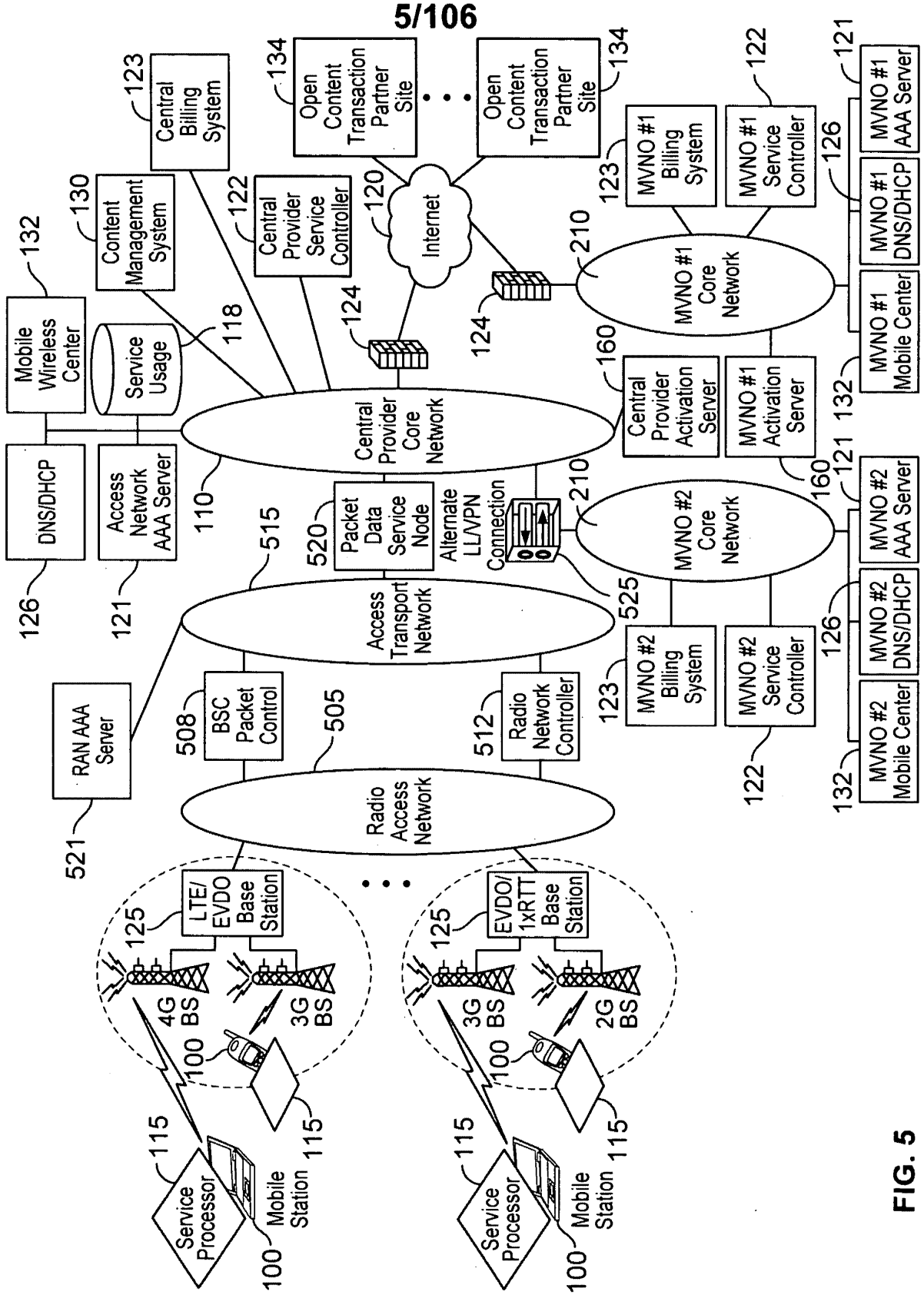

Central Billing System
123
Open Content Transaction Partner Site
134
Open Content Transaction Partner Site
134
Content Management System
130
Central Provider Service Controller
122
Internet
120
MVNO #1 Billing System
123
MVNO #1 Service Controller
122
MVNO #1 AAA Server
121
Mobile Wireless Center
132
Service Usage
118
DNS/DHCP
126
Access Network AAA Server
121
Central Provider Core Network
110
Packet Data Service Node
520
Alternate LL/VPN Connection
210
Access Transport Network
515
525
RAN AAA Server
521
BSC Packet Control
508
Radio Network Controller
512
Radio Access Network
505
LTE/ EVDO Base Station
125
EVDO/ 1xRTT Base Station
125
4G BS
3G BS
3G BS
2G BS
100
115
Service Processor
Mobile Station
MVNO #1 Core Network
210
MVNO #2 Core Network
MVNO #1 DNS/DHCP
126
MVNO #1 Mobile Center
132
Central Provider Activation Server
160
MVNO #1 Activation Server
160
MVNO #2 AAA Server
121
MVNO #2 Billing System
123
MVNO #2 Service Controller
122
MVNO #2 DNS/DHCP
126
MVNO #2 Mobile Center
132
124

FIG. 5

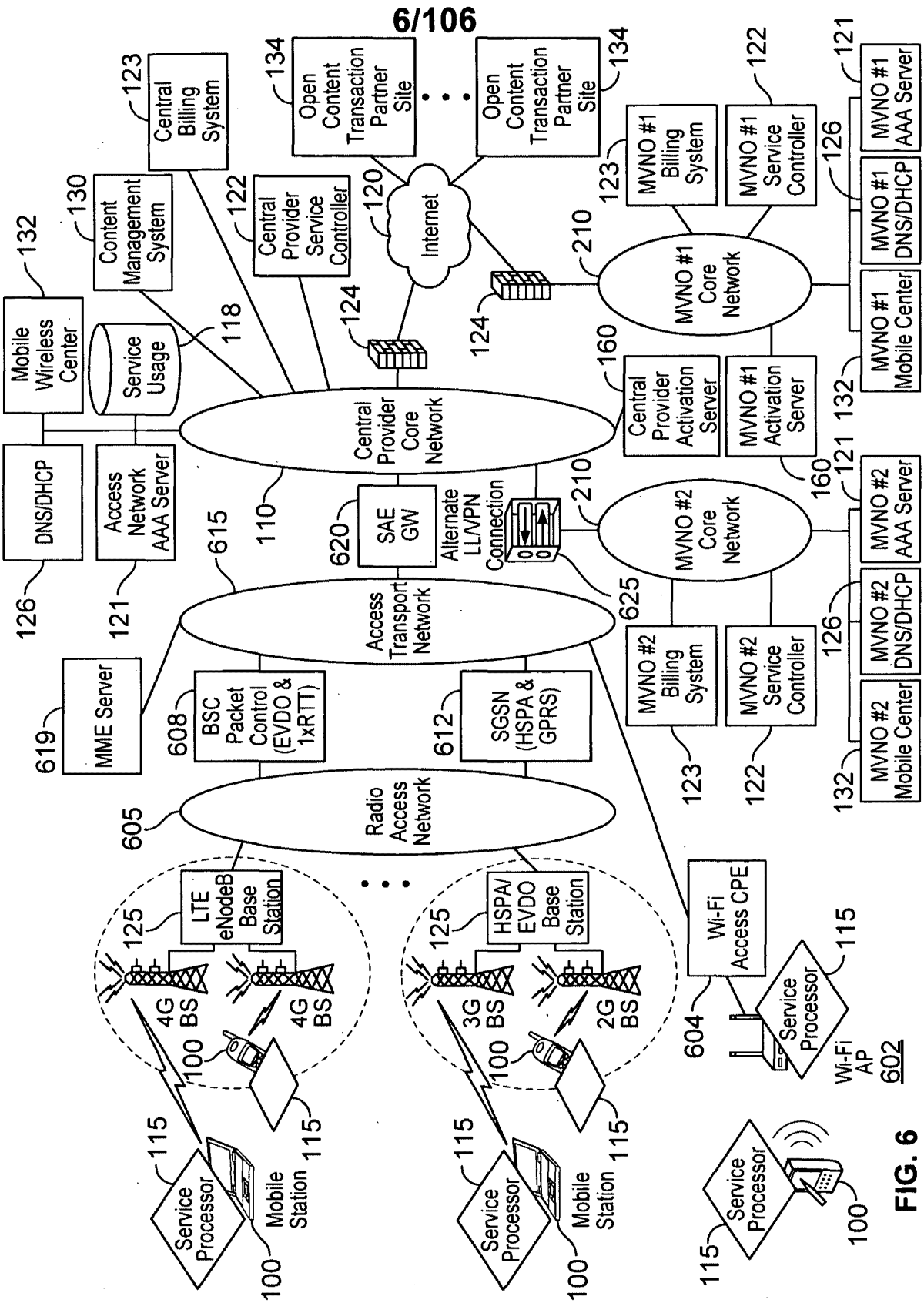

Central Billing System
123
Open Content Transaction Partner Site
134
Open Content Transaction Partner Site
134
Content Management System
130
Central Provider Service Controller
122
Internet
120
MVNO #1 Billing System
123
MVNO #1 Service Controller
122
MVNO #1 AAA Server
121
Mobile Wireless Center
132
Service Usage
118
MVNO #1 DNS/DHCP
126
MVNO #1 Core Network
210
MVNO #1 Mobile Center
132
Central Provider Activation Server
160
MVNO #1 Activation Server
160
Central Provider Core Network
110
DNS/DHCP
126
Access Network AAA Server
121
SAE GW
620
Alternate LL/VPN Connection
210
MVNO #2 Core Network
MVNO #2 AAA Server
121
615
Access Transport Network
625
MME Server
619
BSC Packet Control (EVDO & 1xRTT)
608
SGSN (HSPA & GPRS)
612
MVNO #2 Billing System
123
MVNO #2 Service Controller
122
MVNO #2 DNS/DHCP
126
MVNO #2 Mobile Center
132
Radio Access Network
605
LTE eNodeB Base Station
125
HSPA/ EVDO Base Station
125
Wi-Fi Access CPE
604
Service Processor
115
Wi-Fi AP
602
4G BS
4G BS
3G BS
2G BS
100
Mobile Station
100
Service Processor
115
Service Processor
115
Service Processor
115
Service Processor
115

FIG. 6

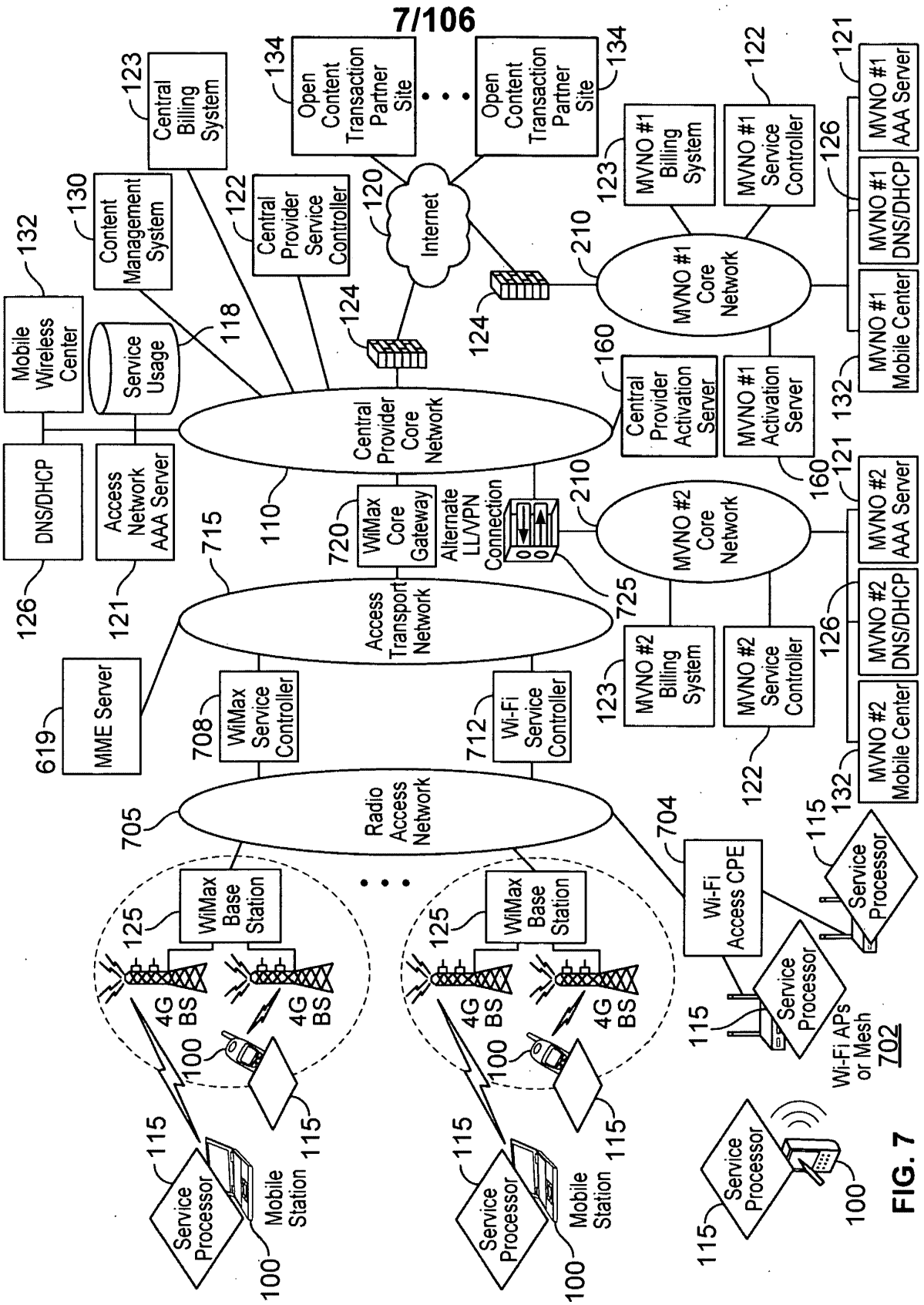

Central Billing System
123
Open Content Transaction Partner Site
134
Open Content Transaction Partner Site
134
Content Management System
130
Central Provider Service Controller
122
Internet
120
MVNO #1 Billing System
123
MVNO #1 Service Controller
122
MVNO #1 AAA Server
121
Mobile Wireless Center
132
Service Usage
118
124
124
210
MVNO #1 Core Network
MVNO #1 DNS/DHCP
126
MVNO #1 Mobile Center
132
DNS/DHCP
126
Access Network AAA Server
121
Central Provider Core Network
110
160
Central Provider Activation Server
MVNO #1 Activation Server
160
121
MVNO #2 AAA Server
WiMax Core Gateway
720
Alternate LL/VPN Connection
210
MVNO #2 Core Network
715
Access Transport Network
725
MVNO #2 Billing System
123
MVNO #2 Service Controller
122
MVNO #2 DNS/DHCP
126
MME Server
619
WiMax Service Controller
708
Wi-Fi Service Controller
712
MVNO #2 Mobile Center
132
705
Radio Access Network
704
Wi-Fi Access CPE
115
Service Processor
WiMax Base Station
125
4G BS
4G BS
100
115
Mobile Station
Service Processor
Wi-Fi APs or Mesh
702

FIG. 7

8/106

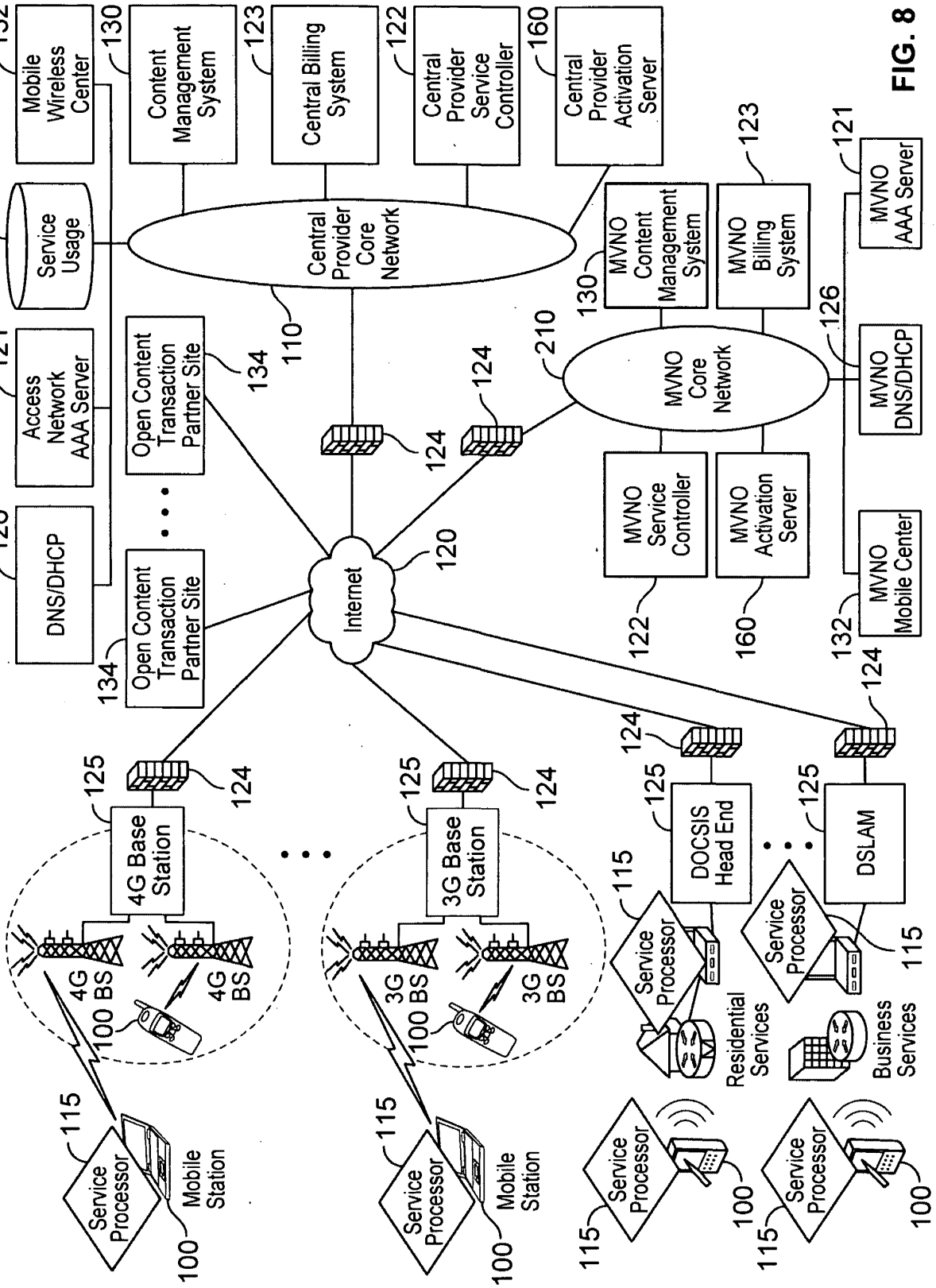

Mobile Wireless Center
132
Content Management System
130
Central Billing System
123
Central Provider Service Controller
122
Central Provider Activation Server
160
Service Usage
118
Central Provider Core Network
110
Access Network AAA Server
121
Open Content Transaction Partner Site
134
DNS/DHCP
126
Internet
120
MVNO Content Management System
130
MVNO Billing System
123
MVNO AAA Server
121
MVNO Core Network
210
MVNO DNS/DHCP
126
MVNO Service Controller
122
MVNO Activation Server
160
MVNO Mobile Center
132
4G Base Station
125
4G BS
100
3G Base Station
3G BS
DOCSIS Head End
DSLAM
Service Processor
115
Mobile Station
Residential Services
Business Services
124

FIG. 8

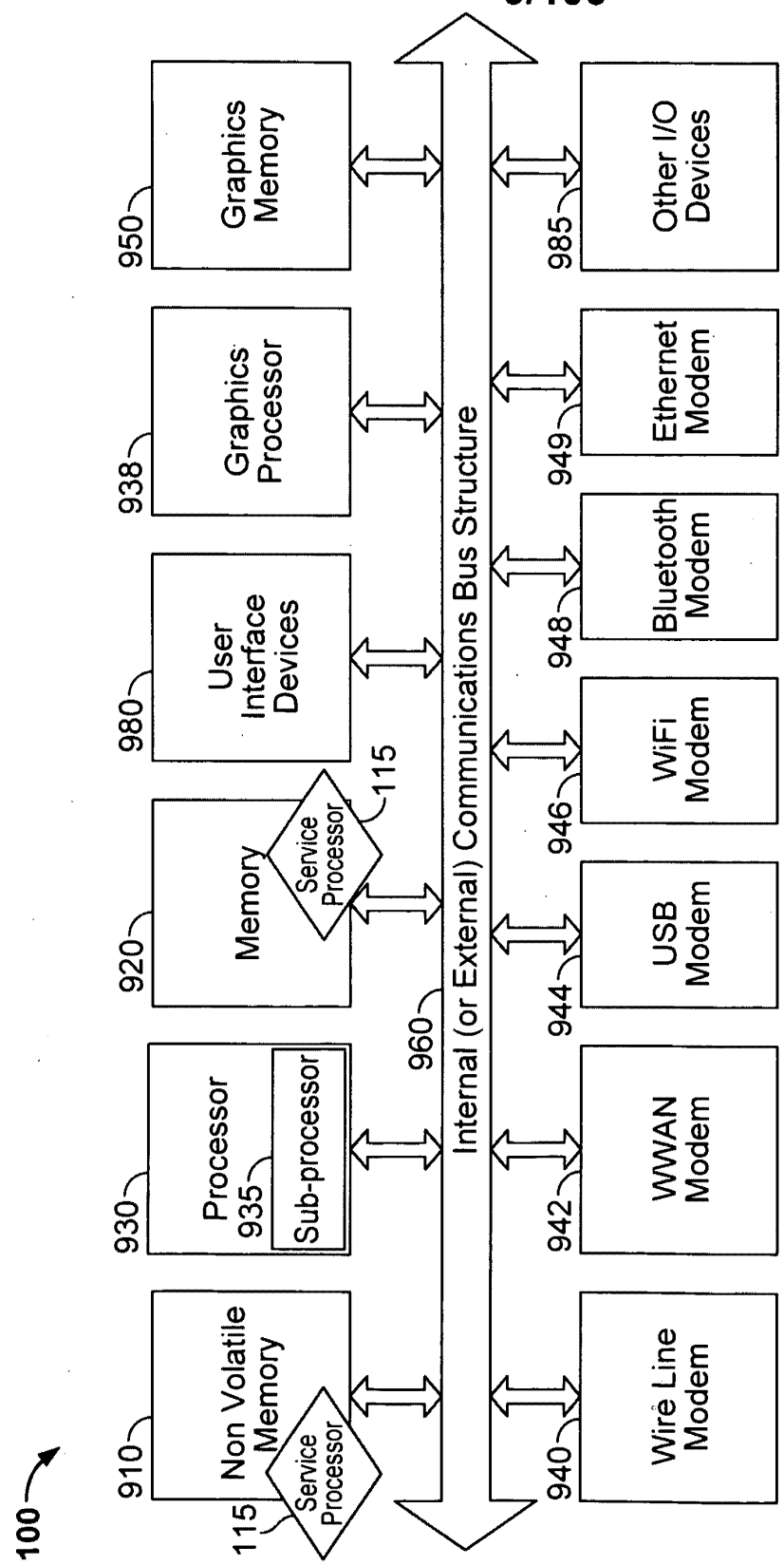

100
910
Non Volatile Memory
115
Service Processor
930
Processor
935
Sub-processor
920
Memory
Service Processor
115
980
User Interface Devices
938
Graphics Processor
950
Graphics Memory
960
Internal (or External) Communications Bus Structure
940
Wire Line Modem
942
WWAN Modem
944
USB Modem
946
WiFi Modem
948
Bluetooth Modem
949
Ethernet Modem
985
Other I/O Devices

FIG. 9

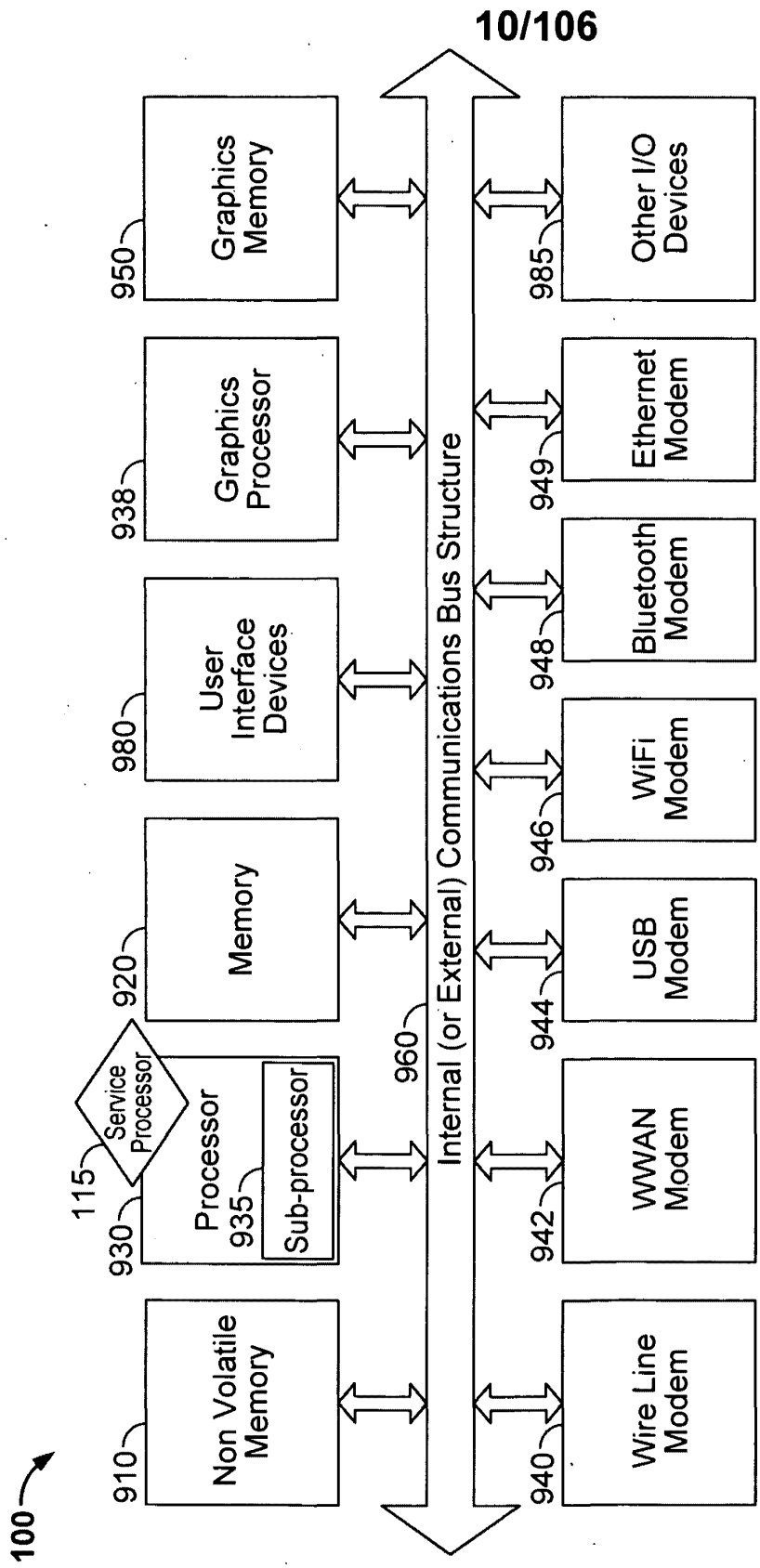

100
910
Non Volatile Memory
930
Processor
935
Sub-processor
115
Service Processor
920
Memory
980
User Interface Devices
938
Graphics Processor
950
Graphics Memory
960
Internal (or External) Communications Bus Structure
940
Wire Line Modem
942
WWAN Modem
944
USB Modem
946
WiFi Modem
948
Bluetooth Modem
949
Ethernet Modem
985
Other I/O Devices

FIG. 10

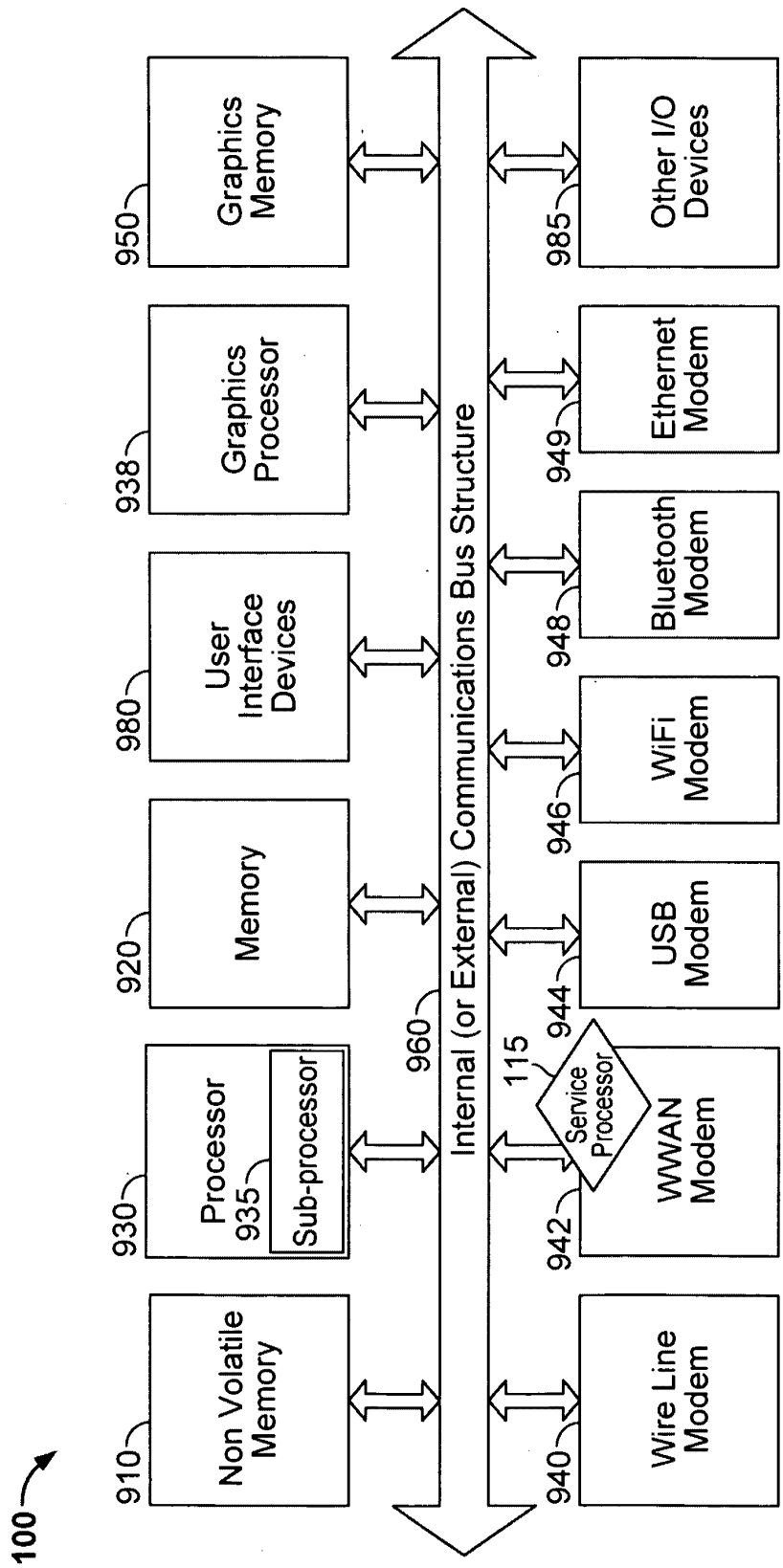

100
910
Non Volatile Memory
930
Processor
935
Sub-processor
920
Memory
980
User Interface Devices
938
Graphics Processor
950
Graphics Memory
940
Wire Line Modem
942
WWAN Modem
115
Service Processor
944
USB Modem
946
WiFi Modem
948
Bluetooth Modem
949
Ethernet Modem
985
Other I/O Devices
960
Internal (or External) Communications Bus Structure

FIG. 11

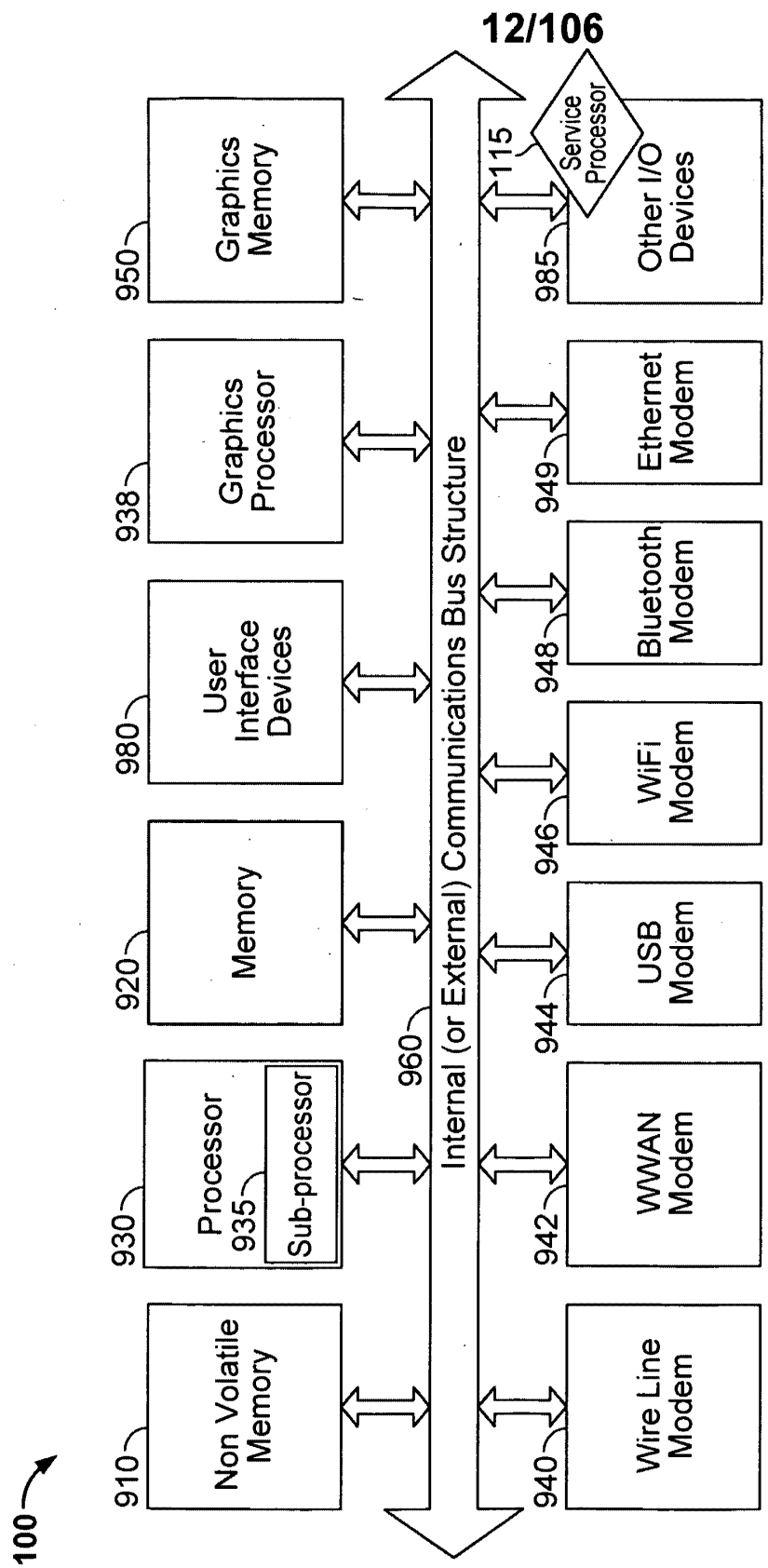

100
910
Non Volatile Memory
930
Processor
935
Sub-processor
920
Memory
980
User Interface Devices
938
Graphics Processor
950
Graphics Memory
960
Internal (or External) Communications Bus Structure
940
Wire Line Modem
942
WWAN Modem
944
USB Modem
946
WiFi Modem
948
Bluetooth Modem
949
Ethernet Modem
985
Other I/O Devices
115
Service Processor

FIG. 12

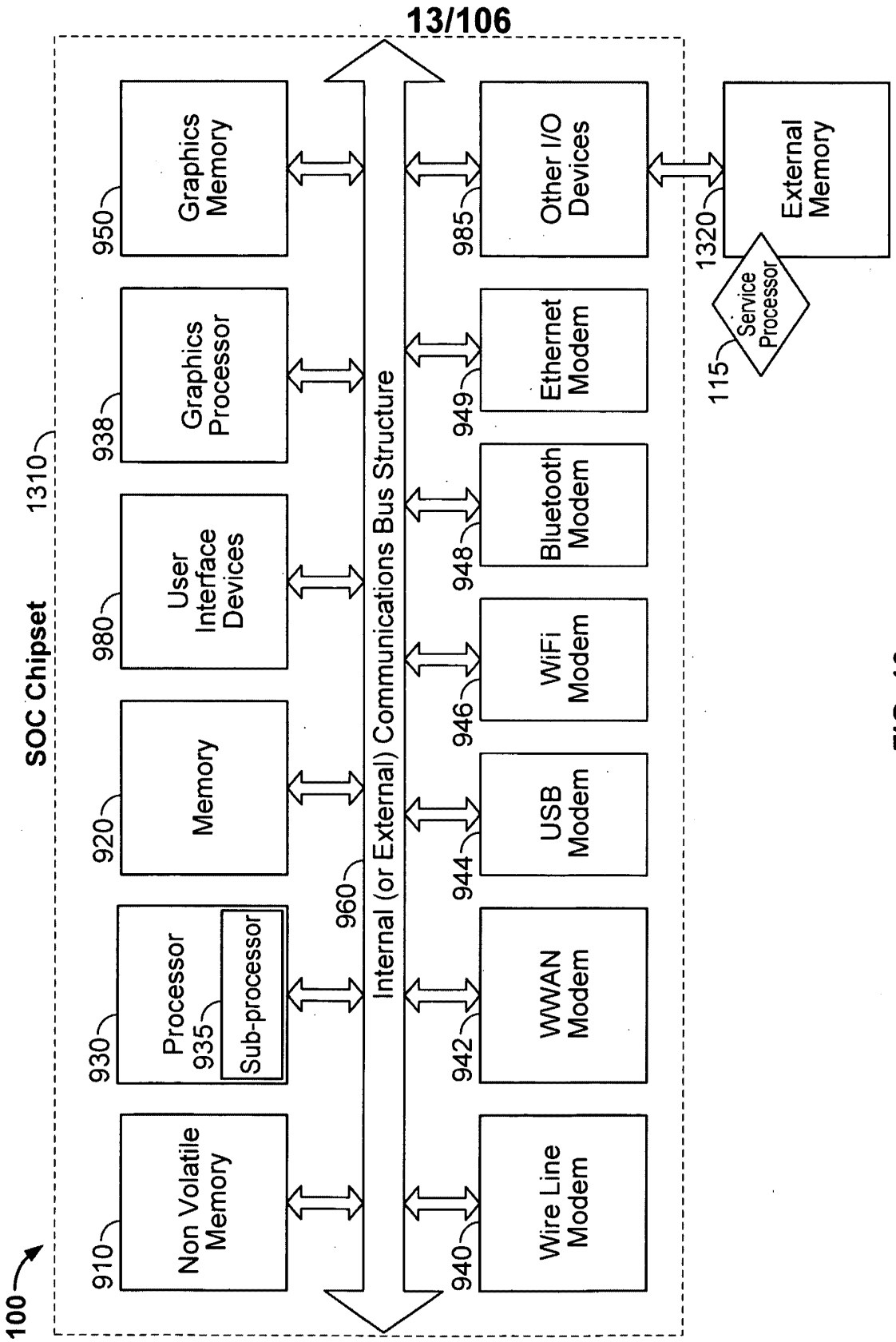

100
SOC Chipset
1310
Internal (or External) Communications Bus Structure
960
910
Non Volatile Memory
930
Processor
935
Sub-processor
920
Memory
980
User Interface Devices
938
Graphics Processor
950
Graphics Memory
940
Wire Line Modem
942
WWAN Modem
944
USB Modem
946
WiFi Modem
948
Bluetooth Modem
949
Ethernet Modem
985
Other I/O Devices
115
Service Processor
1320
External Memory

FIG. 13

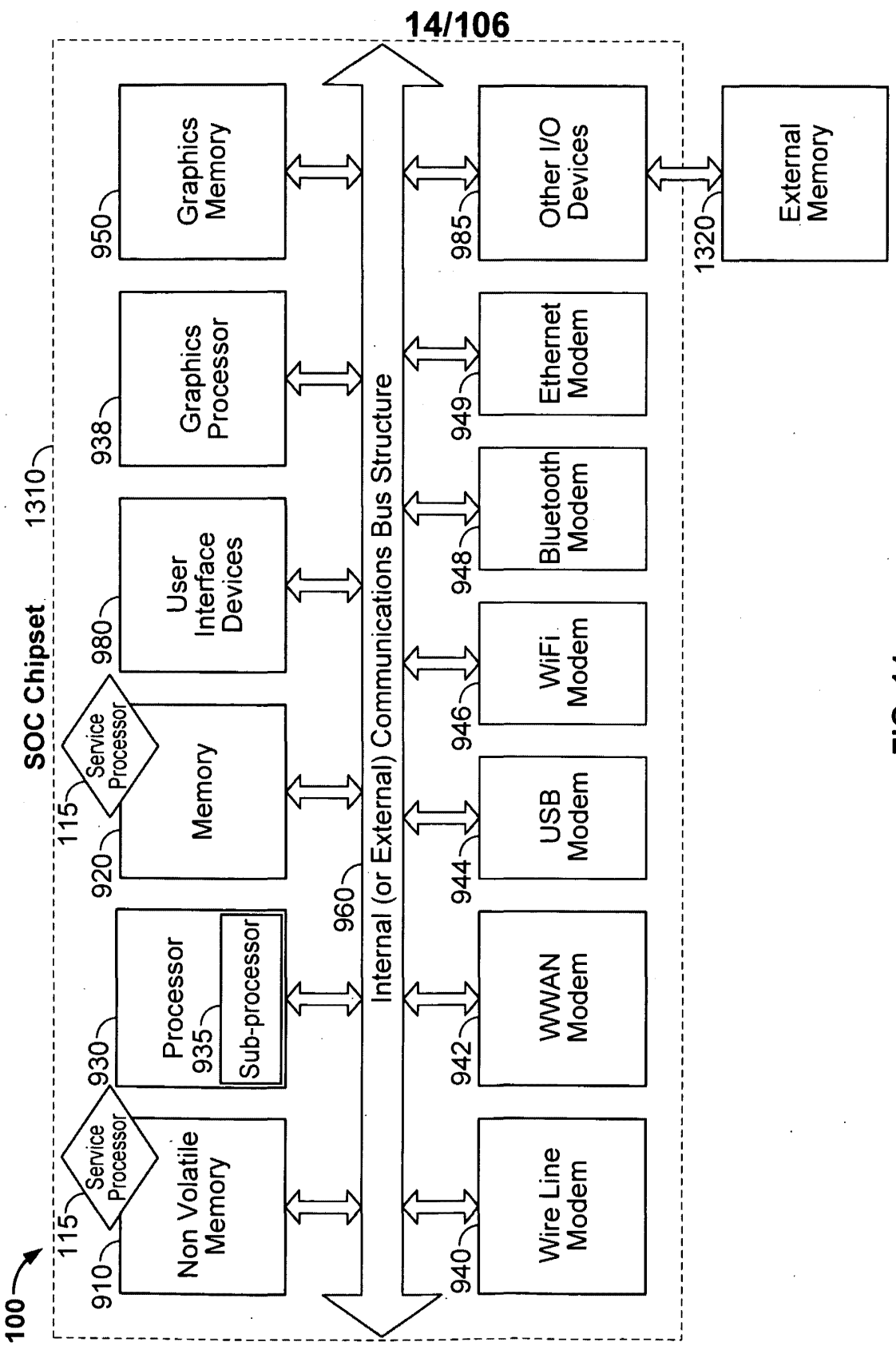

100
SOC Chipset
1310
Internal (or External) Communications Bus Structure
960
910
Non Volatile Memory
115
Service Processor
930
Processor
935
Sub-processor
920
Memory
115
Service Processor
980
User Interface Devices
938
Graphics Processor
950
Graphics Memory
940
Wire Line Modem
942
WWAN Modem
944
USB Modem
946
WiFi Modem
948
Bluetooth Modem
949
Ethernet Modem
985
Other I/O Devices
1320
External Memory

FIG. 14

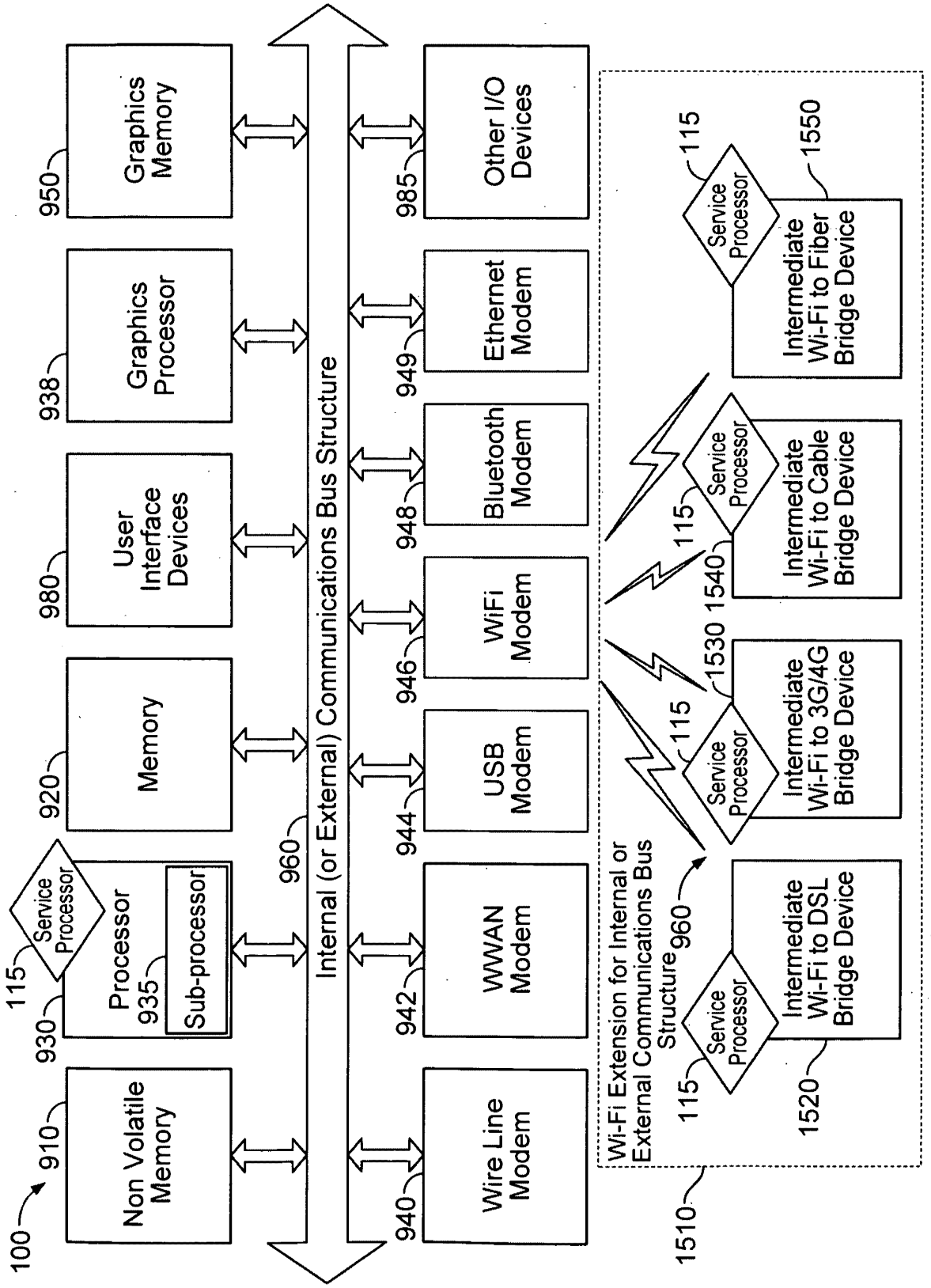

100
910
Non Volatile Memory
930
Processor
935
Sub-processor
115
Service Processor
920
Memory
980
User Interface Devices
938
Graphics Processor
950
Graphics Memory
960
Internal (or External) Communications Bus Structure
940
Wire Line Modem
942
WWAN Modem
944
USB Modem
946
WiFi Modem
948
Bluetooth Modem
949
Ethernet Modem
985
Other I/O Devices
1510
Wi-Fi Extension for Internal or External Communications Bus Structure
960
115
Service Processor
1520
Intermediate Wi-Fi to DSL Bridge Device
115
Service Processor
1530
Intermediate Wi-Fi to 3G/4G Bridge Device
115
Service Processor
1540
Intermediate Wi-Fi to Cable Bridge Device
115
Service Processor
1550
Intermediate Wi-Fi to Fiber Bridge Device

FIG. 15A

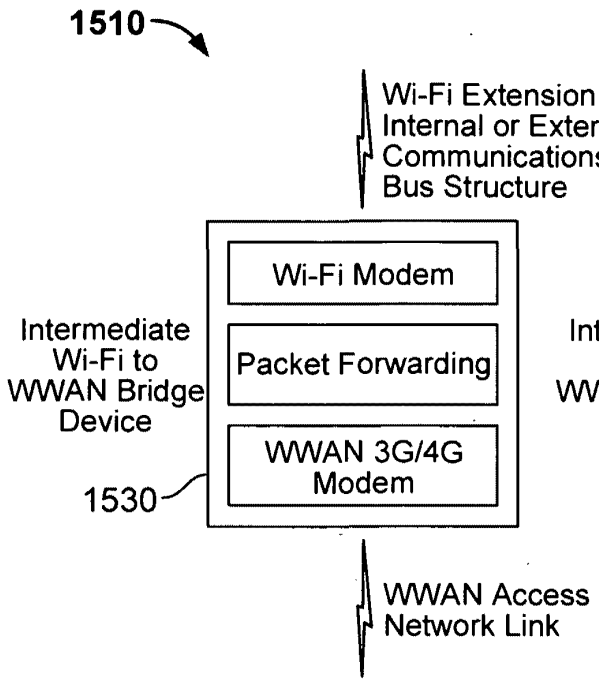


FIG. 15B-1

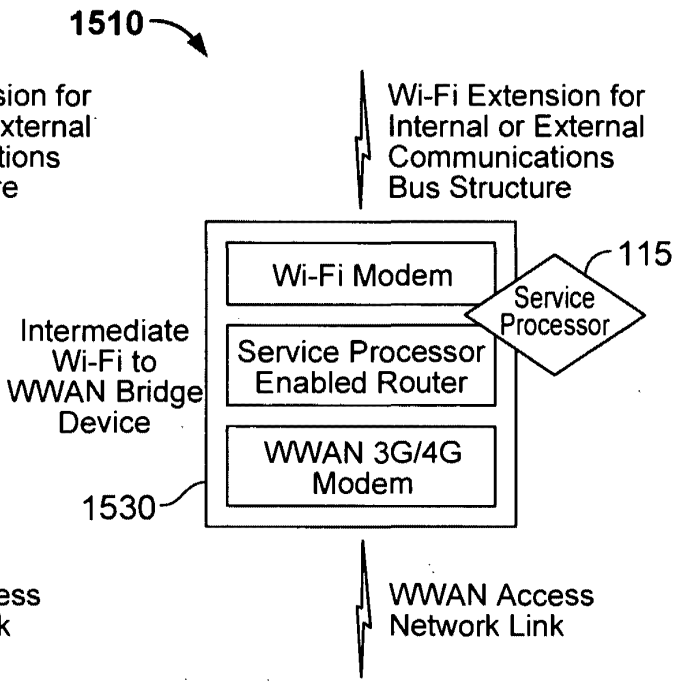


FIG. 15B-2

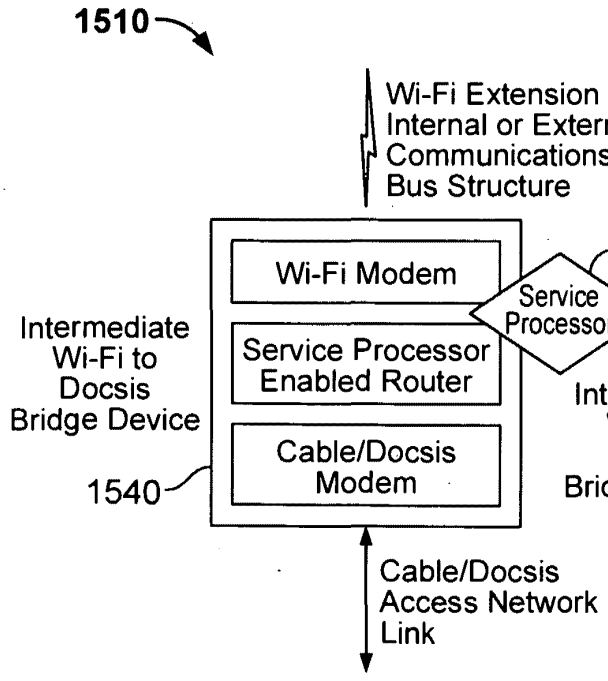


FIG. 15B-3

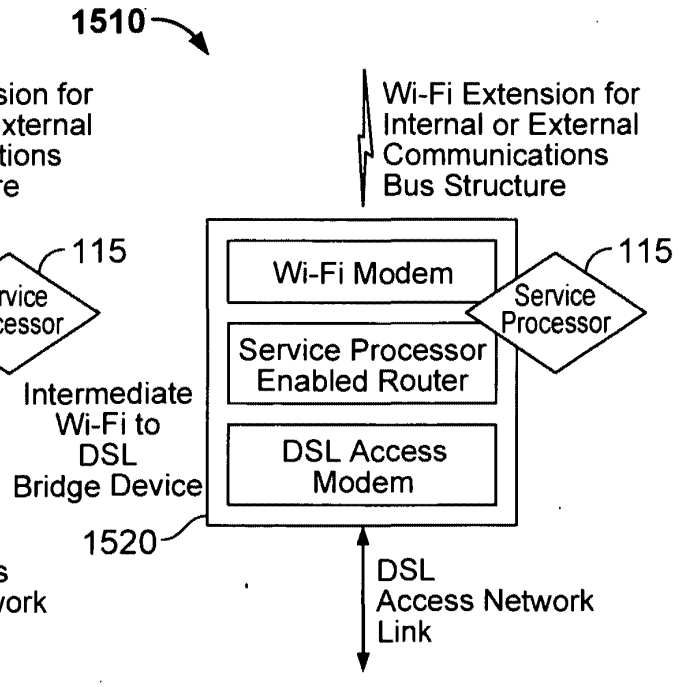


FIG. 15B-4

17/106

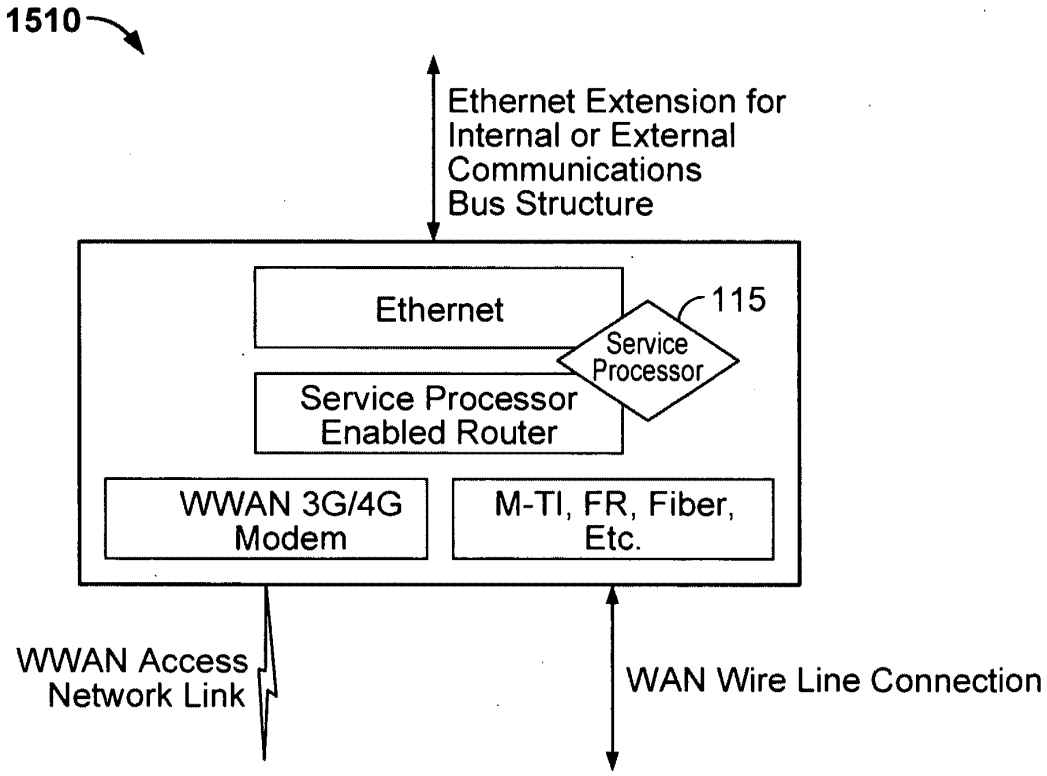


FIG. 15C

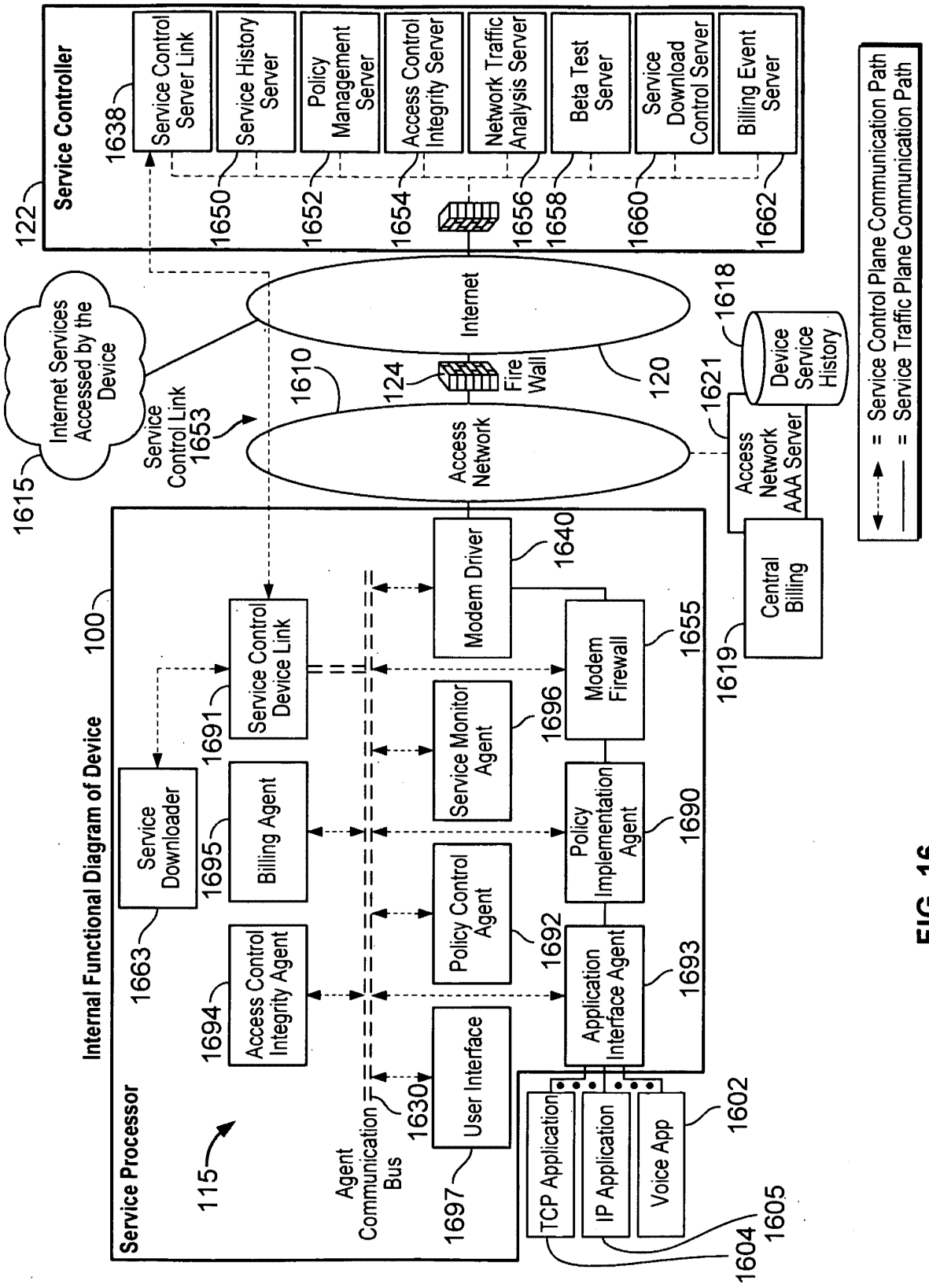

Service Controller
122
1638
Service Control Server Link
Service History Server
Policy Management Server
Access Control Integrity Server
Network Traffic Analysis Server
Beta Test Server
Service Download Control Server
Billing Event Server
1650
1652
1654
1656
1658
1660
1662
Internet Services Accessed by the Device
1615
Service Control Link
1653
1610
Internet
120
124
Fire Wall
Access Network
1621
Device Service History
1618
Access Network AAA Server
Central Billing
1619
= Service Control Plane Communication Path
= Service Traffic Plane Communication Path
Internal Functional Diagram of Device
100
Service Processor
115
Service Downloader
1663
Billing Agent
1695
Access Control Integrity Agent
1694
User Interface
1630
1697
Agent Communication Bus
Service Control Device Link
1691
Service Monitor Agent
1696
Policy Control Agent
1692
Application Interface Agent
1693
Modem Driver
1640
Modem Firewall
1655
Policy Implementation Agent
1690
TCP Application
IP Application
Voice App
1602
1604
1605

FIG. 16

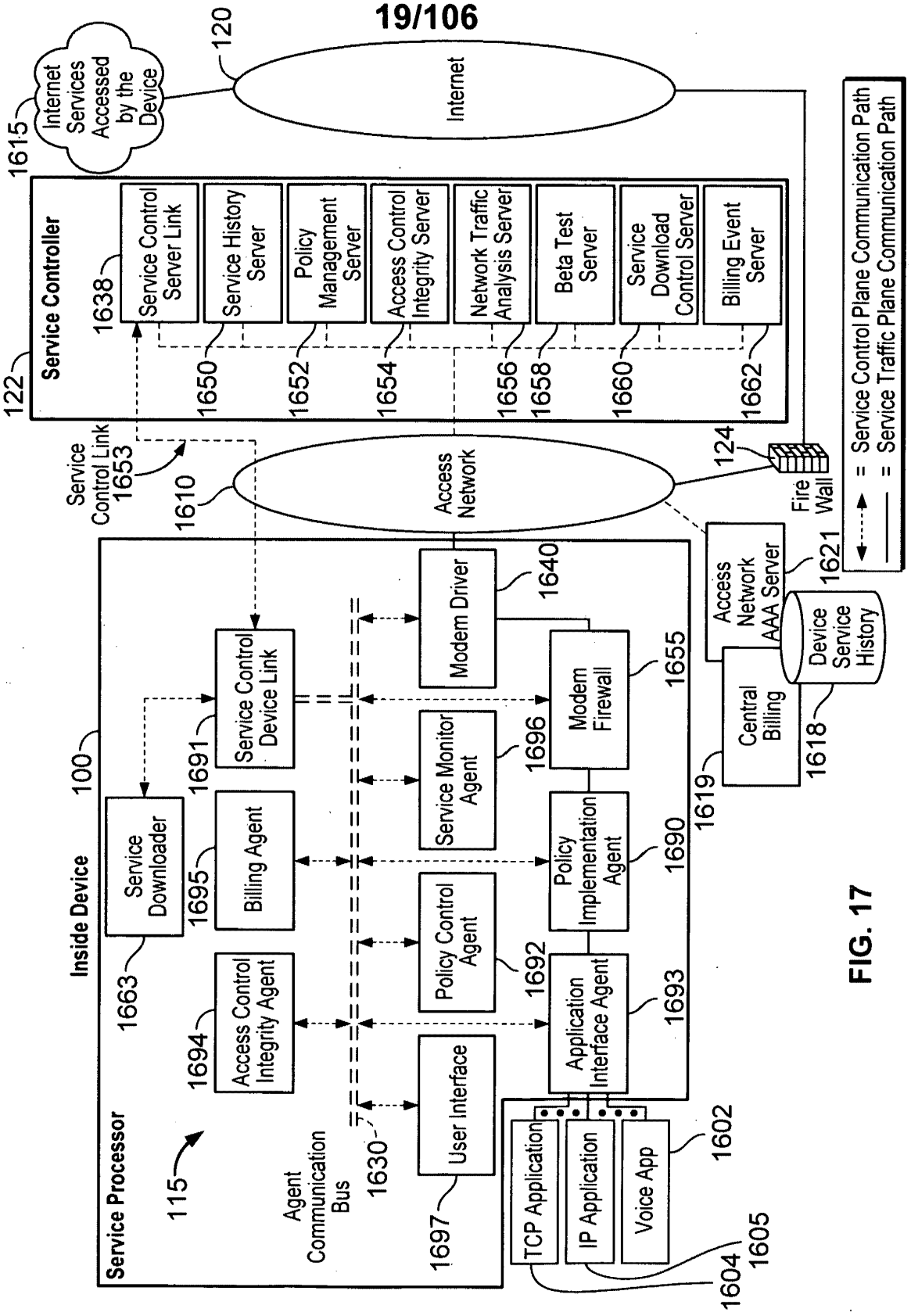

Internet Services Accessed by the Device
1615
Internet
120
Service Controller
122
Service Control Server Link
1638
Service History Server
Policy Management Server
Access Control Integrity Server
Network Traffic Analysis Server
Beta Test Server
Service Download Control Server
Billing Event Server
1650
1652
1654
1656
1658
1660
1662
Service Control Link
1653
1610
Access Network
124
Fire Wall
= Service Control Plane Communication Path
= Service Traffic Plane Communication Path
Inside Device
100
Service Processor
115
Service Downloader
1663
Billing Agent
1695
Service Control Device Link
1691
Access Control Integrity Agent
1694
User Interface
1697
Agent Communication Bus
1630
Policy Control Agent
1692
Service Monitor Agent
1696
Modem Driver
1640
Policy Implementation Agent
1690
Modem Firewall
1655
Application Interface Agent
1693
1619
TCP Application
IP Application
Voice App
1602
1604
1605
Access Network AAA Server
1621
Device Service History
Central Billing
1618

FIG. 17

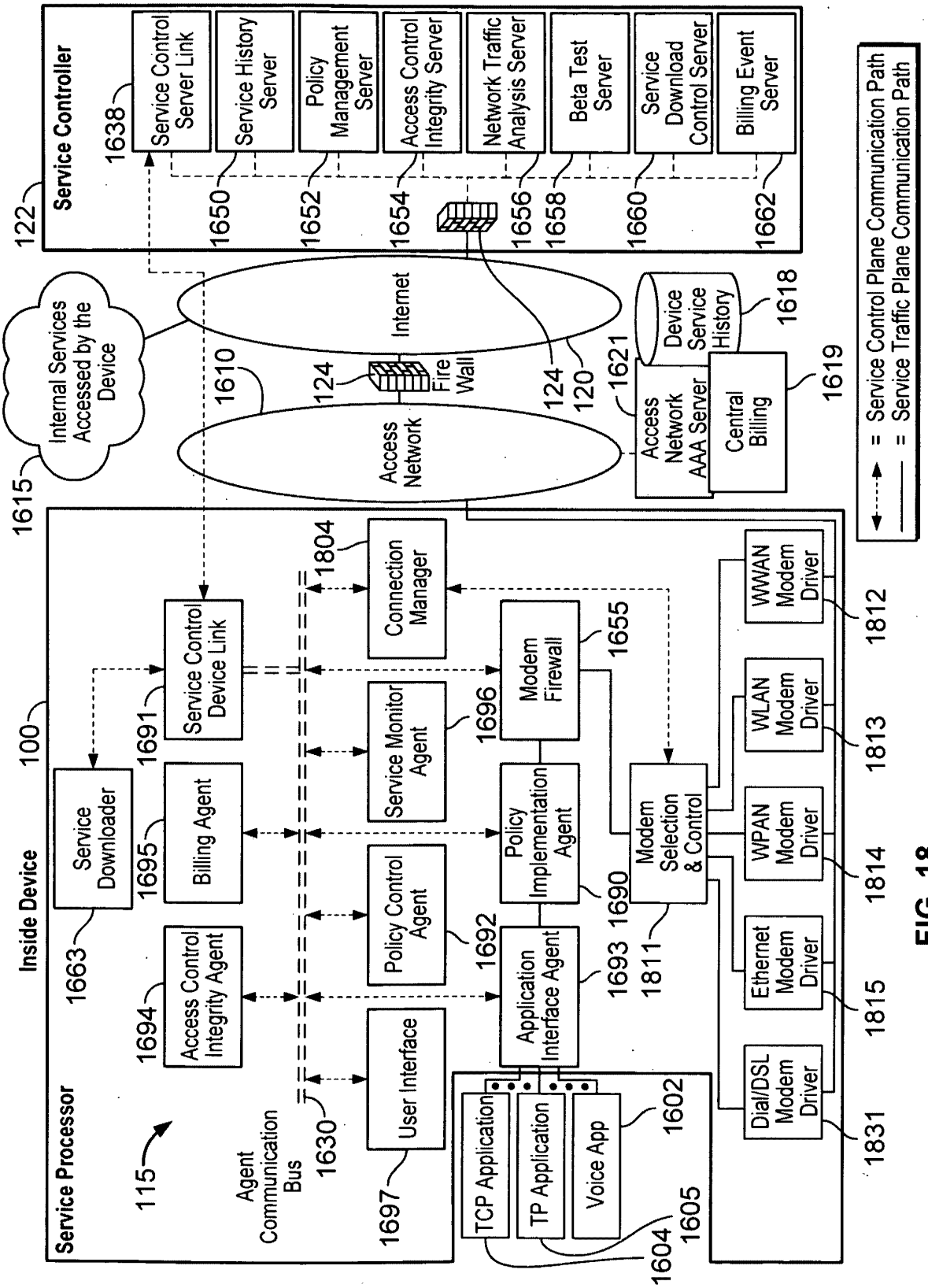

Service Controller
122
Service Control Server Link
1638
Service History Server
Policy Management Server
Access Control Integrity Server
Network Traffic Analysis Server
Beta Test Server
Service Download Control Server
Billing Event Server
1650
1652
1654
1656
1658
1660
1662
Internet
Fire Wall
124
120
1610
Internal Services Accessed by the Device
1615
Access Network
Access Network AAA Server
1621
Device Service History
1618
Central Billing
1619
= Service Control Plane Communication Path
= Service Traffic Plane Communication Path
Inside Device
100
Service Processor
115
Service Downloader
1663
Billing Agent
1695
Service Control Device Link
1691
Connection Manager
1804
Service Monitor Agent
1696
Modem Firewall
1655
Access Control Integrity Agent
1694
Policy Control Agent
1692
Policy Implementation Agent
Application Interface Agent
1693
Modem Selection & Control
1690
1811
User Interface
1697
Agent Communication Bus
1630
TCP Application
TP Application
Voice App
1604
1602
1605
WWAN Modem Driver
1812
WLAN Modem Driver
1813
WPAN Modem Driver
1814
Ethernet Modem Driver
1815
Dial/DSL Modem Driver
1831

FIG. 18

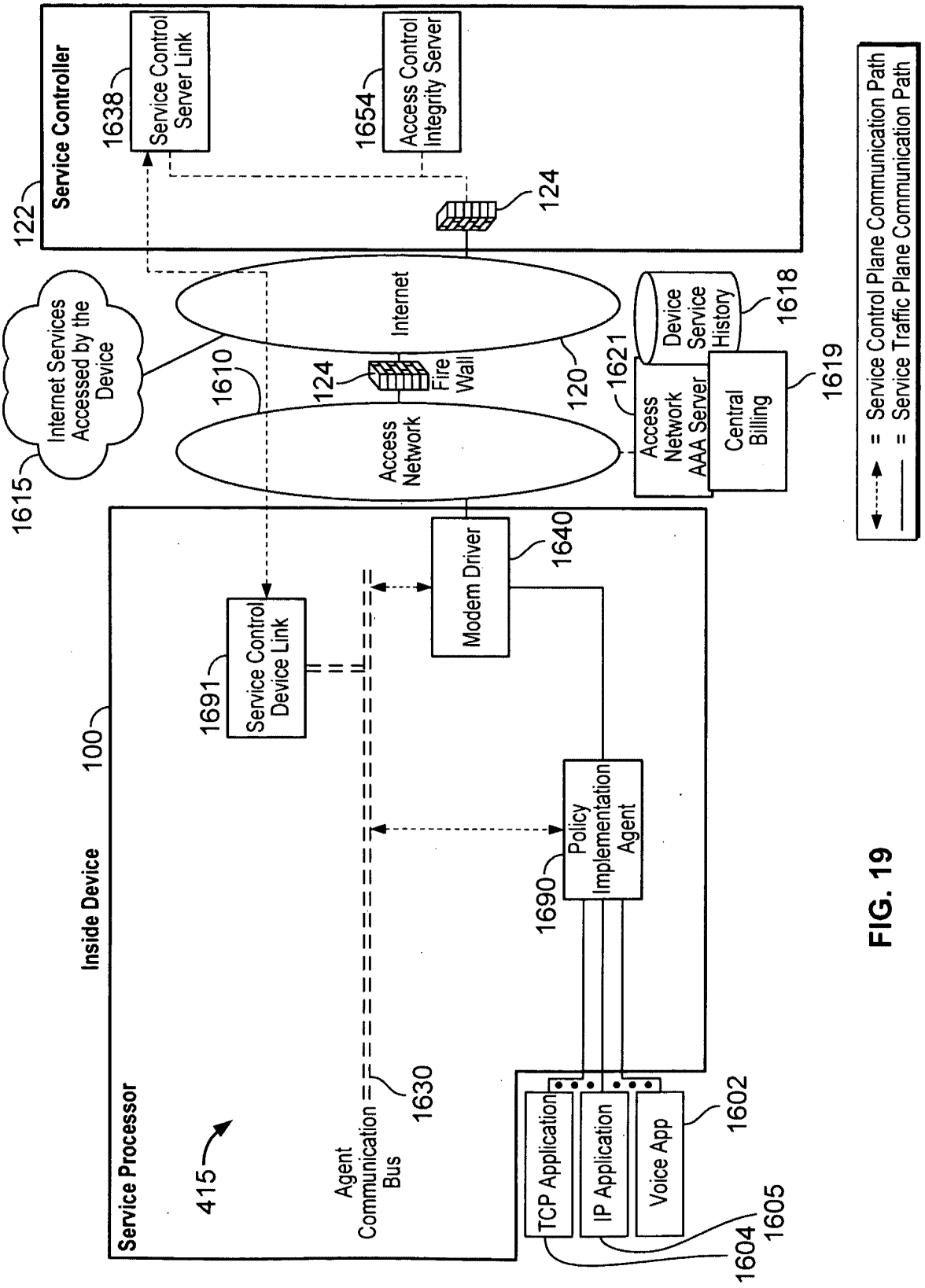

Service Controller
122
Service Control Server Link
1638
Access Control Integrity Server
1654
124
Internet
Internet Services Accessed by the Device
1615
1610
124
Fire Wall
120
1621
Device Service History
1618
Access Network AAA Server
Central Billing
1619
Access Network
= Service Control Plane Communication Path
= Service Traffic Plane Communication Path
Inside Device
100
Service Processor
415
Service Control Device Link
1691
Modem Driver
1640
Policy Implementation Agent
1690
Agent Communication Bus
1630
TCP Application
IP Application
Voice App
1602
1604
1605

FIG. 19

22/106

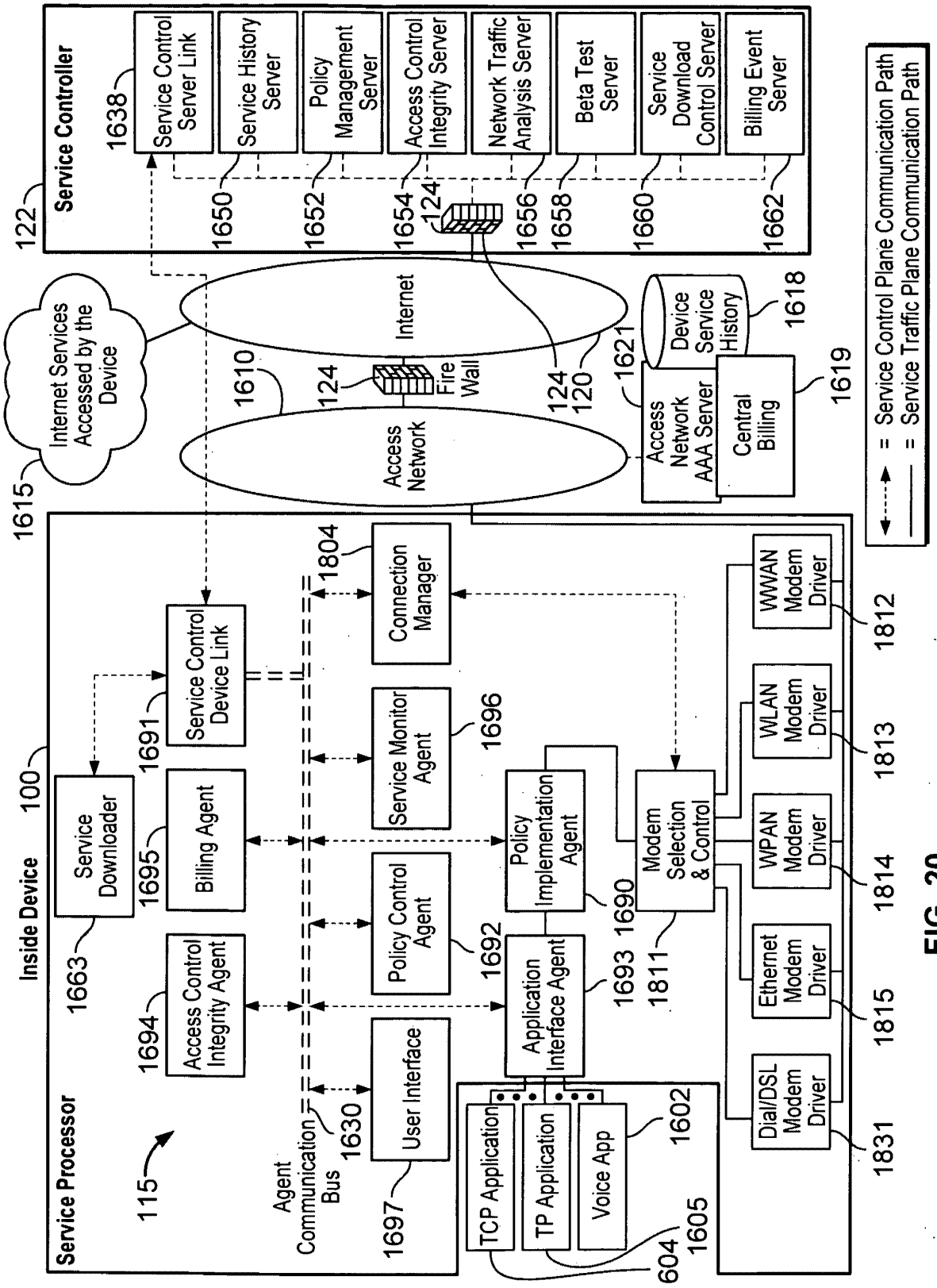

Service Controller
122
Service Control Server Link
1638
Service History Server
Policy Management Server
Access Control Integrity Server
Network Traffic Analysis Server
Beta Test Server
Service Download Control Server
Billing Event Server
1650
1652
1654
1656
1658
1660
1662
124
Internet
Internet Services Accessed by the Device
1615
1610
Fire Wall
Access Network
120
1621
Device Service History
1618
Access Network AAA Server
Central Billing
1619
= Service Control Plane Communication Path
= Service Traffic Plane Communication Path
Inside Device
100
Service Processor
115
Service Downloader
1663
Billing Agent
1695
Access Control Integrity Agent
1694
User Interface
1697
Agent Communication Bus
1630
Service Control Device Link
1691
Service Monitor Agent
1696
Policy Control Agent
1692
Application Interface Agent
1693
Policy Implementation Agent
1690
Connection Manager
1804
Modem Selection & Control
1811
TCP Application
TP Application
Voice App
1604
1605
1602
WWAN Modem Driver
1812
WLAN Modem Driver
1813
WPAN Modem Driver
1814
Ethernet Modem Driver
1815
Dial/DSL Modem Driver
1831

FIG. 20

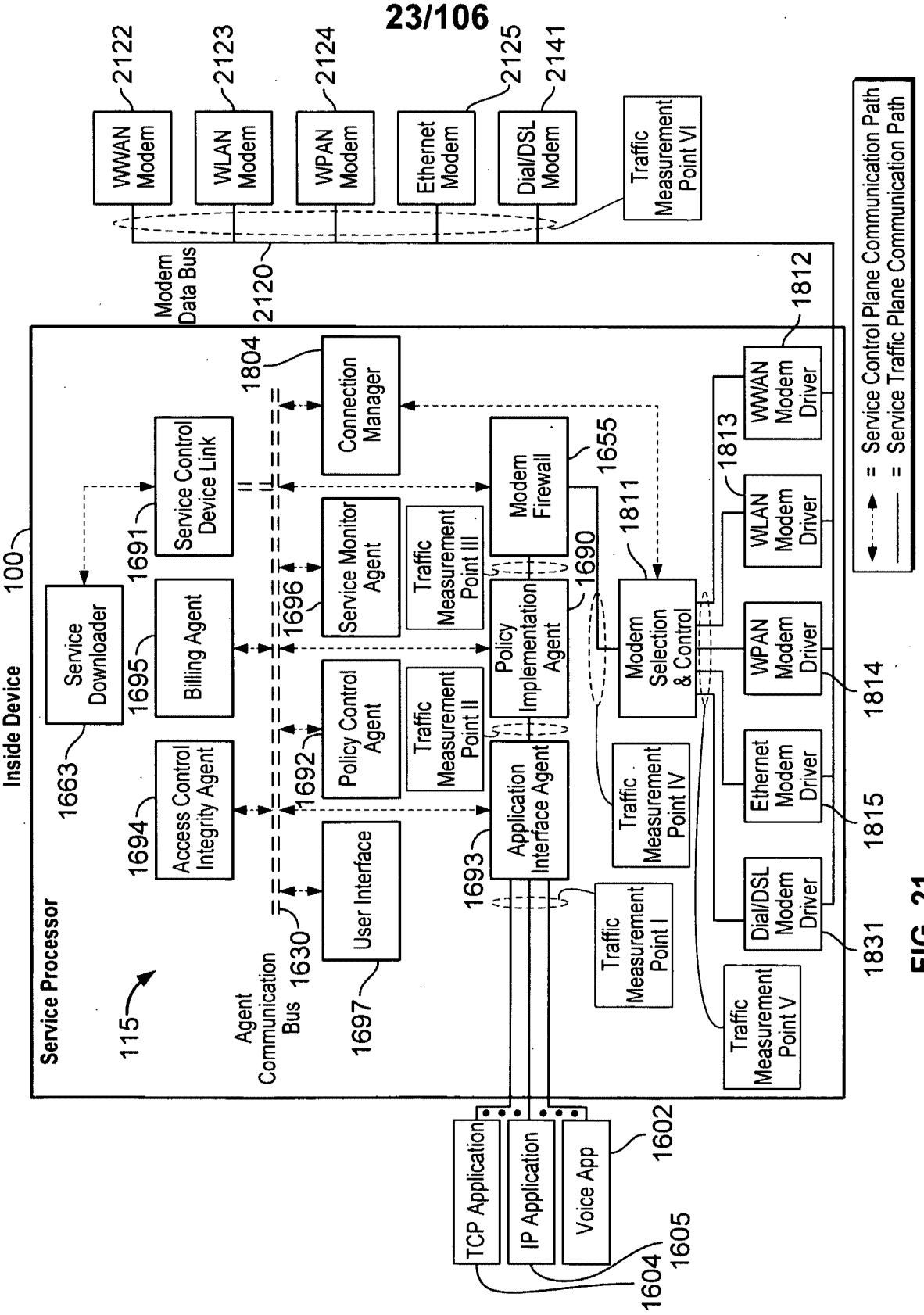

WWAN Modem
2122
WLAN Modem
2123
WPAN Modem
2124
Ethernet Modem
2125
Dial/DSL Modem
2141
Traffic Measurement Point VI
Modem Data Bus
2120
Inside Device
100
Service Processor
115
Service Downloader
1663
Billing Agent
1695
Service Control Device Link
1691
Connection Manager
1804
Service Monitor Agent
1696
Traffic Measurement Point III
Modem Firewall
1655
Policy Implementation Agent
1690
Modem Selection & Control
1811
Access Control Integrity Agent
1694
Policy Control Agent
1692
Traffic Measurement Point II
Application Interface Agent
1693
Traffic Measurement Point IV
User Interface
1697
Agent Communication Bus
1630
Traffic Measurement Point I
Traffic Measurement Point V
WWAN Modem Driver
1812
1813
WLAN Modem Driver
WPAN Modem Driver
1814
Ethernet Modem Driver
1815
Dial/DSL Modem Driver
1831
TCP Application
IP Application
Voice App
1602
1604
1605
= Service Control Plane Communication Path
= Service Traffic Plane Communication Path

FIG. 21

Service Processor 115 Embodiment	Partial Summary of Embodiment Functions
Service Control Device Link 1691	Device side control plane link for connecting Service Processor 415 to Service Controller. In some embodiments, also serves as the link for the agent heartbeat function.
Access Control Integrity Agent 1694	Collects device information on service policy, service usage, agent configuration and agent behavior. Cross checks this information to identify integrity breaches in the service policy implementation and control system. Initiates action when a service policy violation or a system integrity breach is suspected. In some embodiments, verifies configuration of other agents or performs challenge-response sequence testing. In some embodiments, monitors software loading activity, protected memory access or communication with Service Processor agents to detect unauthorized changes to Service Processor software or configuration.
Policy Control Agent 1692	Takes policy instructions from the network and sets instantaneous device service policy. In some embodiments, performs a policy control function to adapt instantaneous service policies to achieve a service usage objective
Policy Implementation Agent 1690	Implements traffic control and QOS policy rules for device. In some embodiments provides the functions of access control and/or firewall function or perform traffic inspection and characterization. In some embodiments packet inspection is aided by literal or virtual application layer tagging while in other embodiments packet inspection is performed completely in the Policy Implementation Agent 490.
Service Monitor Agent 1696	Records and reports device service usage. In some embodiments, assists in communicating application tagging of traffic flows through the networking stack policy implementation. In some embodiments, maintains a history and provides reports or summary reports of which networks in addition to the networks controlled by the Service Controller that the device has connected to. In some embodiments, this network activity summary may include a summary of the networks accessed, activity vs. time per connection, traffic vs. time per connection.
Application Interface Agent 1693	Rich feature interface for device application programs. In some embodiments, identifies application level traffic, reports service usage or tags traffic for service QOS control. In some embodiments, interacts with applications or programs applications to arrange application settings such as email file transfer options or browser headers. In some embodiments, intercepts certain application traffic to modify traffic application layer parameters such as email file transfer options or browser headers. In some embodiments implements certain aspects of traffic control or other service policies. In some embodiments, provides the functions of traffic control, access control and/or firewall.
Modem Firewall 1655	Blocks or passes traffic based on service policies and traffic attributes. In some embodiments, assists in traffic flow tagging. In some embodiments provides the functions of traffic control and/or access control.
Billing Agent 1695	Detects and reports billing events. In some embodiments interacts with the User Interface Agent 497 to provide the user with service plan options, accept service plan selections, provide notification on service usage levels, provide options on service usage control policy, accept choices on service usage policy, provide transaction options or accept transaction choices. In some embodiments, interacts with Transaction Servers 134 to conduct ecommerce transactions with central billing.

FIG. 22A

User Interface Agent 1697	Provide service interface to users.
Service Downloader 1663	Provides a download function to install or update service software elements on the device.
Connection Manager 1804	Provides a control and supervision function for one or more modem drivers or modems that connect to an access network.
Modem Selection and Control 1811	Selects the access network connection.
Modem Drivers 1831, 1815, 1814, 1813, 1812	Converts data traffic into modem bus traffic for one or more modems.
Modems 2141, 2125, 2124, 2123, 2122	Connects the device to one or more networks.

FIG. 22B

Service Controller 122 Element	Partial Summary of Embodiment Functions
Service Control Server Link 1638	Network side control plane link for connecting Service Controller 422 Service Processor 415 device agents. In some embodiments, also serves as the link for the agent heartbeat function.
Access Control Integrity Server 1654	Collects device information on service policy, service usage, agent configuration and agent behavior. Cross checks this information to identify integrity breaches in the service policy implementation and control system. Initiates action when a service policy violation or a system integrity breach is suspected.
Policy Management Server 1652	Transmits policies to the Service Processor 415.
Access Network AAA Server 1621	Provides access control and authorization functions for the device access layer. Records and reports device network service usage.
Service History Server 1650	Collects and records service usage reports from the Access Network AAA Server 421 and the Service Monitor Agent 496. In some embodiments, maintains a history of which networks in addition to the networks controlled by the Service Controller that the device has connected to. In some embodiments, this network activity summary may include a summary of the networks accessed, activity vs. time per connection, traffic vs. time per connection. In some embodiments, this activity summary is further analyzed or reported to estimate the type of service plan associated with the traffic activity for the purpose of bill sharing reconciliation.
Central Provider Billing System 1619	Provides mediation function for central provider billing events. Accepts service plan changes. In some embodiments, provides updates on device service usage, service plan limits or service policies.
Billing Event Server 1662	In some embodiments, collects billing events, provides service plan information to the Service Processor 415, provides service usage updates to the Service Processor 415, serves as interface between device and central Provider Billing System 123, or provides trusted third party function for certain ecommerce billing transactions.
Network Traffic Analysis Server 1656	Collects service usage history for devices or groups of devices and analyses the service usage. In some embodiments, presents service usage statistics in various formats to identify improvements in network service quality or service profitability. In other embodiments, estimates the service quality or service usage for the network under variable settings on potential service policy. In other embodiments, identifies actual or potential service behaviors by one or more devices that are causing problems for overall network service quality or service cost.
Beta Test Server 1658	Publishes candidate service plan policy setting to one or more devices. In some embodiments, provides summary reports of network service usage or user feedback information for one or more candidate service plan policy setting. In some embodiments, provides a means to compare the beta test results for different candidate service plan policy settings or select the optimum candidates for further setting optimization.
Service Download Control Server 1660	Provides a download function to install or update service software elements on the device.
Transaction Server 134	Provides an electronic commerce offering and transaction platform to the device.

FIG. 23

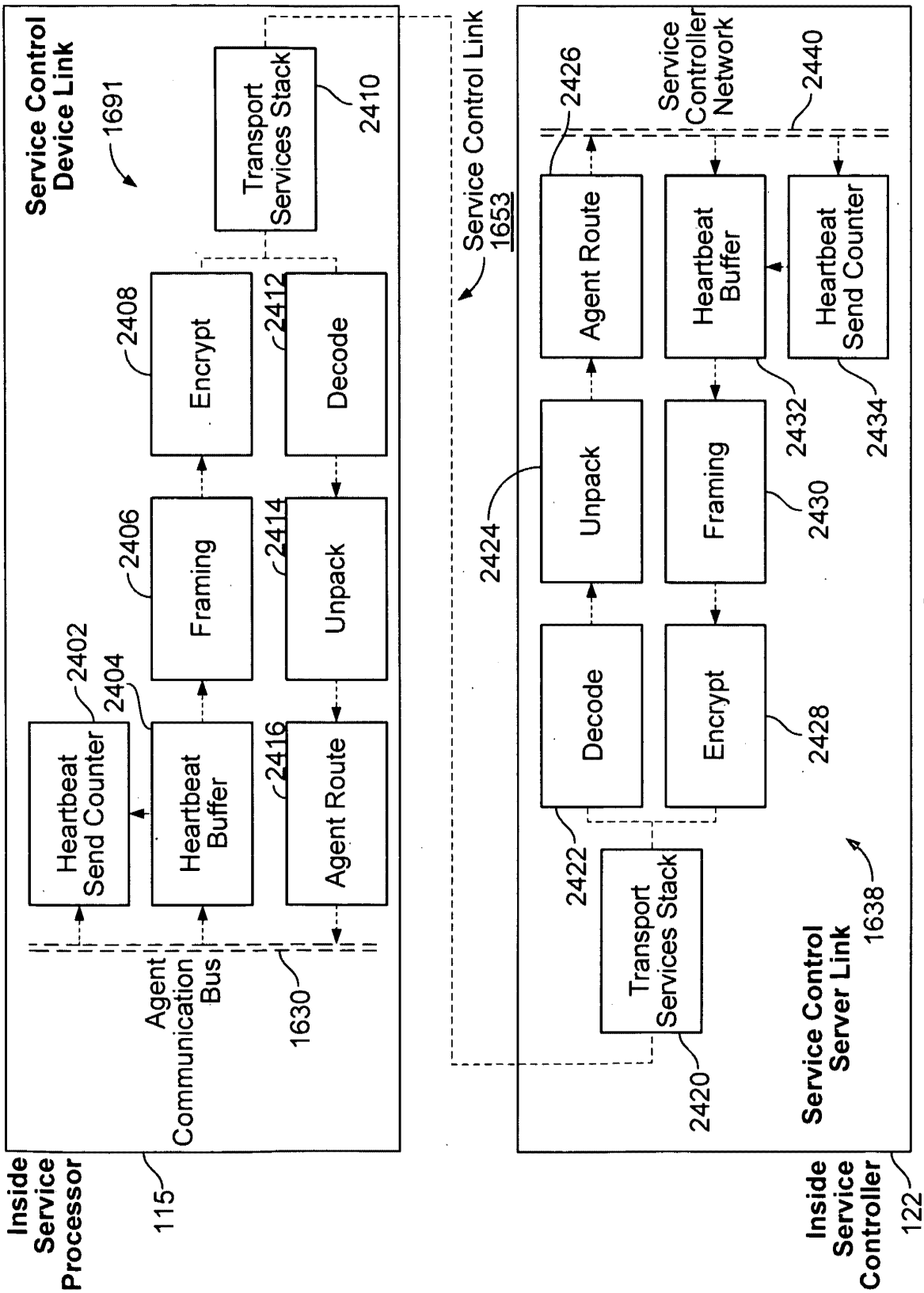

Inside Service Processor
115
Service Control Device Link
1691
Heartbeat Send Counter
2402
Heartbeat Buffer
2404
Framing
2406
Encrypt
2408
Transport Services Stack
2410
Agent Route
2416
Unpack
2414
Decode
2412
Agent Communication Bus
1630
Service Control Link
1653
Inside Service Controller
122
Service Control Server Link
1638
Transport Services Stack
2420
Decode
2422
Unpack
2424
Agent Route
2426
Encrypt
2428
Framing
2430
Heartbeat Buffer
2432
Heartbeat Send Counter
2434
Service Controller Network
2440

FIG. 24

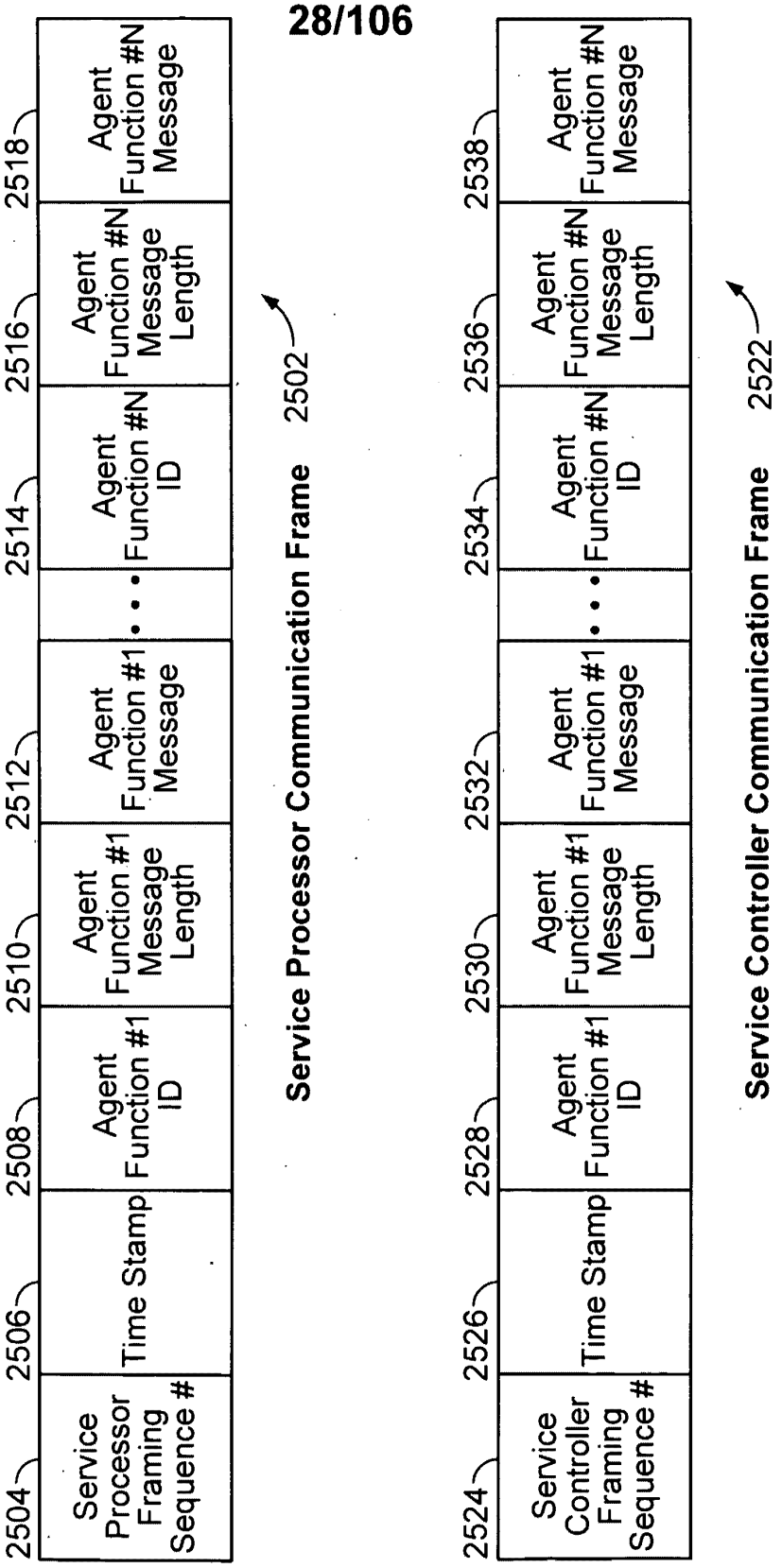

2504
Service Processor Framing Sequence #
2506
Time Stamp
2508
Agent Function #1 ID
2510
Agent Function #1 Message Length
2512
Agent Function #1 Message
2514
• • •
Agent Function #N ID
2516
Agent Function #N Message Length
2518
Agent Function #N Message
Service Processor Communication Frame
2502
2524
Service Controller Framing Sequence #
2526
Time Stamp
2528
Agent Function #1 ID
2530
Agent Function #1 Message Length
2532
Agent Function #1 Message
2534
• • •
Agent Function #N ID
2536
Agent Function #N Message Length
2538
Agent Function #N Message
Service Controller Communication Frame
2522

FIG. 25

Example Service Processor Heartbeat Parameter Embodiments	Description	Frequency
Access control integrity report	Contains the latest results of the Access Control Integrity agents Service Processor system checks and reports any error events.	Not necessary to report in every heartbeat if there are no errors. Can report only on error, set a minimum frequency or respond to Service Controller polling.
Service monitor report	Reports filtered summary of Service Monitor Agent measurements. Summary reduces control traffic and filters out unauthorized private information.	Every heartbeat. Some embodiments link this to amount of data usage in the data path to keep overhead low. Report immediately upon polling from Service Controller.
Billing event report	Reports any billing activity since the last heartbeat. Billing events may include service usage events, transaction events, bill by account records, bill by account offset reports or any other event that results in a billing event report.	Send upon billing event. Report immediately upon polling from Service Controller.
Service Processor settings report	Reports service policy settings for all Service Processor agents.	Not necessary to send every heartbeat. Some embodiments link this to amount of data usage to reduce overhead. Can report every N heartbeats. Report immediately upon polling from Service Controller.
Customer resource management report	Reports filtered summary of Service Monitor Agent measurements or filtered summary of other device or user activity such as service preferences, advertisement behavior and location. Summary reduces control traffic and filters out unauthorized private information.	Not necessary to send every heartbeat. Some embodiments link this to amount of data usage to reduce overhead. Can report every N heartbeats. Report immediately upon polling from Service Controller.
Responses to Service Processor agent queries	Sends agent responses to challenge-response queries from the Service Controller.	Report immediately upon polling from Service Controller.

FIG. 26A

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP001
Sheet 29 of 106

Location tracking service update	Reports filtered summary of location tracking information. Summary reduces control traffic and filters out unauthorized private information.	Not necessary to send every heartbeat. Some embodiments call for a minimum time based transmission frequency.
Service usage based transmission frequency	Lowers overhead by buffering and reserving heartbeat communications from agents and servers until a certain amount of data has been transmitted or received in the network, or a certain amount of service has been consumed. When the parameters are chosen properly, this can result in the network control plane traffic overhead being a small percentage of data path traffic or result in the control plane traffic cost being a small percentage of the service usage cost.	Ranges depending on settings. For example, if there are 5 agents messages that typically need to be communicated, and each message is less than 100 bytes, and Service Processor heartbeat framing plus network overhead would result in a packet size of less than 1,000 bytes, and the heartbeat packet is transmitted when 10,000,000 bytes have been communicated over the data path, then the overhead loss due to one heartbeat packet in each direction is less than 0.02%.
Constant frequency transmissions	Since the device may be off line for long periods of time where the Service Control Processor needs to verify service control integrity, in some embodiments it can be advantageous to transmit heartbeat packets at a minimum rate regardless of data traffic activity. This is accomplished by setting a timer that sends queued heartbeat packets on a regular schedule.	Ranges depending on settings and applications.
Service Controller polled transmissions	In some embodiments, the Service Controller may poll the Service Processor for a heartbeat transmission at which time the Service Processor will frame and transmit all queued heartbeat messages.	Ranges depending on applications. In some embodiments this is used as an on demand function while in others it is used as a way to set heartbeat transmission timing functions in the Service Controller.
Service Processor polled transmissions	In some embodiments, the Service Processor polls the Service Controller for a heartbeat transmission at which time the Service Controller will frame and transmit all queued heartbeat messages.	Ranges depending on applications. In some embodiments this is used as an on demand function while in others it is used as a way to set heartbeat transmission timing functions in the Service Processor.

FIG. 26B

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 30 of 106

Agent self-check reports	Agent reports results of various agent self-diagnosis procedures to ensure that the agent is properly configured, operating properly, properly implementing service control policy or has not been tampered with. [provide examples which are extensions of typical software security self diagnosis reporting]	In some embodiments an report is made during every heartbeat transmission. In other embodiments the report is generated by a request from the Service Controller. In other embodiments the report is generated by timing determined by the device. In some embodiments the report is generated when there is a verification error of some kind that is identified.
Environment reports	One or more agents scan the storage or execution environment for one or more of the agents to identify potential threats to the integrity of the service implementation or agent integrity and makes a report. In one example embodiment, a scan is done to determine if unauthorized software or hardware is executing in a secure agent environment. In another embodiment, a scan is done to determine the software that has been loaded into a portion of the device operating environment, memory or storage, and the software list is referenced against a known threat list. In another example embodiment, the list of entities that accessed one or more agents is scanned to determine if an unauthorized access to an agent has occurred. In another embodiment a scan is performed to determine if unauthorized access to secure execution environment, memory or storage has occurred. In another example embodiment, the network access pattern for the device is logged and analyzed to determine if there is an access pattern that is known to be associated with a threat to service or agent control integrity. In another example embodiment, the internal device software, memory or peripheral access pattern is logged and analyzed to determine if there is an access pattern that is known to be associated with a threat to service or agent control integrity.	In some embodiments an report is made during every heartbeat transmission. In other embodiments the report is generated by a request from the Service Controller. In other embodiments the report is generated by timing determined by the device. In some embodiments the report is generated when there is a verification error of some kind that is identified.

FIG. 26C

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 31 of 106

User notification response reports	Billing agent, UI agent or another agent logs user notification events and the response of the user to the notification event. In some embodiments these events may be cross-referenced to the notification policy that should be in force on the device and the device service usage to ensure that the proper notification sequences are being adhered to. In other embodiments, the user notification responses are logged and used to document user choices to notification events, billing event decisions, service control decisions or service cost control decisions. In some embodiments, the user may be asked to provide a password, biometric signature, hardware key or other mechanism to positively identify that the user is in possession of the device or to verify that the service is operating properly or is implemented properly. In some embodiments, the user may be asked to acknowledge a service overage notification and/or to also provide a password, biometric signature, hardware key or other mechanism to verify the service overage acknowledgement.	In some embodiments a report is made during every heartbeat transmission. In other embodiments the report is generated by a request from the Service Controller. In other embodiments the report is generated by timing determined by the device, for example when there has been a user notification sequence action with the user. In some embodiments, the report is generated when there is a verification error of some kind that is identified.
User warning response reports	Billing agent, UI agent or another agent logs user warning events and the response of the user to warning event. In some embodiments the user response is used to determine if the user is in positive control of the device. In some embodiments the response is used to confirm that the user acknowledges a billing overage or other service cost event. In some embodiments, the user may be asked to provide a password, biometric signature, hardware key or other mechanism to positively identify that the user is in possession of the device or to verify that the service is operating properly or is implemented properly.	In some embodiments a report is made during every heartbeat transmission. In other embodiments the report is generated by a request from the Service Controller. In other embodiments the report is generated by timing determined by the device, for example when there has been a warning sequence action with the user. In some embodiments the report is generated when there is a verification error of some kind that is identified.

FIG. 26D

Agent communication log reports	Reports entities that established or attempted to establish communication with the agents. In one embodiment, reports a list of entities and the number of times the entity communicated or attempted to communicate with the agent. In another embodiments, reports an error flag when unauthorized entities attempt to establish communication with an agent.	In some embodiments a report is made during every heartbeat transmission. In other embodiments the report is generated by a request from the Service Controller. In other embodiments the report is generated by timing determined by the device. In some embodiments the report is generated when there is a verification error of some kind that is identified.
Service usage synchronization data	IPDR or other data that is used to synchronize the device service usage counters. In some embodiments the data is time stamped so that the service usage at a point in time may be reconciled between the local device usage count and the network based usage count, and then the local device usage count since the point in time may be used to estimate the present real-time usage count. In some embodiments, the service usage data from the device is used by the network as the actual service usage or billing data base for the device. In other embodiments, a bill by account function is included in the service usage synchronization data so that the service usage may be billed to different accounts other than a single or main user account.	Service usage synchronization is continuous with each heartbeat in some embodiments. In other embodiments service usage synchronization is based on a push from the Service Controller or other network function that sends the IPDR information to the device. In other embodiments, the device requests a synchronization data transmission.
Service cost synchronization data	Information to reconcile a service cost estimate on the local device with a service cost count from a network based function. Similar to the service usage count, in some embodiments the service cost information is time stamped so that service cost at a point in time may be reconciled between the device and the network based function, and then a local measure of service cost may be used to estimate the present real-time service cost. In some embodiments the local service cost is determined by taking recorded billing events and looking up the cumulative cost of one or more billing	Service cost synchronization is continuous with each heartbeat in some embodiments. In other embodiments service cost synchronization is based on a push from the Service Controller or other network function that sends the IPDR information to the device. In other embodiments, the device requests a synchronization data transmission.

FIG. 26E

	events using a service usage to cost look up data base stored locally on the device or available from a network function. In some embodiments, service cost estimation is done entirely in the network and the result is pushed out to the device UI. In other embodiments service cost estimation is done in the device based on local usage estimates and a local usage to cost lookup table.	
Available network information and roaming information	Device receives available network or available roaming service provider information from a network function. The available network or roaming service information may include the potential network service or roaming service a device or user may choose to select, or the network service or roaming service the user has already selected. In some embodiments this information includes service cost information to aid the device or the user in determining the potential or actual costs of service usage while using the available network or roaming network. In some embodiments the service cost information is used to help the user in selecting the available network provider or roaming service provider. In some embodiments the available network cost information or roaming cost information is combined with a measure of expected or possible service usage to estimate how much a typical usage scenario may cost. In some embodiments, the available network information or roaming information is used to help the user estimate the present available network or roaming service charges for services used to date. In some embodiments service usage is recorded and sent to a network function that estimates the current service cost. In other embodiments the service cost is estimated locally on the device based on a service usage estimate and a service usage to cost look up function. In other	In some embodiments available network information or roaming information is requested by the device. In other embodiments, the information is periodically updated by the Service Controller or other network function that contains the information.

FIG. 26F

	embodiments, the service cost is derived by querying the available network or roaming network billing system.	
System messages and responses	In some embodiments the heartbeat function may be used as a secure control channel to display a system messages or screen that is generated by a network function or server to the end user and possibly report user inputs to the UI message or screen. Examples include, ... etc.	System messages are generated by the Service Controller and transmitted as needed in some embodiments. In other embodiments, some system messages are generated in response to user input or requests. In other embodiments, system messages are generated on a regular time table or in accordance with a certain amount of service usage.
UI screen messages and responses	In some embodiments the heartbeat function may be used as a secure control channel to display user interface message or screen that is generated by a network function or serve to the end user and possibly report user inputs to the UI message or screen. Examples include service usage UI, service choice UI, upgrade UI, transaction UI, marketing UI, billing UI, user identify confirmation UI, user service warning UI, user potential service tamper response request UI, etc.	UI screen messages are generated by the Service Controller and transmitted as needed in some embodiments. In other embodiments some user UI messages are generated in response to user input or requests. In other embodiments, UI messages are generated on a regular time table or in accordance with a certain amount of service usage.
Local agent check-in history	Logs and reports agent check-ins or self-reports that are made to a local agent integrity verification function.	In some embodiments a report is made during every heartbeat transmission. In other embodiments the report is generated by a request from the Service Controller. In other embodiments the report is generated by timing determined by the device. In some embodiments the report is generated when there is a verification error of some kind that is identified.
Software install report	Logs and reports one or more aspects of software installs that have occurred on the device.	In some embodiments a report is made during every heartbeat transmission. In other embodiments the report is generated by a request from the Service Controller. In other embodiments the report is generated by timing determined by the device. In some embodiments the report is generated when there is a verification error of some kind that is identified. In some

FIG. 26G

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 35 of 105

		embodiments, the report is generated when new SW is installed.
Test billing event	In some embodiments the Service Controller or other network function may send or cause a test billing event wherein the device triggers a local billing sequence for the purpose of verifying that the billing sequence is properly logged, conducted and reported. The billing sequence can be related to a service usage event or sequence, a transaction event or sequence, or any other event or sequence that should result in a billing event.	In some embodiments, the test billing event timing is determined by the Service Controller or other network function. In others it is generated by the device or on a regular schedule.
Test service event	In some embodiments the service Controller or other network function may send or cause a service usage event wherein the device triggers a local service usage event or sequence for the purpose of verifying that the service usage event or sequence is properly logged and reported.	In some embodiments, the test service usage event timing is determined by the Service Controller or other network function. In others it is generated by the device or on a regular schedule.

FIG. 26H

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP024
Sheet 36 of 106

Service Policy Implementation Verification Technique Embodiments	Example Error Trigger Criteria Embodiments	Example Error Response Embodiments
Verify service usage measure in network is consistent with expected service behavior	Network service usage measure is in conflict with expected service usage. Examples: traffic usage outside limits, address access outside limits, data rate outside limits, traffic shaping rules not being followed.	In some embodiments the severity of the error and/or the persistence of the error and/or the existence of the other errors are used to determine the appropriate response or action. In some embodiments, reset service policies and see if errors persists. In some embodiments, perform agent settings check to verify that agent service usage control policy settings are correct. In some embodiments, perform agent query/ response to determine agent integrity. In some embodiments, run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh one or more agents. In some embodiments, a user query or warning is sent to the UI to notify the user, confirm that the device is in the user's possession, or involve the user in the process of determining the source or error or to assist in verifying the device based service control. In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service inspection process, or usage policy that is intended to be in place. In some embodiments, perform a billing event test or a service usage test to determine if the device is properly reporting billing events or service usage events. In some embodiments, the device is placed on quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis.

FIG. 27A

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 37 of 106

Verify service usage measure at device is consistent with expected service behavior	Device service usage measure is in conflict with expected service usage. Examples: traffic usage too high, address access outside limits, email accessed against policy.	Same as above.
Verify service usage measure in network is consistent with service usage measure at device	Device service usage measure varies significantly from network service usage measure	Same as above.
Verify service usage measure at one point in device is consistent with service usage measure at a second point in device	Service usage measure at one point in device stack that is inconsistent with another point indicates error or potential parasitic usage	Same as above. In some embodiments, the differences in service measures on the device may be used to evaluate the nature of the service usage policy implementation problem.
Verify that service policies in effect are as intended	Service policy setting queries result in settings that are different than intended	In some embodiments, reset service policies and see if error persist. If this does not clear the error, or if this is not the error correction method employed, then perform one or more of the following actions: In some embodiments, perform agent query/response to determine agent integrity.In some embodiments, run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh one or more agents. In some embodiments, a user query or warning is sent to the UI to notify the user, confirm that the device is in the user's possession, or involve the user in the process of determining the source or error or to assist in verifying the device based service control. In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service usage policy that is intended to be in place. In some embodiments, perform a billing event test or a service usage test to determine if the device is properly reporting billing events or service usage events. In some embodiments, the device is placed on quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition

FIG. 27B

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 38 of 106

		to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis.
Verify presence of Service Processor agents	Agent does not respond to agent communication or query-response	In some embodiments, run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh one or more agents. If this does not clear the error, or if this is not the error correction method employed, then perform one or more of the following actions: In some embodiments, a user query or warning is sent to the UI to notify the user, confirm that the device is in the user's possession, or involve the user in the process of determining the source or error or to assist in verifying the device based service control. In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service usage policy that is intended to be in place. In some embodiments, perform a billing event test or a service usage test to determine if the device is properly reporting billing events or service usage events. In some embodiments, the device is placed on quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis.
Verify configuration of Service Processor agents	Agent configuration audit or configuration self check fails.	In some embodiments, run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh one or more agents. If this does not clear the error, or if this is not the error correction method employed, then perform one or more of the following actions: In some embodiments the severity of the error and/or the persistence of the

FIG. 27C

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 39 of 106

		error and/or the existence of other errors are used to determine the appropriate response or action. In some embodiments, reset service policies and see if error persists. In some embodiments, perform agent settings check to verify that agent service usage control policy settings are correct. In some embodiments, a user query or warning is sent to the UI to notify the user, confirm that the device is in the user's possession, or involve the user in the process of determining the source or error or to assist in verifying the device based service control. In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service usage policy that is intended to be in place. In some embodiments, perform a billing event test or a service usage test to determine if the device is properly reporting billing events or service usage events. In some embodiments, the device is placed on quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis.
Verify billing events are reported or are reported properly	Billing Agent query reveals logged billing events that have not been reported.	In some embodiments, perform a billing event test to determine if the billing event reporting sequence is operating properly. In some embodiments, run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh one or more agents. If this does not clear the error, or if these are not the error correction methods employed, then perform one or more of the following actions: In some embodiments the severity of the error and/or the persistence of the error and/or the existence of other errors are used to determine the appropriate response or action. In some embodiments, reset service

FIG. 27D

		policies and see if error persists. In some embodiments, perform agent settings check to verify that agent service usage control policy settings are correct. In some embodiments, perform agent query/response to determine agent integrity. In some embodiments, a user query or warning is sent to the UI to notify the user, confirm that the device is in the user's possession, or involve the user in the process of determining the source or error or to assist in verifying the device based service control. In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service usage policy that is intended to be in place. In some embodiments, perform a service usage test to determine if the device is properly reporting service usage events. In some embodiments, the device is placed on quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis.
Verify network reported service usage measure are consistent with reported device billing data.	Billing agent is not properly reporting billing events for service usage, transactions, bill by account, or other billing event functions.	In some embodiments, perform a service usage test to determine if the service usage reporting sequence is operating properly. In some embodiments, run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh one or more agents. If this does not clear the error, or if these are not the error correction methods employed, then perform one or more of the following actions: In some embodiments the severity of the error and/or the persistence of the error and/or the existence of other errors are used to determine the appropriate response or action. In some embodiments, reset service

FIG. 27E

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 41 of 106

		policies and see if error persists.In some embodiments, perform agent settings check to verify that agent service usage control policy settings are correct. In some embodiments, perform agent query/response to determine agent integrity. In some embodiments, a user query or warning is sent to the UI to notify the user, confirm that the device is in the user's possession, or involve the user in the process of determining the source or error or to assist in verifying the device based service control. In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service usage policy that is intended to be in place. In some embodiments, the device is placed on quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis.
Verify device reported service usage measure are consistent with reported device billing data.	Billing agent reports are inconsistent with service usage reports.	In some embodiments, perform a billing event test to determine if the billing event reporting sequence is operating properly. In some embodiments, run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh one or more agents. In some embodiments, perform a service usage test to determine if the service usage reporting sequence is operating properly. In some embodiments, run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh one or more agents. If this does not clear the error, or if these are not the error correction methods employed, then perform one or more of the following actions: In some embodiments the severity of the error and/or the persistence of the error and/or the existence of other errors are used to determine the

FIG. 27F

		appropriate response or action. In some embodiments, reset service policies and see if error persists. In some embodiments, perform agent settings check to verify that agent service usage control policy settings are correct. In some embodiments, perform agent query/response to determine agent integrity. In some embodiments, a user query or warning is sent to the UI to notify the user, confirm that the device is in the user's possession, or involve the user in the process of determining the source or error or to assist in verifying the device based service control. In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service usage policy that is intended to be in place. In some embodiments, the device is placed on quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis.
Send test billing event through device and verify it is reported.	Test billing event is not properly reported by the device.	In some embodiments, run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh one or more agents. If this does not clear the error, or if these are not the error correction methods employed, then perform one or more of the following actions: In some embodiments the severity of the error and/or the persistence of the error and/or the existence of other errors are used to determine the appropriate response or action. In some embodiments, reset service policies and see if error persists. In some embodiments, perform agent settings check to verify that agent service usage control policy settings are correct. In some embodiments, perform agent query/response to determine

FIG. 27G

		agent integrity. In some embodiments, a user query or warning is sent to the UI to notify the user, confirm that the device is in the user's possession, or involve the user in the process of determining the source or error or to assist in verifying the device based service control. In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service usage policy that is intended to be in place. In some embodiments, perform a service usage test to determine if the device is properly reporting service usage events. In some embodiments, the device is placed on quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis
Verify device reports billing events reported from transaction servers.	Transaction server receipts do not correspond with billing events from device.	In some embodiments, perform checks to determine if transaction server receipts are valid. In some embodiments, run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh one or more agents. If this does not clear the error, or if these are not the error correction methods employed, then perform one or more of the following actions: In some embodiments the severity of the error and/or the persistence of the error and/or the existence of other errors are used to determine the appropriate response or action. In some embodiments, reset service policies and see if error persists. In some embodiments, perform agent settings check to verify that agent service usage control policy settings are correct. In some embodiments, perform agent query/response to determine agent integrity. In some embodiments, a user query or warning is sent to

FIG. 27H

		the UI to notify the user, confirm that the device is in the user's possession, or involve the user in the process of determining the source or error or to assist in verifying the device based service control. In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service usage policy that is intended to be in place. In some embodiments, the device is placed on quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis.
Verify activation tracking system presence, configuration or operation	Activation tracking service is not present, is not providing scheduled network activity reporting, or is exhibiting erroneous reports.	In some embodiments the response is to place the device ID. on a list of devices suspected of having activation tracking functions that have been tampered with for the purpose of central provider billing reconciliation. In some embodiments, install a new copy of the activation tracking service agent software either from a locally stored device copy or a network download. In some embodiments where authorization exists to manage device software and some aspects of service tracking, run further checks on device service integrity such as agent query-response. In some embodiments where authorization exists to manage a device access service connection, send error message to device UI, suspend device or place device on quarantine route. In some embodiments send error message to human interface for troubleshooting.
Verify device standing or service plan standing	No service plan on record or device not authorized	In some embodiments, if device is not yet activated with a service plan, provide UI with activation sequence. In some embodiments, if device is not authorized for service on one of the networks controlled by the Service

FIG. 27I

		Controller, send the UI an error message instructing the user how to proceed. In some embodiments, configure the Service Processor for the ambient service intended for that device. In some embodiments, download the appropriate Service Processor agent software that is appropriate for that device.
Verify proper operation of Service Processor agents	Check input to output relationship on Policy Implementation agent, Firewall agent. Check billing event reports to verify events are being recorded. Check application and traffic inspection tagging system correctly tagging traffic. Verify Service Processor heartbeat reports proper agent integrity self-checks, cross-checks and query/response sequences with Service Controller.	In some embodiments the severity of the error and/or the persistence of the error and/or the existence of other errors are used to determine the appropriate response or action. In some embodiments, reset service policies and see if error persists. In some embodiments, perform agent settings check to verify that agent service usage control policy settings are correct. In some embodiments, perform agent query/response to determine agent integrity. In some embodiments, run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh one or more agents. In some embodiments, a user query or warning is sent to the UI to notify the user, confirm that the device is in the user's possession, or involve the user in the process of determining the source or error or to assist in verifying the device based service control. In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service usage policy that is intended to be in place. In some embodiments, perform a billing event test or a service usage test to determine if the device is properly reporting billing events or service usage events. In some embodiments, the device is placed on quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis.

FIG. 27J

Service Processor heartbeat response reports	One or more of the heartbeat reports indicate an error in operation, configuration, or tamper and error prevention system. Heartbeat function not functioning properly but device is still indicating service usage on the network.	In some embodiments the severity of the error and/or the persistence of the error and/or the existence of other errors are used to determine the appropriate response or action. In some embodiments, reset service policies and see if error persists. In some embodiments, perform agent settings check to verify that agent service usage control policy settings are correct. In some embodiments, perform agent query/response to determine agent integrity. In some embodiments, run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh one or more agents. In some embodiments, a user query or warning is sent to the UI to notify the user, confirm that the device is in the user's possession, or involve the user in the process of determining the source or error or to assist in verifying the device based service control. In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service usage policy that is intended to be in place. In some embodiments, perform a billing event test or a service usage test to determine if the device is properly reporting billing events or service usage events. In some embodiments, the device is placed on quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis.
Test service event	Service usage reporting system does not properly report test service usage event	In some embodiments, run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh one or more agents. If this does not clear the error, or if this is not the error correction method employed, then perform one or more of the

FIG. 27K

		following actions: In some embodiments, reset service policies and see if error persists. In some embodiments, perform agent settings check to verify that agent service usage control policy settings are correct. In some embodiments, perform agent query/response to determine agent integrity. In some embodiments, a user query or warning is sent to the UI to notify the user, confirm that the device is in the user's possession, or involve the user in the process of determining the source or error or to assist in verifying the device based service control. In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service usage policy that is intended to be in place. In some embodiments, perform a billing test event to determine if the device is properly reporting billing events. In some embodiments, the device is placed on quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis.
Load a fresh version of Service Processor software and perform integrity reports	After fresh load of Access Control Integrity Agent, agent discovers one or more of the other agents are corrupted.	Run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh other agents and see if problem persists. If this does not clear the error, or if this is not the error correction method employed, then perform one or more of the following actions: In some embodiments, reset service policies and see if error persists. In some embodiments, perform agent settings check to verify that agent service usage control policy settings are correct. In some embodiments, a

FIG. 27L

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 48 of 106

		user query or warning is sent to the UI to notify the user, confirm that the device is in the user's possession, or involve the user in the process of determining the source or error or to assist in verifying the device based service control. In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service usage policy that is intended to be in place. In some embodiments, perform a billing event test or a service usage test to determine if the device is properly reporting billing events or service usage events. In some embodiments, the device is placed on quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis.
Verify Service Processor code configuration with agent self diagnosis checks	One or more of the agents indicates an error after running a self-check.	Run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh other agents and see if problem persists. If this does not clear the error, or if this is not the error correction method employed, then perform one or more of the following actions: In some embodiments, reset service policies and see if error persists. In some embodiments, perform agent settings check to verify that agent service usage control policy settings are correct. In some embodiments, a user query or warning is sent to the UI to notify the user, confirm that the device is in the user's possession, or involve the user in the process of determining the source or error or to assist in verifying the device based service control. In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the

FIG. 27M

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 49 of 106

		device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service usage policy that is intended to be in place. In some embodiments, perform a billing event test or a service usage test to determine if the device is properly reporting billing events or service usage events. In some embodiments, the device is placed on quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis.
Verify that device uses service only after being authorized	Device gains access to the network and does not check in with the Access Control Integrity Server and service measures indicate device is on the network.	In some embodiments, reset service policies and see if error persists. In some embodiments, perform agent settings check to verify that agent service usage control policy settings are correct. In some embodiments, perform agent query/response to determine agent integrity. In some embodiments, run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh one or more agents. In some embodiments, a user query or warning is sent to the UI to notify the user, confirm that the device is in the user's possession, or involve the user in the process of determining the source or error or to assist in verifying the device based service control. In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service usage policy that is intended to be in place. In some embodiments, perform a billing event test or a service usage test to determine if the device is properly reporting billing events or service usage events. In some embodiments, the device is placed on

FIG. 27N

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 50 of 106

		quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis.
Verify user standing	User does not respond with proper response to UI query such as request for ID., password or biometric input. This process may be part of handling a suspected error.	In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service usage policy that is intended to be in place. In some embodiments, the device is placed on quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis. In some embodiments, the user may be asked to acknowledge a service overage notification and/or to also provide a password, biometric signature, hardware key or other mechanism to verify the service overage acknowledgment.
Agent communications log	Unauthorized communications with one or more agents is detected	In some embodiments, perform agent query/response to determine agent integrity. In some embodiments, run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh one or more agents. In some embodiments, a user query or warning is sent to the UI to notify the user, confirm that the device is in the user's possession, or involve the user in the process of determining the source or error or to assist in verifying the device based service control.

FIG. 27O

52/106

		In some embodiments, the device identification number is placed on an error list for further error handling. In some embodiments, the device is placed on a SPAN process, or a similar traffic or service inspection process, or another service usage watch status, to closely monitor service behavior and determine if it is consistent with the service usage policy that is intended to be in place. In some embodiments, the device is placed on quarantine network routing status, possibly with a user message being sent to inform the user. In some embodiments, the device service is suspended, possibly after sending the user a message that may include instructions on the process for correcting the error and resuming service. In some embodiments, the user messages are sent through an alternative messaging system, such as email or text messaging, as an alternative to or in addition to a message sent to the device. In some embodiments, an error message is sent to a human interface in the network for further error analysis.

FIG. 27P

Service Policy Implementation Tamper or Error Protection Techniques	Example Error Trigger Criteria	Example Error Responses
Detect or block device networking activity that is potentially harmful for the operation of Service Processor.	Network activity is observed in service monitor reports that fit known patterns that indicated harmful software may be present on device.	Initiate or install and initiate eradication software. Block traffic from the suspect entity. In some embodiments if software can not be eradicated or blocked, then send message to UI and either suspend device, place on SPAN, place on watch list, place on further action list or place on quarantine network. In some embodiments send error message to human interface for troubleshooting.
Detect or block unauthorized Service Processor software from being loaded.	Access Control Integrity Agent discovers software that is on a known malicious list.	Same as above.
Detect or block unauthorized access of protected Service Processor software or hardware memory.	Unauthorized access is detected, memory contents are corrupted or unresponsive.	Identify the entity that has gained access to the Service Processor if possible and eradicate. In some embodiments repair any compromised agents with dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code . In some embodiments send message to UI and either suspend device, place on SPAN, place on watch list, place on further action list or place on quarantine network. In some embodiments send error message to human interface for troubleshooting.
Detect or block unauthorized communication with Service Processor software or hardware.	Unauthorized communication is detected.	Identify the entity that has gained access to the Service Processor if possible and eradicate. In some embodiments repair any compromised agents with dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code . In some embodiments send message to UI and either suspend device, place on SPAN, place on watch list, place on further action list or place on quarantine network. In some embodiments send error message to human interface for troubleshooting.

FIG. 28A

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 53 of 106

Secure loader with signed SW installed into protected memory	Unauthorized access is detected, memory contents are corrupted or unresponsive.	Identify the entity that has gained access to the Service Processor if possible and eradicate. In some embodiments repair any compromised agents with dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code . In some embodiments send message to UI and either suspend device, place on SPAN, place on watch list, place on further action list or place on quarantine network. In some embodiments send error message to human interface for troubleshooting.
Secure encrypted communication between Service Processor agents.	Secure communication link is in error or unauthorized access is detected.	Identify the entity that has gained access to the Service Processor if possible and eradicate. In some embodiments repair any compromised agents with dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code . In some embodiments, run dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code to refresh agents with communication links that are in error or entire Service Processor. In some embodiments send message to UI and either suspend device, place on SPAN, place on watch list, place on further action list or place on quarantine network. In some embodiments send error message to human interface for troubleshooting.
Secure encrypted communication between Service Processor and Service Controller.	Service Processor communication is lost.	Send error message to device UI (if possible), suspend device, place on SPAN, place on watch list, place on further action list or place device on quarantine route. In some embodiments send error message to human interface for troubleshooting.
Execution of Service Processor software within secure memory.	Unauthorized access is detected, memory contents are corrupted or unresponsive.	Identify the entity that has gained access to the Service Processor if possible and eradicate. In some embodiments repair any compromised agents with dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code . In some embodiments send message to UI and either suspend device, place on SPAN, place on watch list, place on further action list or place on quarantine network. In some embodiments send error message to human interface for troubleshooting.

FIG. 28B

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 54 of 106

Storage of service processor software in secure memory	Secure memory violation or Service Processor stored in non-secure memory	Identify the entity that has gained access to the Service Processor if possible and eradicate. In some embodiments repair any compromised agents with dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code . In some embodiments send message to UI and either suspend device, place on SPAN, place on watch list, place on further action list or place on quarantine network. In some embodiments send error message to human interface for troubleshooting.
Detection or removal of software thought to be harmful to Service Processor operation.	Unauthorized software is detected.	Initiate or install and initiate eradication software. Block traffic from the suspect entity. In some embodiments if software can not be eradicated or blocked, then send message to UI and either suspend device, place on SPAN, place on watch list, place on further action list or place on quarantine network. In some embodiments send error message to human interface for troubleshooting.
Recording and reporting of software loading signatures, software activity signatures or network activity signatures for later identification of threat sequences.	Unauthorized software or malicious network activity is detected	Same as above.
Implement critical Service Processor software as a self-refreshing program that resists corruption by running self-audit and reinstall processes such as placing audit function in inaccessible memory or OS functions or bios.	Re-installation function alerts that Re-installation has been required. Continued re-installations or failure to re-install alert increases severity of warnings.	Identify the entity that has gained access to the Service Processor if possible and eradicate. In some embodiments send message to UI and either suspend device, place on SPAN, place on watch list, place on further action list or place on quarantine network. In some embodiments send error message to human interface for troubleshooting.
Encrypted agent code	Code check, agent query-response, agent self check or other agent configuration check discovers error in code encryption	In some embodiments repair any compromised agents with dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code . In some embodiments send message to UI and either suspend device, place on SPAN, place on watch list, place on further action list or place on quarantine network. In some embodiments send

FIG. 28C

		error message to human interface for troubleshooting. Identify the entity that may have gained access to the Service Processor if possible and eradicate.
Obfuscated agent code	Code check, agent query-response, agent self check or other agent configuration check discovers error in code obfuscation	Same as above.
Unique agent identification numbers and signatures	Agent is discovered to have an incorrect ID. or fails signature	Same as above.
Secure agent communication bus	Agent communication bus monitoring discovers unauthorized communication or other unauthorized access to one or more agents is discovered	Same as above.
Agent level message encryption	Agent is found to be communicating without the required level of agent communication encryption	Same as above.
Service control link message level encryption	Unauthorized communication traffic is discovered on service control link	In some embodiments repair any compromised agents with dynamic agent load, in some cases with different encryption, sequencing or obfuscation for the new agent code. In some embodiments send message to UI and either suspend device, place on SPAN, place on watch list, place on further action list or place on quarantine network. In some embodiments send error message to human interface for troubleshooting. Identify the entity that may have gained access to the Service Processor if possible and eradicate.
Service control link transport layer encryption	Unauthorized communication traffic is discovered on service control link	Same as above.
Agent communication access permissions	Unauthorized communication is discovered with one or more agents	Same as above.

FIG. 28D

Agent communication log	Unauthorized communication is discovered with one or more agents	Same as above.
Encrypted agent code for downloads	Agent download is found to have incorrect or absent encryption or signature	Same as above.
Secure downloader memory	Unauthorized access to or storage in secure downloader memory is discovered	Same as above.

FIG. 28E

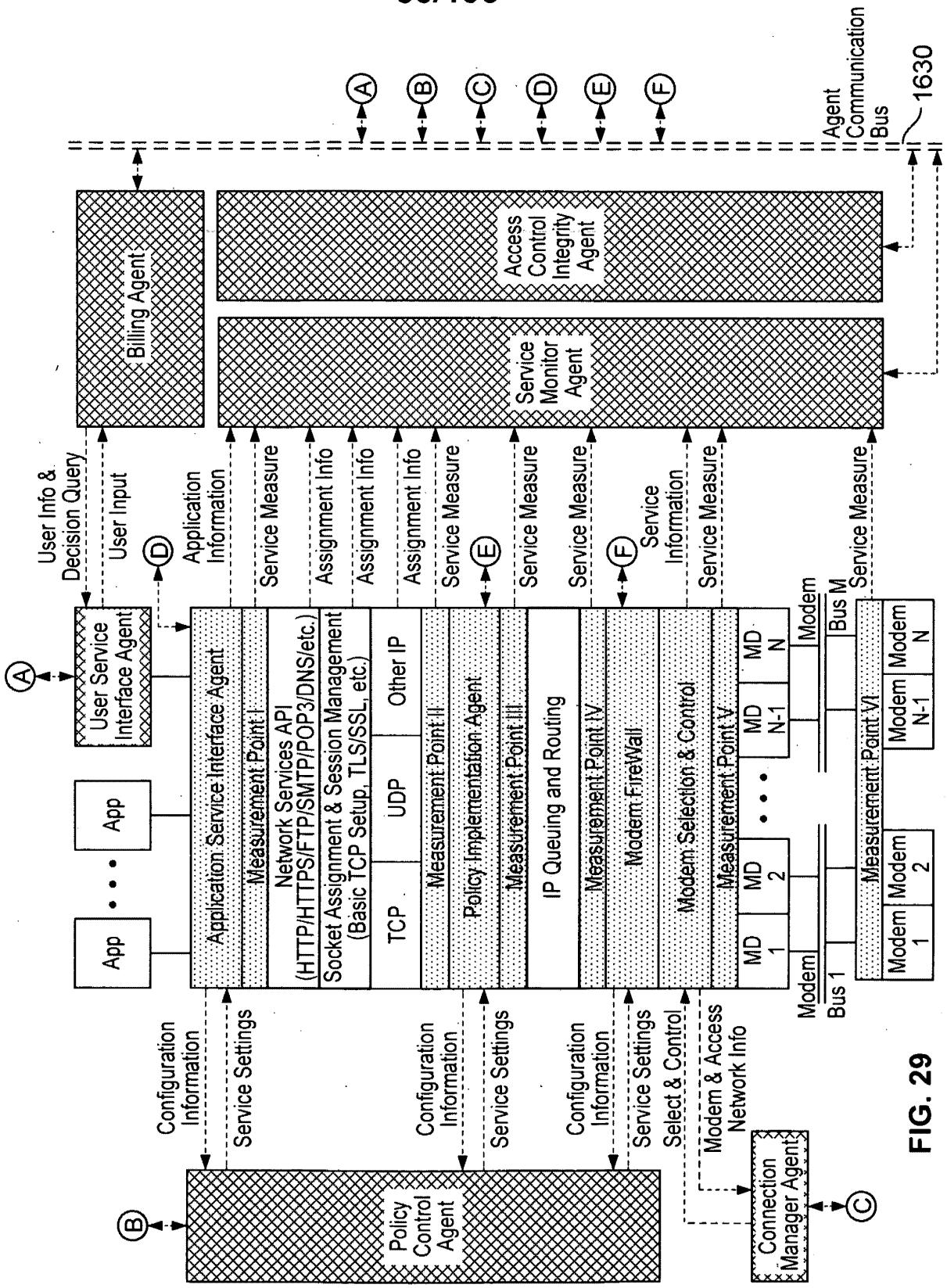

Agent Communication Bus
1630
Billing Agent
Access Control Integrity Agent
Service Monitor Agent
User Info & Decision Query
User Input
Application Information
Service Measure
Assignment Info
Service Information
User Service Interface Agent
App
Application Service Interface Agent
Measurement Point I
Network Services API (HTTP/HTTPS/FTP/SMTP/POP3/DNS/etc.)
Socket Assignment & Session Management (Basic TCP Setup, TLS/SSL, etc.)
TCP
UDP
Other IP
Measurement Point II
Policy Implementation Agent
Measurement Point III
IP Queuing and Routing
Measurement Point IV
Modem FireWall
Modem Selection & Control
Measurement Point V
MD 1
MD 2
MD N-1
MD N
Modem
Bus 1
Bus M
Measurement Point VI
Modem 1
Modem 2
Modem N-1
Modem N
Configuration Information
Service Settings
Select & Control
Modem & Access Network Info
Policy Control Agent
Connection Manager Agent
A
B
C
D
E
F

FIG. 29

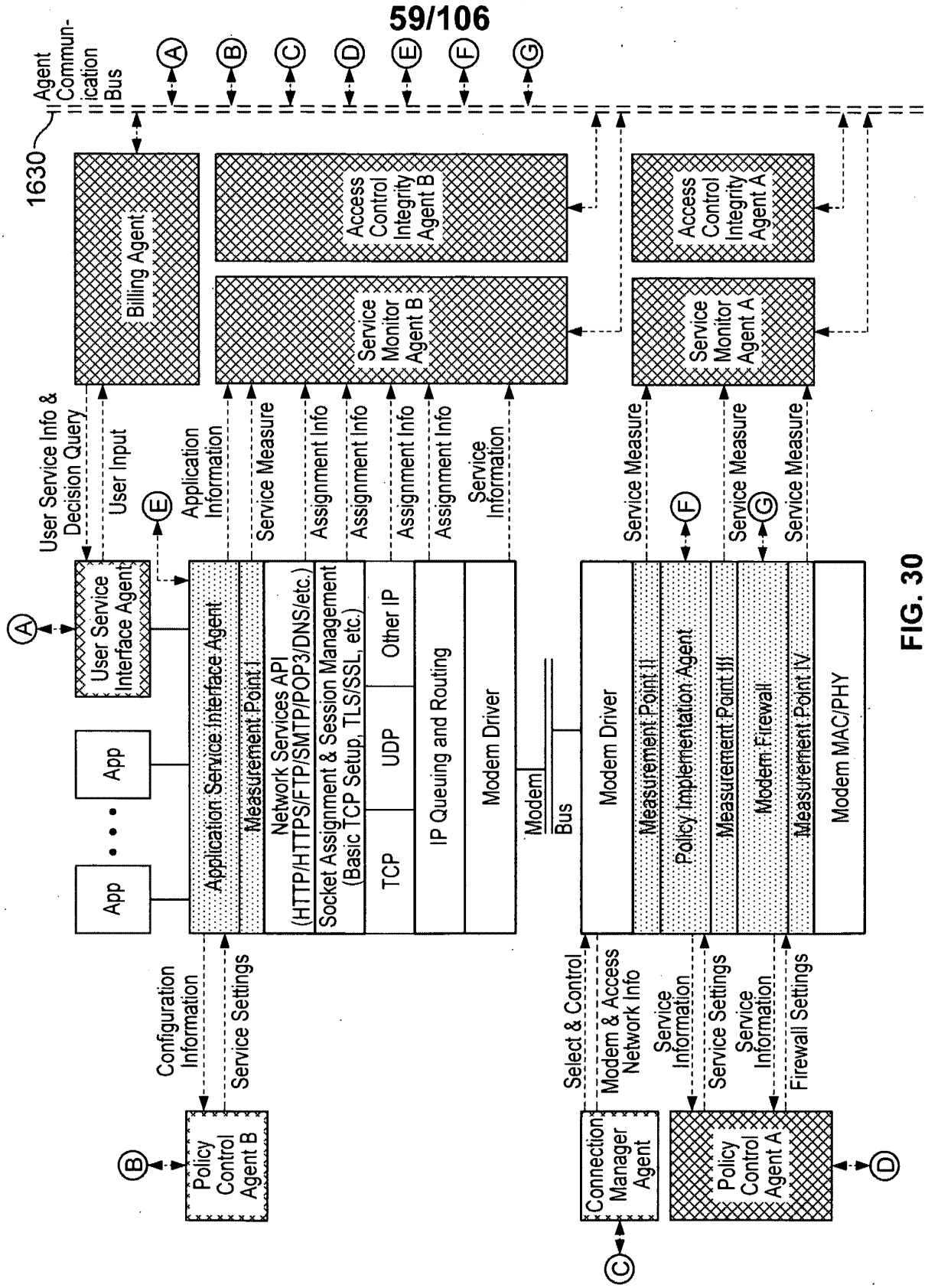

Agent Communication Bus
1630
A
B
C
D
E
F
G
Billing Agent
Access Control Integrity Agent B
Service Monitor Agent B
Access Control Integrity Agent A
Service Monitor Agent A
User Service Info & Decision Query
User Input
Application Information
Service Measure
Assignment Info
Assignment Info
Assignment Info
Assignment Info
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
Policy Implementation Agent
Measurement Point III
Modem Firewall
Measurement Point IV
Modem MAC/PHY
Configuration Information
Service Settings
Select & Control
Modem & Access Network Info
Service Information
Service Settings
Service Information
Firewall Settings
Policy Control Agent B
Connection Manager Agent
Policy Control Agent A

FIG. 30

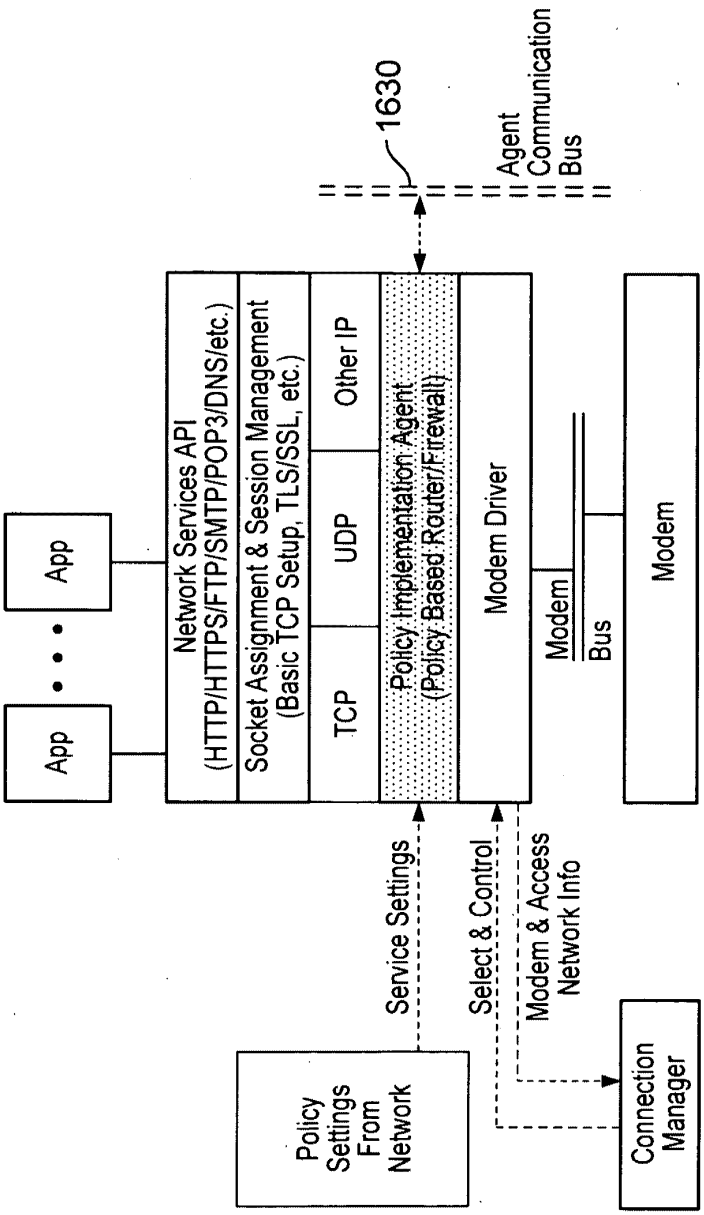

1630
Agent Communication Bus
App
App
Network Services API (HTTP/HTTPS/FTP/SMTP/POP3/DNS/etc.)
Socket Assignment & Session Management (Basic TCP Setup, TLS/SSL, etc.)
TCP
UDP
Other IP
Policy Implementation Agent (Policy Based Router/Firewall)
Modem Driver
Modem Bus
Modem
Service Settings
Select & Control
Modem & Access Network Info
Policy Settings From Network
Connection Manager

FIG. 31

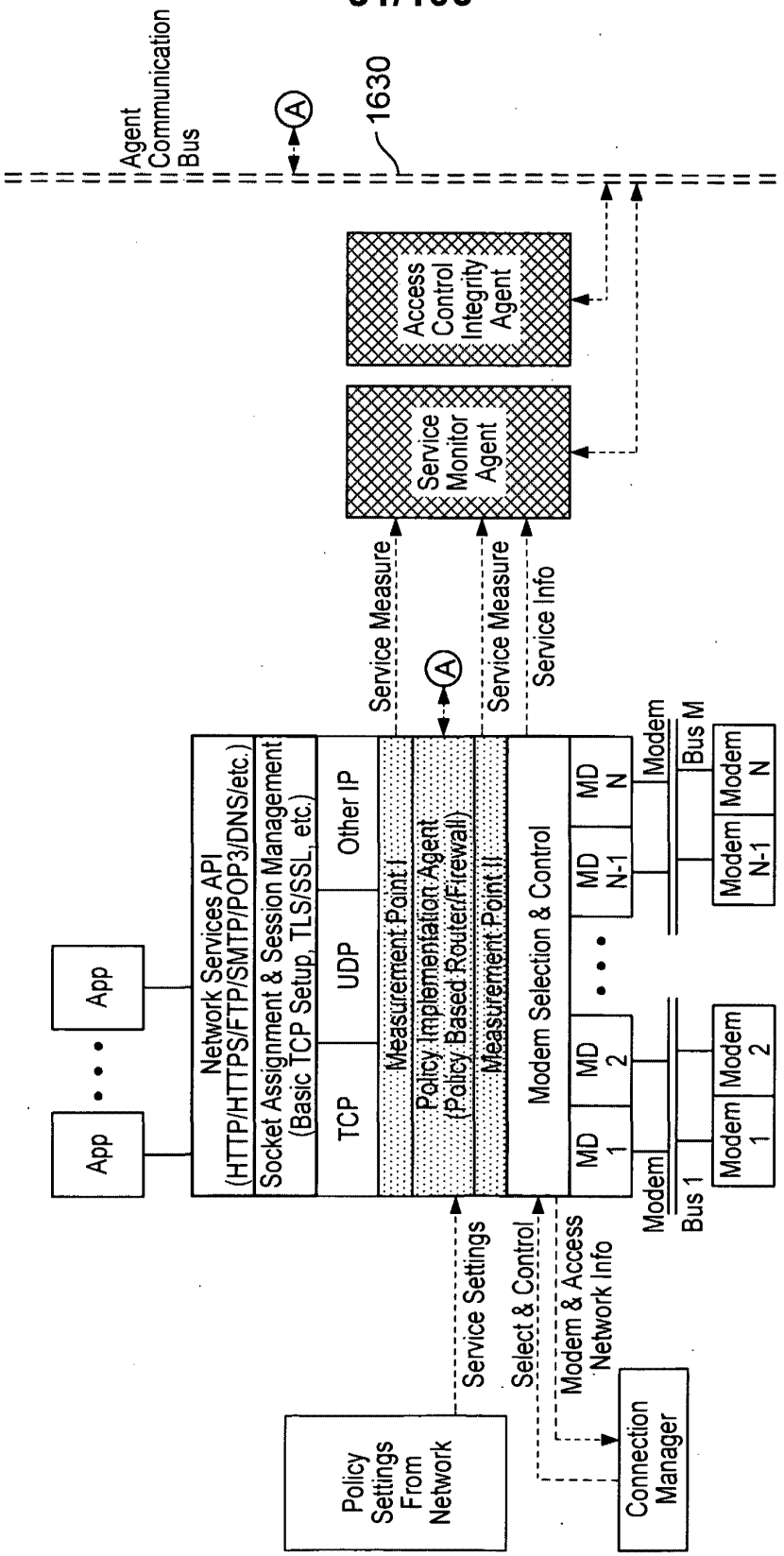

Agent Communication Bus
A
1630
Access Control Integrity Agent
Service Monitor Agent
Service Measure
Service Measure
Service Info
A
App
App
Network Services API (HTTP/HTTPS/FTP/SMTP/POP3/DNS/etc.)
Socket Assignment & Session Management (Basic TCP Setup, TLS/SSL, etc.)
TCP
UDP
Other IP
Measurement Point I
Policy Implementation Agent (Policy Based Router/Firewall)
Measurement Point II
Modem Selection & Control
MD 1
MD 2
MD N-1
MD N
Modem
Bus 1
Modem 1
Modem 2
Modem N-1
Modem N
Bus M
Service Settings
Select & Control
Modem & Access Network Info
Policy Settings From Network
Connection Manager

FIG. 32

62/106

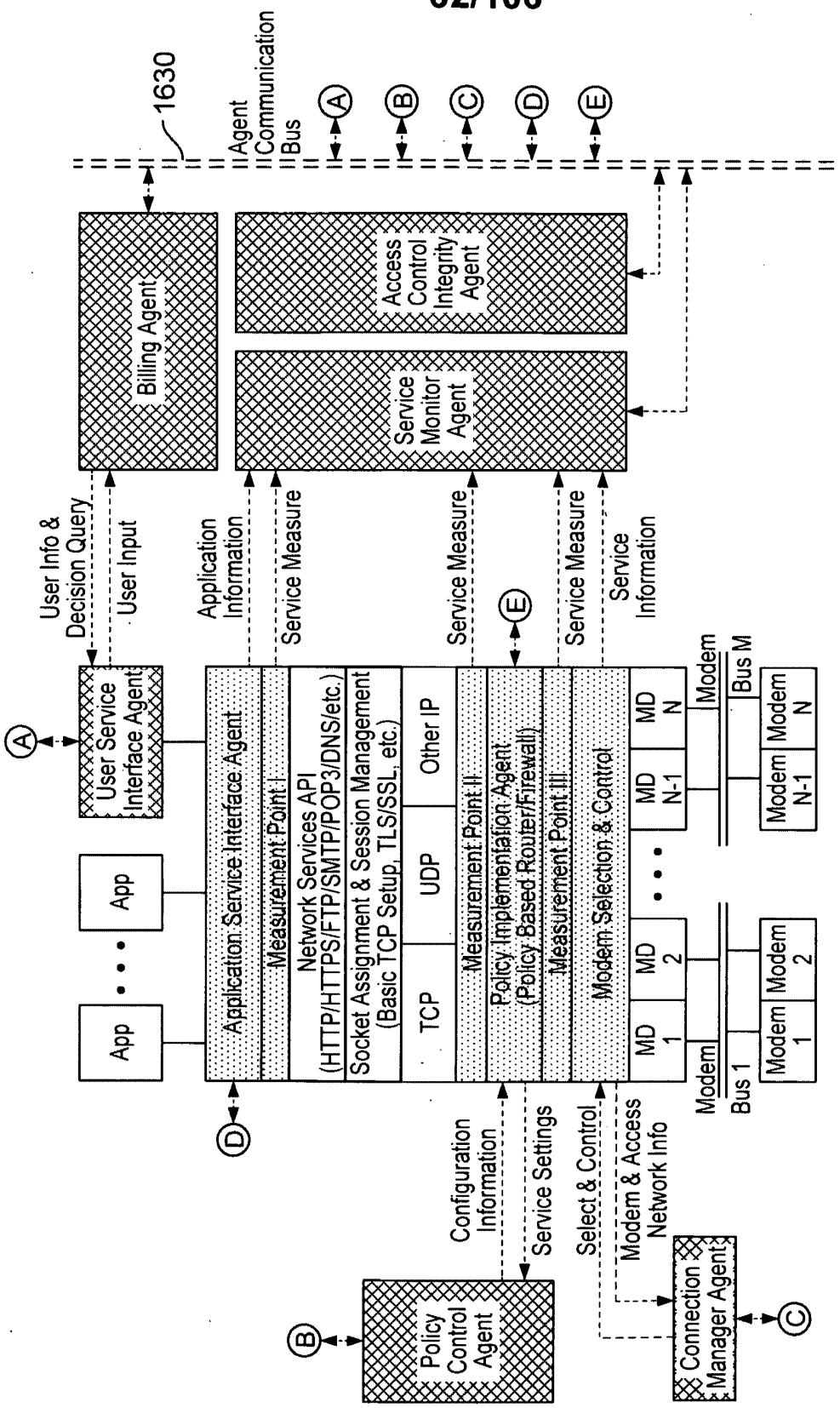

1630
Agent Communication Bus
A
B
C
D
E
Billing Agent
Access Control Integrity Agent
Service Monitor Agent
User Info & Decision Query
User Input
Application Information
Service Measure
Service Measure
Service Measure
Service Information
User Service Interface Agent
App
App
Application Service Interface 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
Measurement Point II
Policy Implementation Agent (Policy Based Router/Firewall)
Measurement Point III
Modem Selection & Control
MD 1
MD 2
MD N-1
MD N
Modem
Bus 1
Bus M
Modem 1
Modem 2
Modem N-1
Modem N
Configuration Information
Service Settings
Select & Control
Modem & Access Network Info
Policy Control Agent
Connection Manager Agent

FIG. 33

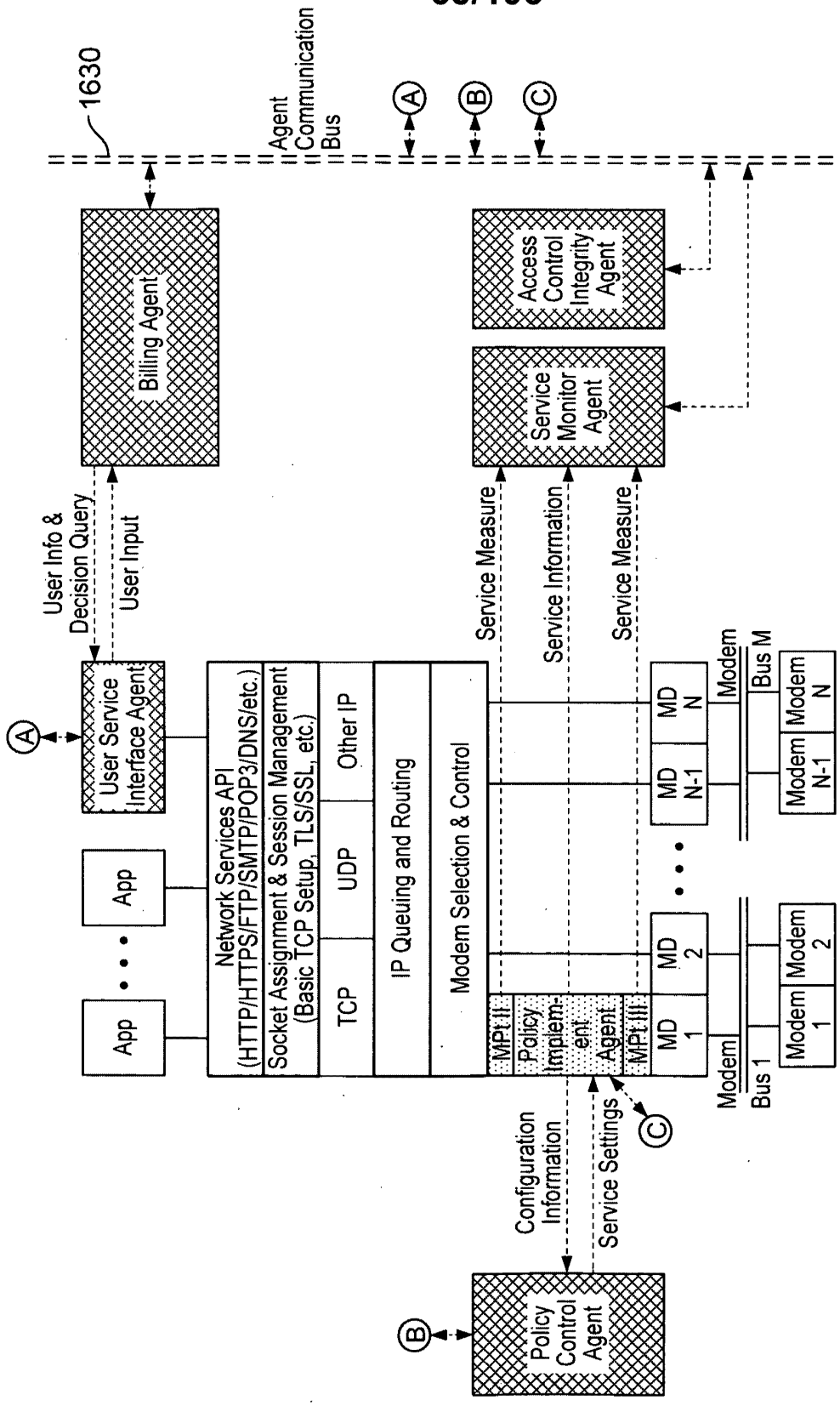

1630
Agent Communication Bus
A
B
C
Billing Agent
Access Control Integrity Agent
Service Monitor Agent
User Info & Decision Query
User Input
Service Measure
Service Information
Service Measure
User Service Interface Agent
App
App
Network Services API (HTTP/HTTPS/FTP/SMTP/POP3/DNS/etc.)
Socket Assignment & Session Management (Basic TCP Setup, TLS/SSL, etc.)
TCP
UDP
Other IP
IP Queuing and Routing
Modem Selection & Control
MPI II
Policy Implem-ent Agent
MPI III
MD 1
MD 2
MD N-1
MD N
Modem Bus 1
Modem Bus M
Modem 1
Modem 2
Modem N-1
Modem N
Configuration Information
Service Settings
Policy Control Agent

FIG. 34

64/106

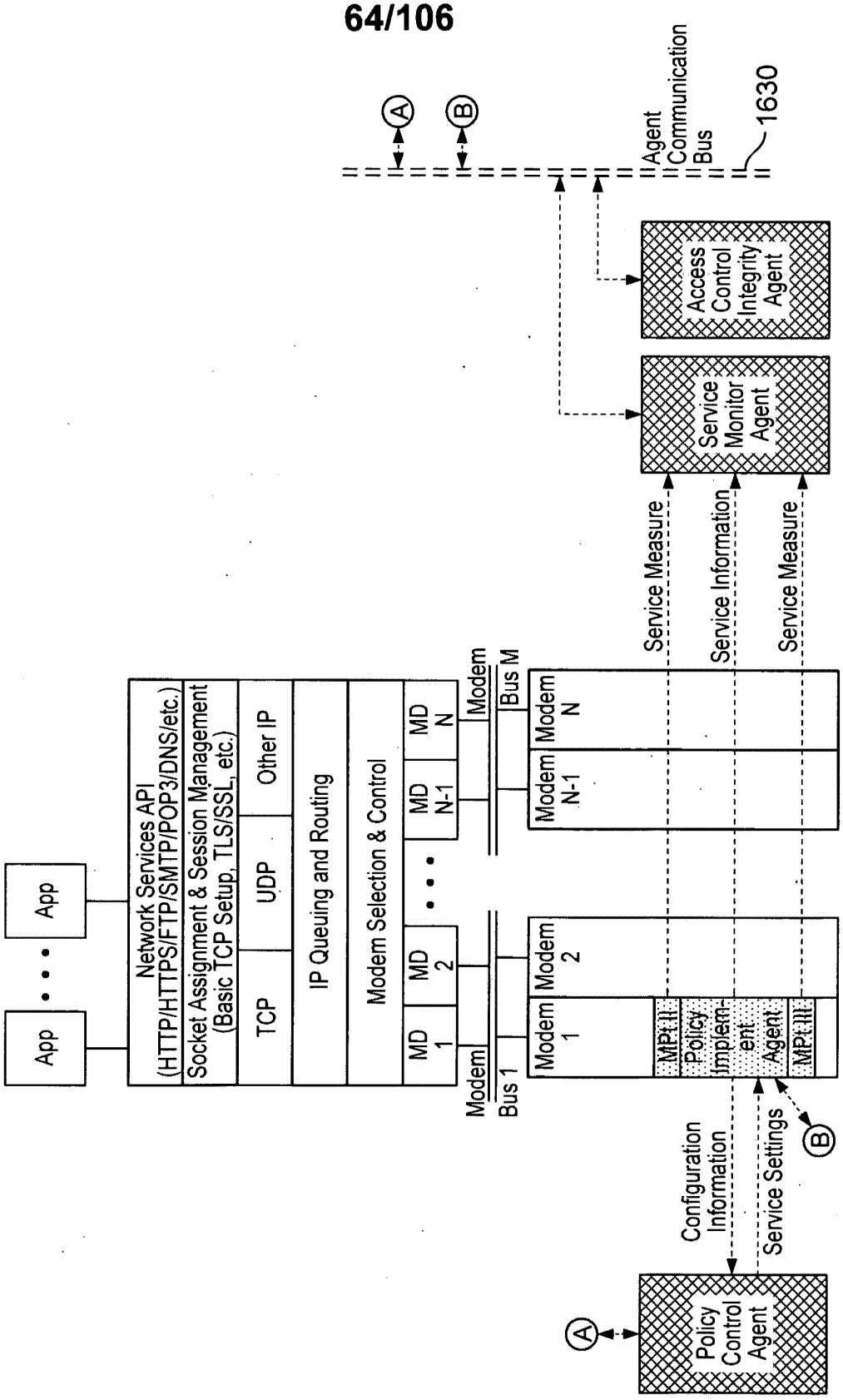

A
B
Agent Communication Bus
1630
Access Control Integrity Agent
Service Monitor Agent
Service Measure
Service Information
Service Measure
App
App
Network Services API (HTTP/HTTPS/FTP/SMTP/POP3/DNS/etc.)
Socket Assignment & Session Management (Basic TCP Setup, TLS/SSL, etc.)
TCP
UDP
Other IP
IP Queuing and Routing
Modem Selection & Control
MD 1
MD 2
MD N-1
MD N
Modem Bus 1
Modem Bus M
Modem 1
Modem 2
Modem N-1
Modem N
MPI II
Policy Implement Agent
MPI III
Configuration Information
Service Settings
Policy Control Agent

FIG. 35

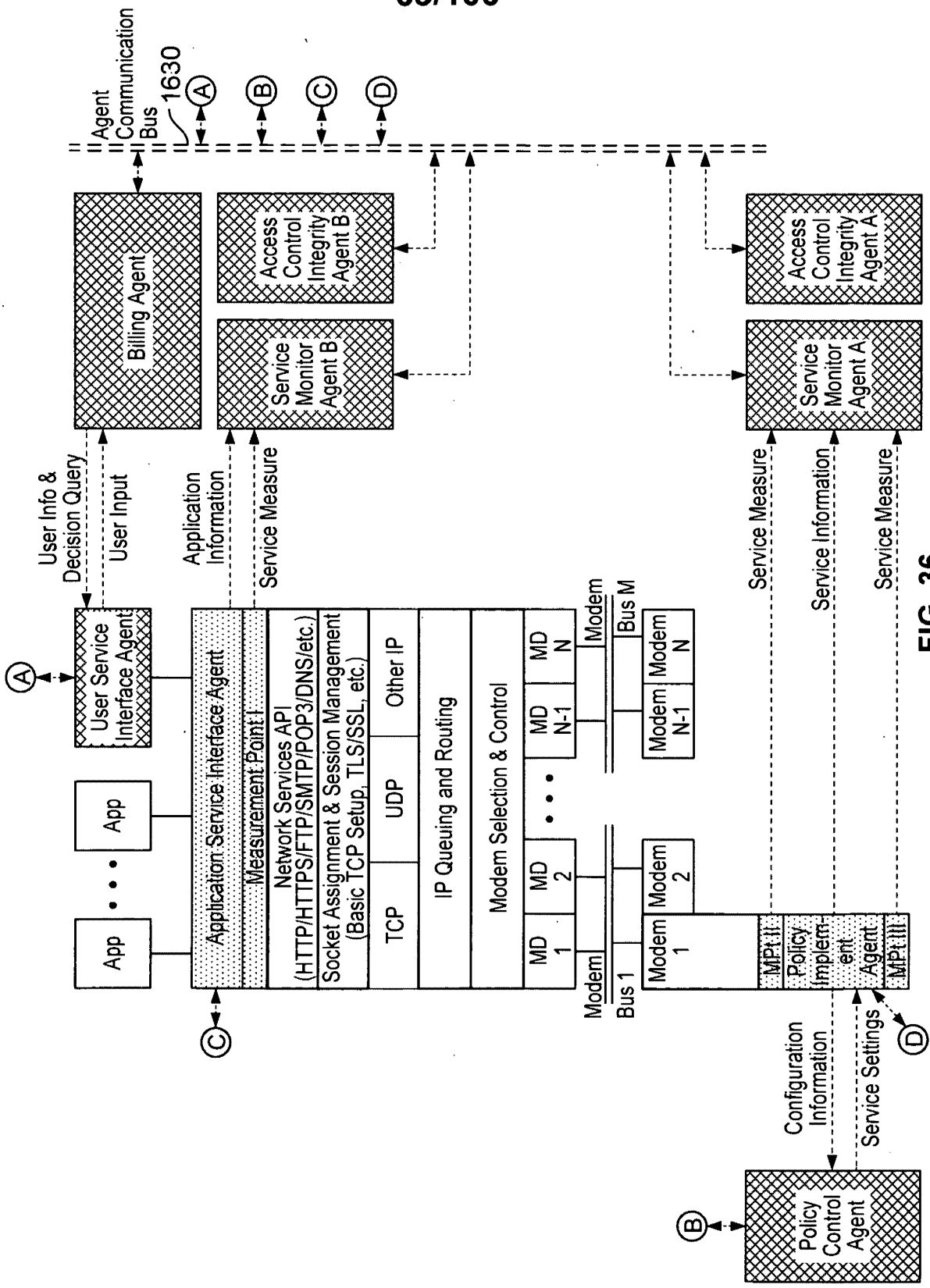

Agent Communication Bus
1630
A
B
C
D
Billing Agent
Access Control Integrity Agent B
Service Monitor Agent B
Access Control Integrity Agent A
Service Monitor Agent A
User Info & Decision Query
User Input
Application Information
Service Measure
Service Measure
Service Information
Service Measure
User Service 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 Selection & Control
MD 1
MD 2
MD N-1
MD N
Modem Bus 1
Modem Bus M
Modem 1
Modem 2
Modem N-1
Modem N
MPt II
Policy Implement Agent
MPt III
Configuration Information
Service Settings
Policy Control Agent

FIG. 36

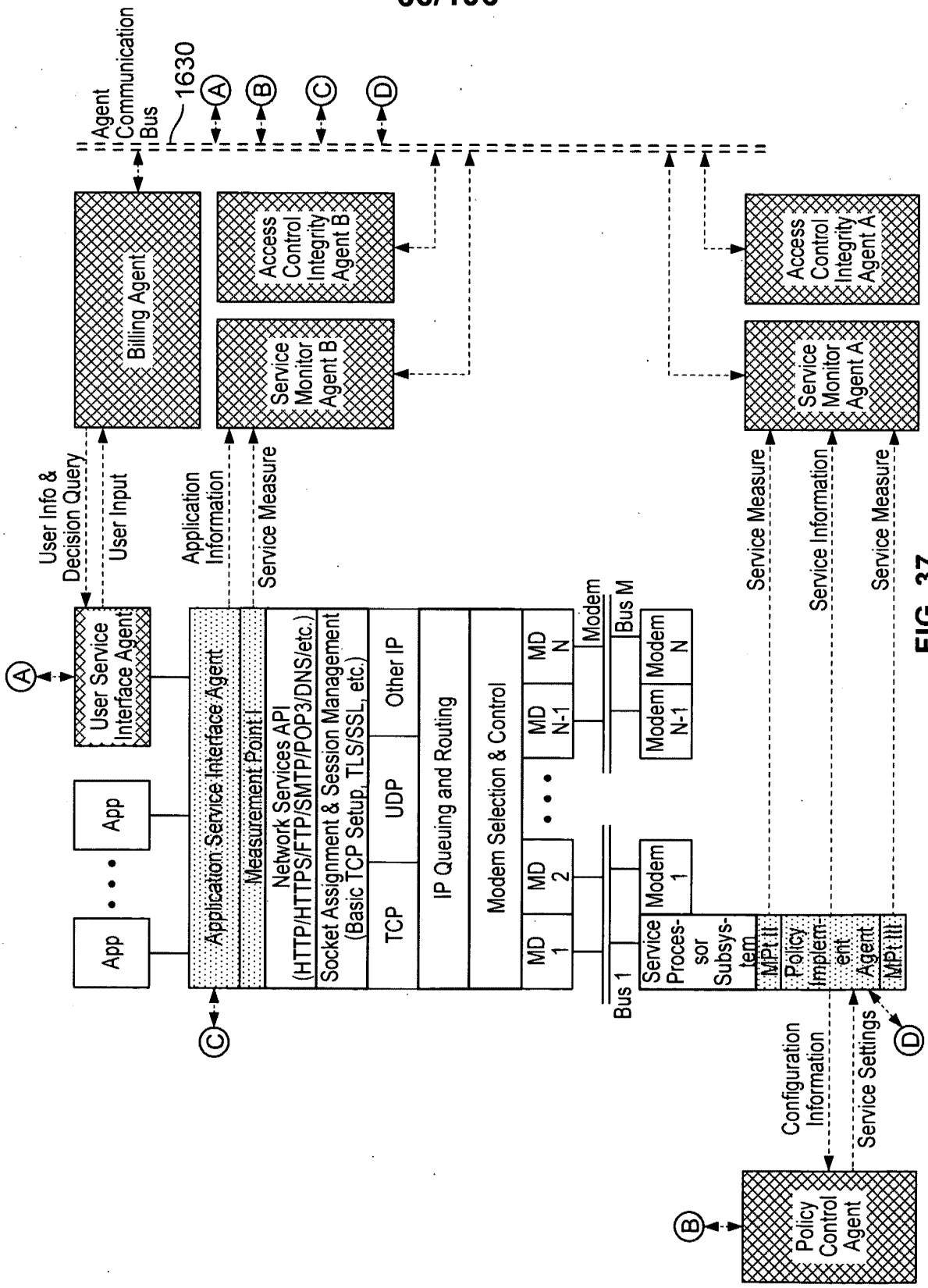

Agent Communication Bus
1630
A
B
C
D
Billing Agent
Access Control Integrity Agent B
Service Monitor Agent B
Access Control Integrity Agent A
Service Monitor Agent A
User Info & Decision Query
User Input
Application Information
Service Measure
Service Measure
Service Information
Service Measure
User Service Interface Agent
App
App
Application Service Interface Agent
Measurement Point
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 Selection & Control
MD 1
MD 2
MD N-1
MD N
Modem
Bus M
Bus 1
Modem 1
Modem N-1
Modem N
Service Processor Subsystem
MPI II
Policy Implement Agent
MPI III
Configuration Information
Service Settings
Policy Control Agent

FIG. 37

67/106

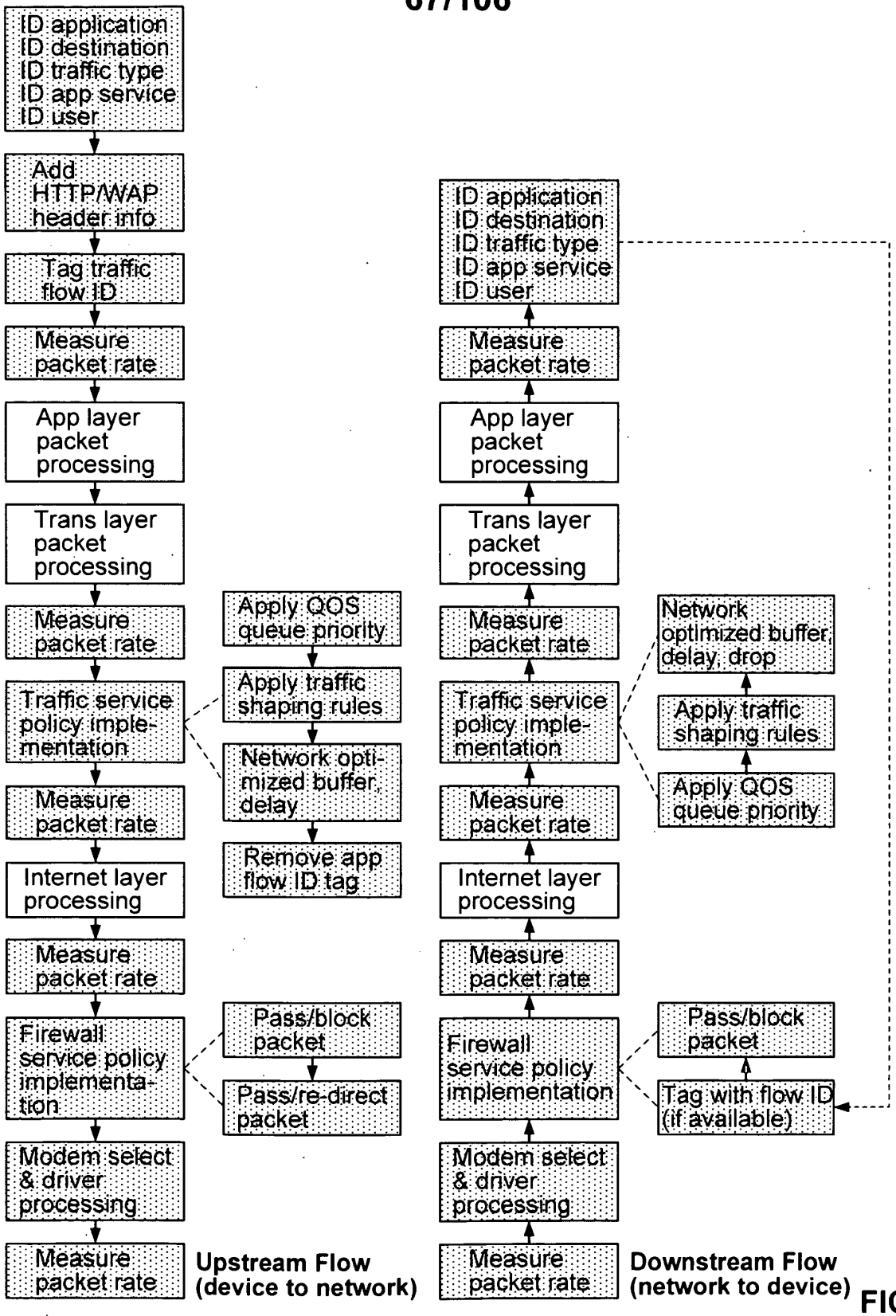

ID application
ID destination
ID traffic type
ID app service
ID user
Add HTTP/WAP header info
Tag traffic flow ID
Measure packet rate
App layer packet processing
Trans layer packet processing
Measure packet rate
Traffic service policy implementation
Measure packet rate
Internet layer processing
Measure packet rate
Firewall service policy implementation
Modem select & driver processing
Measure packet rate
Apply QOS queue priority
Apply traffic shaping rules
Network optimized buffer, delay
Remove app flow ID tag
Pass/block packet
Pass/re-direct packet
Upstream Flow (device to network)
ID application
ID destination
ID traffic type
ID app service
ID user
Measure packet rate
App layer packet processing
Trans layer packet processing
Measure packet rate
Traffic service policy implementation
Measure packet rate
Internet layer processing
Measure packet rate
Firewall service policy implementation
Modem select & driver processing
Measure packet rate
Network optimized buffer, delay, drop
Apply traffic shaping rules
Apply QOS queue priority
Pass/block packet
Tag with flow ID (if available)
Downstream Flow (network to device)

FIG. 38

68/106

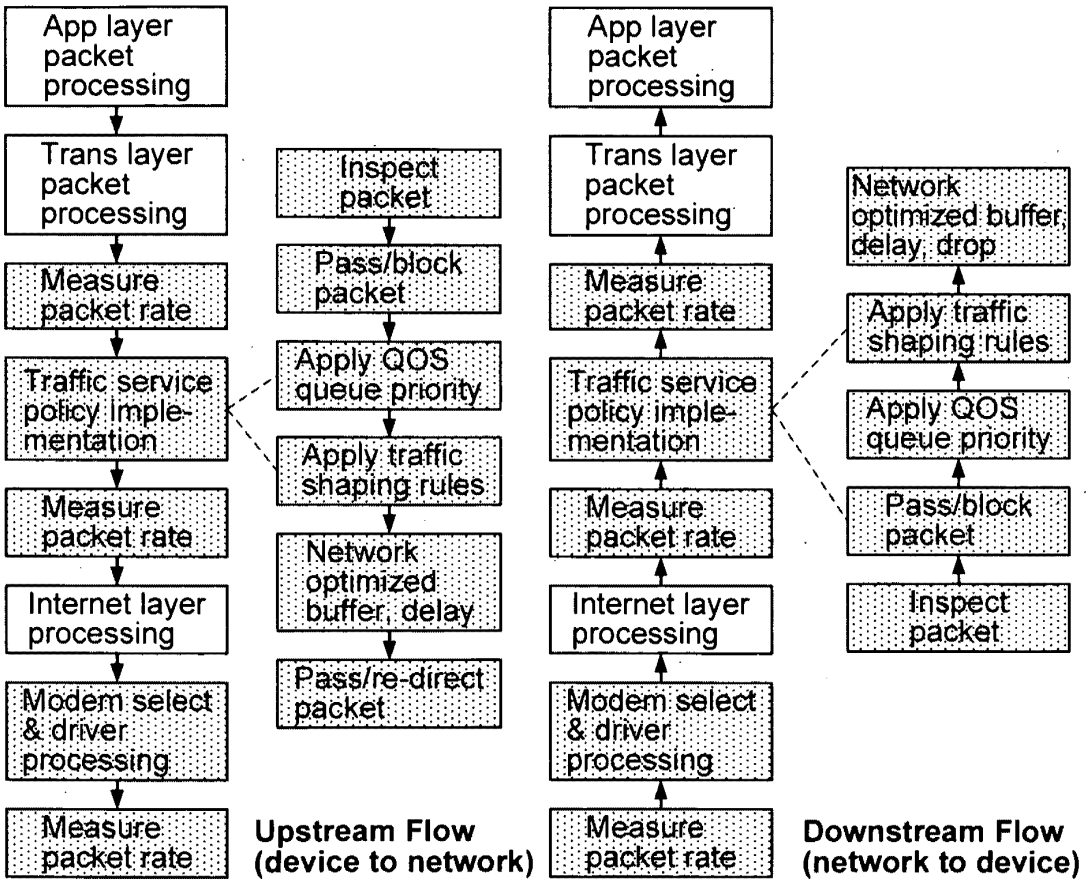

App layer packet processing
Trans layer packet processing
Measure packet rate
Traffic service policy imple-mentation
Measure packet rate
Internet layer processing
Modem select & driver processing
Measure packet rate
Inspect packet
Pass/block packet
Apply QOS queue priority
Apply traffic shaping rules
Network optimized buffer, delay
Pass/re-direct packet
Upstream Flow (device to network)
App layer packet processing
Trans layer packet processing
Measure packet rate
Traffic service policy imple-mentation
Measure packet rate
Internet layer processing
Modem select & driver processing
Measure packet rate
Network optimized buffer, delay, drop
Apply traffic shaping rules
Apply QOS queue priority
Pass/block packet
Inspect packet
Downstream Flow (network to device)

FIG. 39

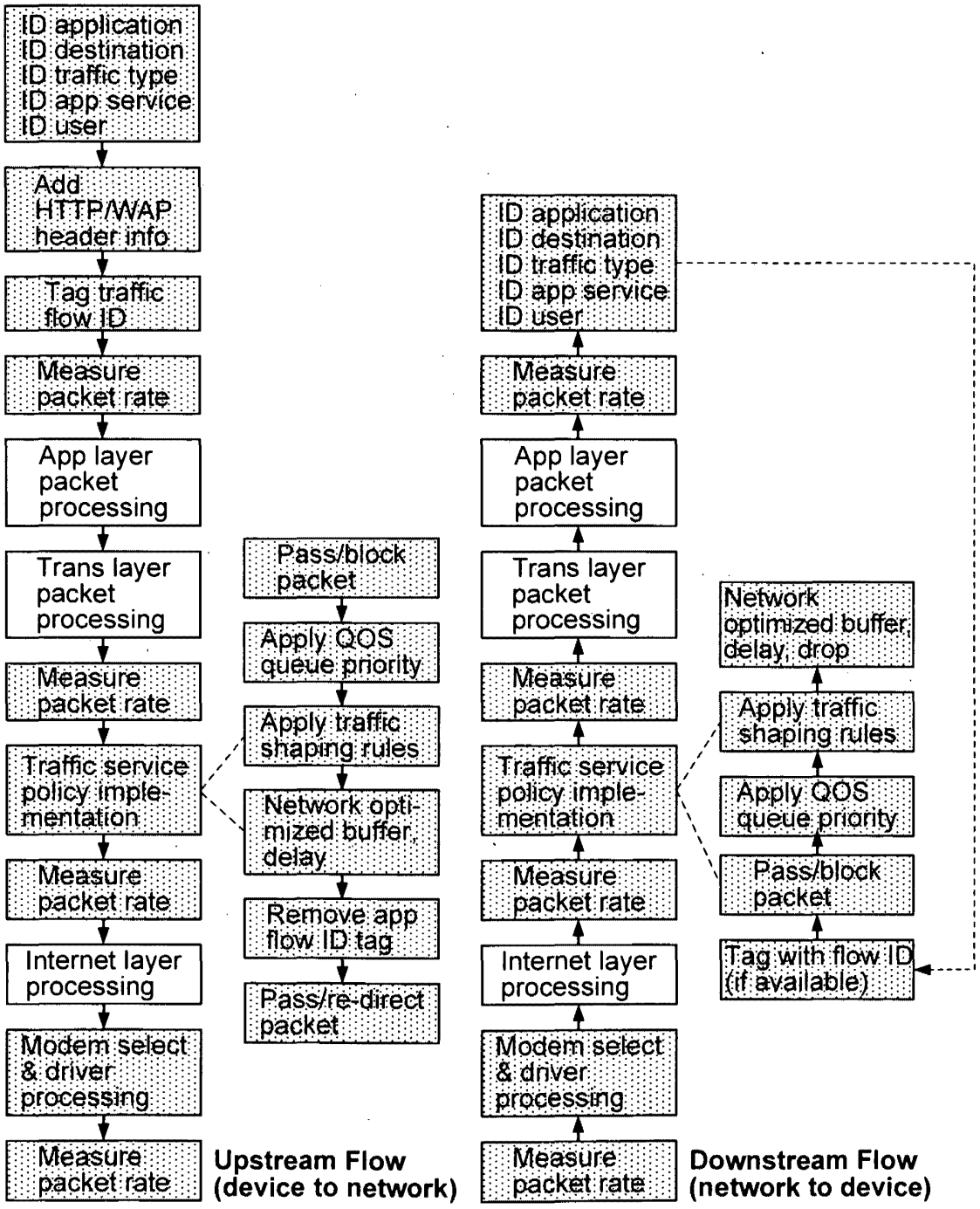

ID application
ID destination
ID traffic type
ID app service
ID user
Add HTTP/WAP header info
Tag traffic flow ID
Measure packet rate
App layer packet processing
Trans layer packet processing
Measure packet rate
Traffic service policy imple-mentation
Measure packet rate
Internet layer processing
Modem select & driver processing
Measure packet rate
Upstream Flow (device to network)
Pass/block packet
Apply QOS queue priority
Apply traffic shaping rules
Network opti-mized buffer, delay
Remove app flow ID tag
Pass/re-direct packet
ID application
ID destination
ID traffic type
ID app service
ID user
Measure packet rate
App layer packet processing
Trans layer packet processing
Measure packet rate
Traffic service policy imple-mentation
Measure packet rate
Internet layer processing
Modem select & driver processing
Measure packet rate
Downstream Flow (network to device)
Network optimized buffer, delay, drop
Apply traffic shaping rules
Apply QOS queue priority
Pass/block packet
Tag with flow ID (if available)

FIG. 40

Example Device CRM Data Collection and Reporting Classification	Partial Description	Example Sensitivity Level Classification	Example Authorization Level to Include in Report
Basic non-specific service usage parameters	User sensitive information is filtered from this report which is used for purposes such as service control, service control integrity monitoring or network traffic analysis.	Low	None
Service billing events or service plan selection events	Documents user selection process from service plan selection or billing options.	Low	Customer authorization with basic service agreement or enterprise agreement
Transaction billing events	Documents user selection process from service plan selection or billing options.	Low	Customer authorization with central billing agreement or enterprise agreement
Device location – customer location based service assist	Reports customer location for the purpose of assisting with location based services such as directions, yellow pages, shopping and social networking.	High	Customer authorization with basic service agreement or enterprise agreement
Device location – device or people tracking	Reports customer location for the purpose of providing tracking services for the device or the user.	High	Customer authorization with separate device tracking service agreement or enterprise agreement
Transaction associated information	Reports customer information such as networking activity, location, advertising usage, shopping behavior that is associated with a commerce transaction or happens around the same time as the transaction.	High	Customer authorization – potential service discount or upgrade or enterprise agreement
URL history	Reports customer web surfing history.	High	Customer authorization – potential service discount or upgrade or enterprise agreement
Served and visited advertisement history	Reports the advertisements served to the user or which advertisements the user responded to. This information may be used to determine customer preferences or for a revenue sharing relationship with the advertisers.	Medium	Customer authorization – potential service discount, perk or upgrade or enterprise agreement
911 Service usage and location trace log	This log contains all information pertinent to emergency service personnel responding to a 911 call or other emergency situation. In some embodiments this information is password protected and generally not available to the service provider unless it happens to also be contained in reports authorized by the consumer as in the examples above.	Very High	Available only for 911 support or enterprise agreement

FIG. 41

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 70 of 106

Partial List of Example Service Policy Functionality Embodiments	Partial Description of Functionality Example	Example Authorization Level Required to Implement Embodiment
Block Downstream or upstream traffic	Various embodiments block traffic associated with one or more of user, network address identifier, application, content or data type, type of network, central provider, transaction provider, or transaction type. Typical but non-exhaustive examples of command usage are access control prior to authorization, access control policy limits as defined by service plan or special device type, access control for ambient activation services, access control for error handling or access control for tamper prevention. This command may be implemented in instantaneous policy implementation mode or adaptive policy control mode.	Basic authority to pass or block traffic for access control, authorization, ambient services, or plan specific services typically may be provided by the user when they acknowledge the service plan agreement. Authorization to block traffic access as part of controlling user service costs typically may be provided by the service plan agreement options the user chooses to manage cost or may be provided when the user acknowledges the limitations in the UI notifications.
Pass downstream or upstream traffic	Various embodiments allow traffic associated with one or more of user, network address identifier, application, content or data type, type of network, central provider, transaction provider, or transaction type. Typical but non-exhaustive examples of command usage are access control prior to authorization, access control policy limits as defined by service plan or special device type, access control for ambient activation services, access control for error handling or access control for tamper prevention. This command may be implemented in instantaneous policy implementation mode or adaptive policy control mode.	Same as above.
Limit maximum data rate	Various embodiments limit maximum data rate for traffic associated with one or more of user, network address identifier, application, content or data type, type of network, central provider, transaction provider, or transaction type. Typical but non-exhaustive examples of how this command can be implemented include limiting data rate to the device according to service plan; limiting data rate by network address identifier, application or content type for the purpose of implementing a tiered garden; limiting data rate in to different levels according to the type of access technology used by the present network connection; limiting data rate to different levels according to the service provider for the present network; or limiting data rate according to an agreement or lack of agreement with a transaction provider. This command may be implemented in instantaneous policy implementation mode or adaptive policy control mode.	Authorization to limit data rate for all traffic or a subset of traffic typically may be provided in the options the user specifies for how to limit potential or actual service plan usage or cost overages. For example, one user may choose to have no limits and be notified when service usage is over or about to go over, while another user may choose to allow traffic control sufficient to keep service usage under the service plan limit without any notification.

FIG. 42A

Analyze traffic	Provides capability resident on the device to analyze device or user traffic statistics to determine how to implement adaptive policy control or how best to assist the user with notification messages. In some embodiments it is important to perform traffic analysis locally on the device to reduce network chatter with the Control Processor or to maintain user CRM privacy levels by not sharing sensitive raw traffic usage history needed to determine implementation of less sensitive service control policies. Typical but non-exhaustive examples of command usage are analyzing traffic usage statistics or patterns to determine compliance with service plan limits; analyzing traffic usage statistics or patterns to determine likely future compliance with service plan limits; analyzing traffic statistics or patterns to categorize usage according to network address identifiers, applications, content types, network types or central providers; analyzing traffic demand vs. usage statistics or patterns to determine if user may be better served with another service plan; analyzing traffic statistics or patterns to identify potential tamper threats. This command may be implemented in instantaneous policy implementation mode or adaptive policy control mode, but adaptive application of the analysis results is typically associated with adaptive policy control mode.	Authorization to analyze traffic for local device service policy control purposes or 911 service typically may be provided for in the basic service contract. Authorization to transmit a complete or filtered version of the traffic analysis to the Service Controller typically may be provided under user selected options in the service plan contract.
Successive limitation	Provides capability to begin with one limit on access or data rate according to a set of defined service usage trigger criteria, to further limit access or data rate according to said criteria, and then to successively remove limits according to said criteria. In some embodiments this function provides for service usage that starts at a given level for one or more service aspects, but as said service aspect exhibits usage that potentially threatens an overage on service plan limits then the level of service for said service aspect is reduced successively until the threat of service plan overage is reduced or eliminated. In some embodiments, the limits on service level for said service aspect are eventually removed either all at once or successively over a specified time period or set of time periods so that the limits on service level for said service aspect are eventually removed if the service aspect is used less vigorously for a period of time. In this type of embodiment the projection for future service usage by a given service aspect is assisted by the analyze traffic statistics function. As a more specific example, the service aspect may be a URL address that is popular with the user and demands a high service consumption, and the data rate allowed to that URL may start at a relatively high level when the user first begins to surf and as long as the surfing session is finished quickly there is never a reduction in service level, but if the user surfs for a longer time so that service usage begins to threaten plan limit overage, the data rate allowed to that URL is successively reduced the longer the surfing session occurs. Continuing this	Authorization to limit data rate for all traffic or a subset of traffic typically may be provided in the options the user specifies for how to limit potential or actual service plan usage or cost overages. For example, one user may choose to have no limits and be notified when service usage is over or about to go over, while another user may choose to allow traffic control sufficient to keep service usage under the service plan limit without any notification.

FIG. 42B

	example embodiment, if the URL is not visited for a defined period of time then the data rate limitation may be removed in steps over multiple pre-defined time periods, or may be removed all at once back to the initial data rate established in the service policy for that URL. Other specific embodiment examples include email download or upload data rate; download or upload rates for certain types of file transfers; or download or upload rates for a given network access technology or central provider. This command is associated with adaptive policy control mode for the Service Processor. In more advanced adaptive embodiments, the policy control system first identifies those service aspects that are consuming a large percentage of the service usage and then begins to successively limit service level only for these highest usage service aspects so that all other service aspects that are not responsible for potential service plan limit overage continue to receive relatively high service levels. In another embodiment, some high usage service aspects may be exempt or partially exempt from limitations in service level, as for example a service aspect that is associated with a secondary source of service or transaction payment or that may be separately accounted for in the service plan usage reporting.		
Limit email file transfers	Sets and enforces limits on email downloads. In some embodiments this can include use of the successively limit functionality. In some embodiments, this is accomplished by identifying specific email downloads or uploads and controlling traffic for those traffic flows. In other embodiments, this includes interacting with the email application to set download or upload file settings. This functionality may be implemented in instantaneous policy implementation mode or adaptive policy control mode, with the more advanced functionality such as successive limitation on email file transfers being implemented in the adaptive policy control mode.	Authorization to limit data rate for all traffic or a subset of traffic typically may be provided in the options the user specifies for how to limit potential or actual service plan usage or cost overages. For example, one user may choose to have no limits and be notified when service usage is over or about to go over, while another user may choose to allow traffic control sufficient to keep service usage under the service plan limit without any notification.	
Seek to manage below service limit	Implements adaptive policy control in an attempt to manage service usage to reduce service plan limit overages. In some embodiments there are successive limits on service level for overall traffic, or for the highest usage service aspects, with the successive limits being lowered until average service usage is projected to be below service plan limits. The algorithms that may be applied to achieve this adaptive service level limitation are quite varied and only a few are given here. In one embodiment, the service usage for the service plan period is projected using the analyze traffic functionality, and overall device data rate is successively limited until service usage is projected to be below the service plan limit. In another	Same as above.	

FIG. 42C

	embodiment, the analyze traffic functionality is used to identify those service aspects that are causing the majority of the service plan usage, and then each of those service plan aspects are limited using the successive limitation functionality, with the service level limitations being based on the traffic usage patterns and specific application scenarios for each service aspect. For example, in some embodiments the service aspects that are creating the most service usage are subjected to more service level limitation than service aspects that are creating less service usage. Service usage may be defined as usage of a raw service measurement such as total data consumption, files downloaded or time spent on network, or it may be translated into an economic measure using the lookup service cost functionality. In some embodiments, the period of time elapsed in the service accounting period is taken into account in determining...	
Synchronize service usage counters	Synchronizes service usage counters on device from time to time to minimize service accounting errors between the device data base and the central billing data base. In some embodiments this is a part of the Service Processor heartbeat communication system that need not happen every heartbeat. In some embodiments this occurs with a request for update by the device to the central billing system or to a server function in the Service Processor	Provided for in the basic service agreement.
Lookup service cost	Provides a data base of service usage vs. cost for each type of service offered on the device. Provides for a lookup function of service cost.	Same as above.
Convert service usage to service cost	Uses the service cost vs. usage lookup function to transform one or more service usage aspects to one or more service cost aspect. One example embodiment provides a service cost measure for one specific aspect of service usage, for example total data consumed over a period of time. Another example embodiment provides a total service cost measure for all service usage over a period of time.	Same as above.
Notify user of service overage	Sends a notification message or screen to the UI to inform the user that the one or more aspects of service usage has exceeded the specified limits of one or more service plans. In some embodiments, the user notice is a pop-up window and in some embodiments there is a continuous display on a small gauge in main screen.	Same as above.
Project service usage	Uses the analyze traffic functionality and projects an estimate of what the traffic usage will be at the end of a service plan measurement interval if the service usage does not change. In some embodiments the projected service usage is made based on assuming the average service usage per unit time in the present service plan measurement interval does not change for the remainder of the service plan measurement interval.	Same as above

FIG. 42D

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 74 of 106

Notify user of service cost overage	Performs a service cost estimate based on one or more aspects of service usage and informs the user that the one or more aspects of service cost has exceeded the specified limits of a service plan. In some embodiments, the user notice is a pop-up window and in some embodiments there is a continuous display on a small gauge in main screen.	Provided for in the basic service agreement.
Notify user of usage behavior likely to run over service usage limit	Uses the project service usage functionality to determine if the service usage is projected to go beyond the service plan limit, notifies the user if the projected usage is over the service plan limit for the service plan measurement interval. In some embodiments, the user notice is a pop-up window and in some embodiments there is a continuous display on a small gauge in main screen. In some embodiments the projected service usage is made based on assuming the average service usage per unit time in the present service plan measurement interval does not change for the remainder of the service plan measurement interval.	Same as above.
Notify user of usage behavior likely to run over cost limit	Uses the project service usage functionality to determine if the service usage is projected to go beyond the service plan limit, uses convert service measure to service cost functionality to estimate the service cost of the projected service overage, notifies the user if the projected cost is over the service plan cost associated with the service plan service limit for the service plan measurement interval. In some embodiments, the user notice is a pop-up window and in some embodiments there is a continuous display on a small gauge in main screen. In some embodiments the projected cost is made based on assuming the average service usage per unit time in the present service plan measurement interval does not change for the remainder of the service plan measurement interval.	Same as above.
Project user service cost if usage behavior continues	Uses the project service usage functionality to determine if the service usage is projected to go beyond the service plan limit, uses convert service measure to service cost functionality to estimate the service cost of the projected service overage, notifies the user of what the projected cost will be if the service usage behavior remains the same. In some embodiments, the user notice is a pop-up window and in some embodiments there is a continuous display on a small gauge in main screen. In some embodiments the projected cost is made based on assuming the average service usage per unit time in the present service plan measurement interval does not change for the remainder of the service plan measurement interval.	Same as above.

FIG. 42E

Limit access likely to cause overage and notify	Uses the project service usage functionality to determine if the service usage is projected to go beyond the service plan limit, if the service usage is projected to go over the service limit, notifies the user that limits are being applied to keep service usage or cost under the service limit, applies limits to various aspects of service usage to bring down usage so that projections are within service limits. In one embodiment, the seek to manage below service limit functionality is used.	Authorization to limit data rate for all traffic or a subset of traffic typically may be provided in the options the user specifies for how to limit potential or actual service plan usage or cost overages. For example, one user may choose to have no limits and be notified when service usage is over or about to go over, while another user may choose to allow traffic control sufficient to keep service usage under the service plan limit without any notification.
Require acknowledgment of notification	Requires the user to acknowledge a notification of potential service or cost overage or a notification of an option to limit the service overage or cost of service overage.	Provided for in the basic service agreement.
Log or report acknowledgment of notification	In some embodiments, the user acknowledgment of notification is stored, or sent to the Service Controller, or stored and later sent to the service Controller.	Same as above.
Notify user of service plan options prior to running over service usage limit	Notifies the user of options to extend the service plan limit before reaching the service plan limit. In some embodiments, accepts user input on which service plan extension option if any the user wishes to accept. In some embodiments, notifies the billing system when the user has accepted a service plan extension option.	Same as above.
Notify user of service plan options after running over service usage limit	Notifies the user of options to extend the service plan limit after reaching the service plan limit. In some embodiments, accepts user input on which service plan extension option if any the user wishes to accept. In some embodiments, notifies the billing system when the user has accepted a service plan extension option.	Same as above.
Time of day variations	Each of the functionalities for traffic control, service cost, service limits may be modified with a time of day variation so that the values used are different for different times of day.	Same as above.

FIG. 42F

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 76 of 106

Access control enable list	List of service usage activities that are enabled.		Authorization restricted to service controller, VSP or other network function with proper credentials to access the control data base.
Access control block list	List of service usage activities that are blocked.		Same as above.
User service control option UI	Provides the user with a list of options for how they would like to control service usage or service cost.		In some embodiments UI screens and scripts are defined by the UI agent software version and access to modifying this software is restricted to service controller, VSP or other network function with proper credentials to access the UI data base. Some embodiments call for the UI screens or UI screen content to be generated by the service controller, VSP or another network function (e.g. service usage notification gateway or billing system) and in this case access is restricted to service controller, VSP or other network function with proper credentials to access the UI pass through screens.
User service notification option preference	Provides the user with a list of options for how they would like service notification information to be displayed. In some embodiments provides the user with the option to turn off one or more aspects of service notification. In some embodiments the user is not allowed to turn off notification for service usage events that require user decision or acknowledgement.		In some embodiments UI screens and scripts are defined by the UI agent software version and access to modifying this software is restricted to service controller, VSP or other network function with proper credentials to access the UI data base. Some embodiments call for the UI screens or UI screen content to be generated by the service controller, VSP or another network function (e.g. service usage notification gateway or billing system) and in this case access is restricted to service controller, VSP or other network function with proper credentials to access the UI pass through screens.

FIG. 42G

User CRM or service usage monitoring filtering option preference	Filters the device and/or user information that is being collected before it is reported to the network to maintain the desired level of user privacy. In some embodiments the user defines preferences on user privacy that are used to define the filter settings.	In some embodiments this is not accessible by the network and only may be modified by the user. In other embodiments it may be read but not written by the network and in this case authorization is restricted to service controller, VSP or other network function with proper credentials to access the filter settings data base. In some embodiments the network is allowed to change the CRM filter settings and in this case Authorization restricted to service controller, VSP or other network function with proper credentials to access the CRM filter settings data base.
Service usage billing event record	A record of service usage billing events. In some embodiments this record is transmitted to the billing server or another network function to aid service billing or billing reconciliation.	In some embodiments authorization restricted to service controller, VSP or other network function with proper credentials to access the billing data base. In some embodiments the user is allowed to read but not write the data base.
Bill by account	The bill by account embodiments provide for service billing to accounts different than the main user account, for example tracking network device chatter that is not desired to be billed to the user, transaction partner access costs that are shared with or billed to the transaction partner, ambient service cost tracking, tracking temporary account costs, etc.	In some embodiments authorization restricted to service controller, VSP or other network function with proper credentials to access the billing data base. In some embodiments the user is allowed to read but not write the data base.
Central billing transaction and event recording	Billing event tracking and reporting associated with the central provider open billing embodiments. Some embodiments include generation of billing certificates or receipts. In some embodiments the device may serve as a billing feed.	In some embodiments authorization restricted to service controller, VSP or other network function with proper credentials to access the billing data base. In some embodiments the user is allowed to read but not write the data base.
Service owner registration or re-registration	Function that allows a portion of the device credentials to be programmed to indicated the VSP.	In some embodiments authorization to write the device is restricted with security signatures or other security methods to the VSP and possibly the central provider. Some embodiments involve provisions to report to a network function when the VSP settings are changed or the software is uninstalled. Other embodiments involve restoring VSP settings or software if removed.

FIG. 42H

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 78 of 106

Credentials swap	Function that provides for swapping of credentials, for example temporary credentials to permanent credentials.	Authorization restricted to service controller, VSP or other network function with proper credentials to access the credentials data base.
Account information swap	Function that provides for swapping the account information, for example temporary account to permanent account.	Authorization restricted to service controller, VSP or other network function with proper credentials to access the activation service profile data base.
Configure or re-configure service processor for new device service	Function that provides for service processor programming for all the information that defines the service profile, device credentials, VSP and other necessary parameters.	Authorization restricted to service controller, VSP or other network function with proper credentials to access the service profile data base.
Ambient service profile definition	Function that provides for service processor programming for all the information that defines the ambient service profile, device credentials, VSP and other necessary parameters.	Authorization restricted to service controller, VSP or other network function with proper credentials to access the ambient service profile data base.
Analyze service usage statistics	VSP function to analyzer service usage statistics for a device, defined group of devices, defined group of service plans or service profiles, defined group of users or other groupings.	Authorization typically restricted to service controller, VSP or other network entity with the credentials to access the service usage history data bases.
Dry lab test new service policy	Allows simulated testing of draft service profiles and/or service plans against device usage statistics for a defined group of devices or users or service profiles, or against simulated device service usage behavior. Some embodiments show the estimated profitability of proposed service profile and service plan. Some embodiments allow decomposition of the service usage statistics to identify the user group service usage activities that may be modified by changing the service usage control policies or made more profitable by changing the service plan billing policies.	Authorization typically restricted to service controller, VSP or other network entity with the credentials to access the service usage history data bases.
Beta test publishing system	Function that provides for service processor programming for all the information that defines the service profile device credentials, VSP and other necessary parameters for a beta test device group.	Authorization restricted to service controller, VSP or other network function with proper credentials to access the service profile data base.
Publish new service	Function that provides for service processor programming for all the information that defines the service profile, device credentials, VSP and other necessary parameters for a production device group.	Authorization restricted to service controller, VSP or other network function with proper credentials to access the service profile data base.

FIG. 42I

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 79 of 106

Roaming selection service	Function that surveys available roaming service partners, looks up the billing rates for the partners, and displays to the user the set of choices and billing rates. In some embodiments the roaming partner billing rates for one or more roaming partners are applied to a typical user service usage scenario for the purpose of estimating possible projected roaming costs and displaying those costs to the user. In some embodiments the roaming data is stored locally on the device and periodically updated with network refreshes, while in other embodiments the data base is looked up at the time of service. In some embodiments, the user is asked if they would like to modify their service usage notification or control profiles to save roaming costs and if the user responds yes they are provided with a set of options for changing service usage notification or service usage control policies.	Authorization to modify the policies typically restricted to the VSP or other entity responsible for managing the roaming service.
Roaming usage count	Provides a service usage estimate to the user while roaming.	Same as above.
Roaming cost service	Provides a service cost estimate to the user while roaming.	Same as above.
Roaming policy control service	Provides the user or VSP with the capability to switch service usage notification or service usage control policies while roaming. Some embodiments provide for restrictions to roaming carrier options. Some embodiments provide policies based on carrier chosen. Some embodiments provide policies based on the service cost for carrier chosen. Some embodiments specify preferred roaming lists that may be different than the central provider roaming list.	Same as above.
Switch policies for new network	Provides the user or VSP with the capability to switch service usage notification or service usage control policies depending on which network the device is connected to. Some embodiments provide for restrictions to certain network options. Some embodiments provide policies based on network chosen. Some embodiments provide policies based on the service cost for network chosen. Some embodiments provide for a network connection preference list.	Authorization to modify the policies typically restricted to the VSP or other entity responsible for managing the network selection policies.

FIG. 42J

Replacement Sheet
Application No. 12/380,778
Attorney Docket No. RALEP004
Sheet 80 of 106

81/106

Service Processor Authorization

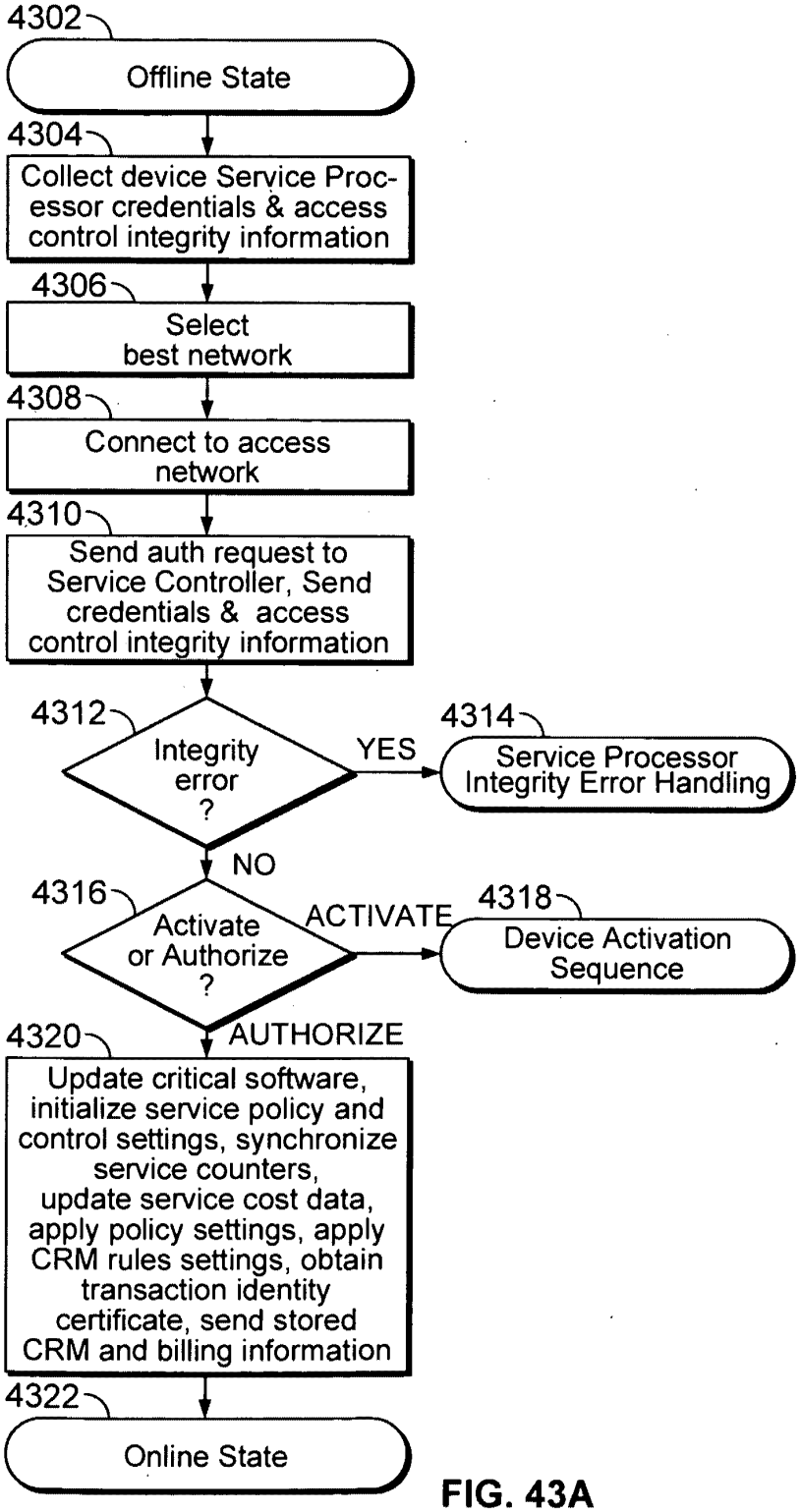


FIG. 43A

Service Controller Authorization

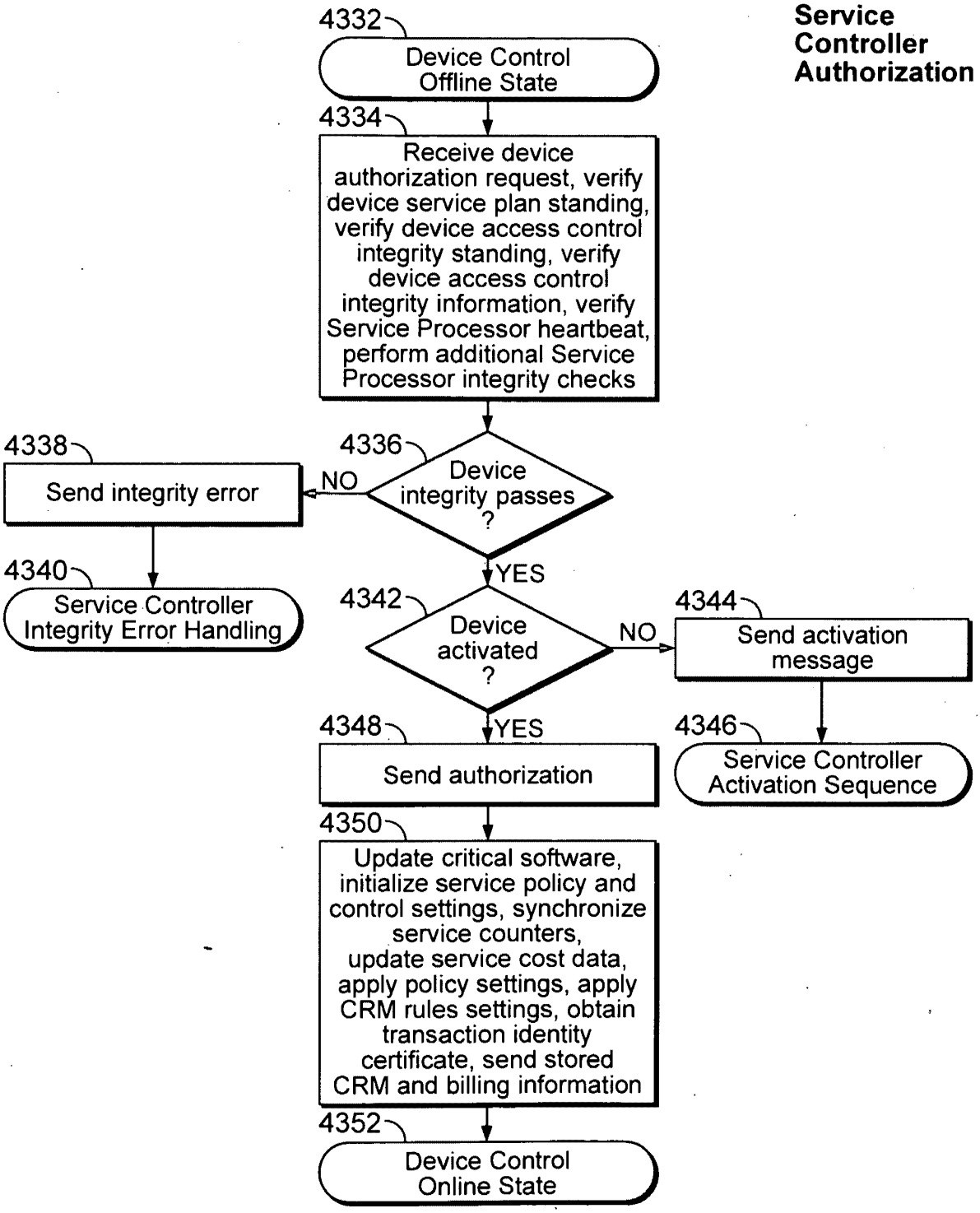


FIG. 43B

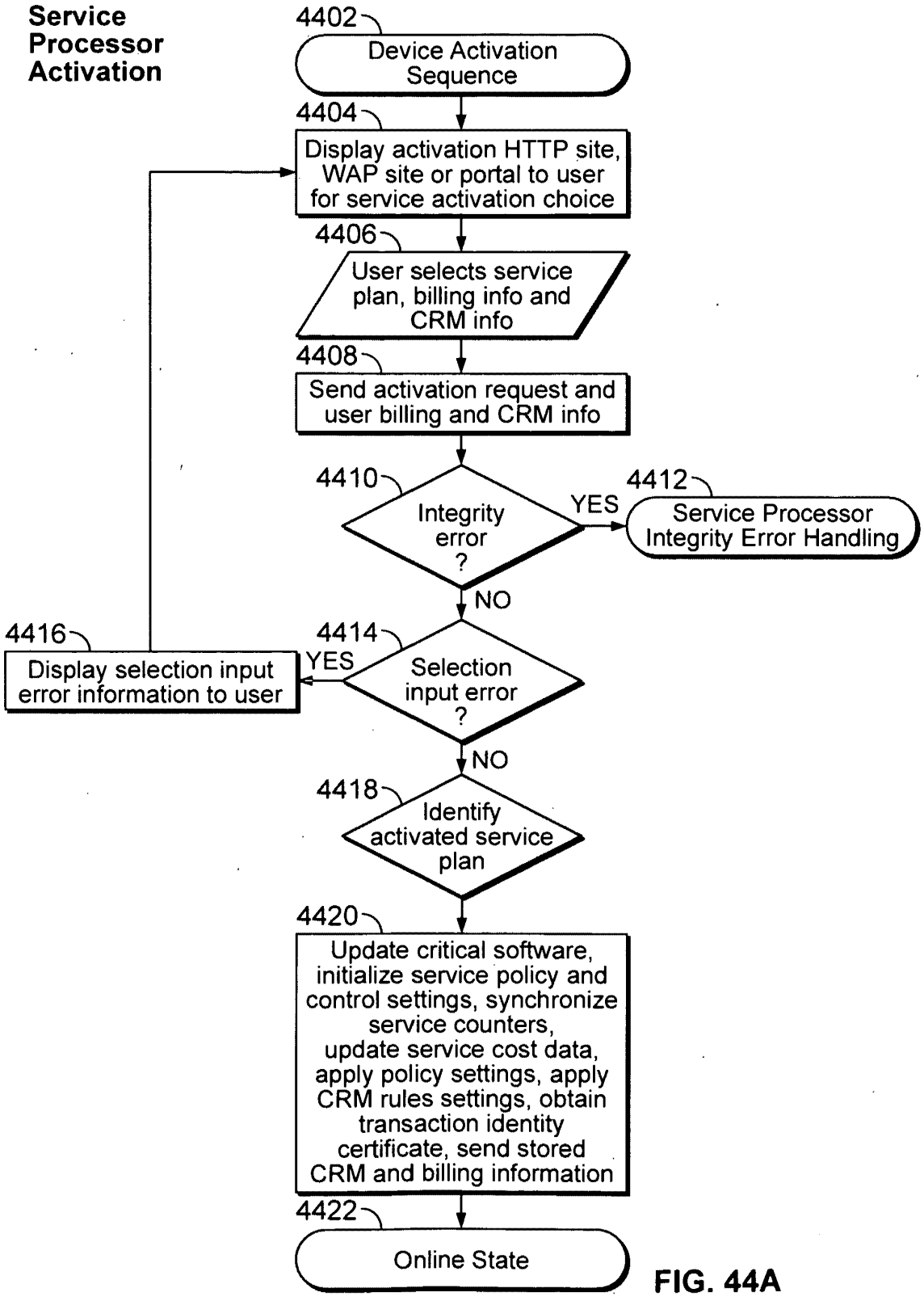

Service Processor Activation
4402
Device Activation Sequence
4404
Display activation HTTP site, WAP site or portal to user for service activation choice
4406
User selects service plan, billing info and CRM info
4408
Send activation request and user billing and CRM info
4410
Integrity error ?
YES
4412
Service Processor Integrity Error Handling
NO
4414
Selection input error ?
YES
4416
Display selection input error information to user
NO
4418
Identify activated service plan
4420
Update critical software, initialize service policy and control settings, synchronize service counters, update service cost data, apply policy settings, apply CRM rules settings, obtain transaction identity certificate, send stored CRM and billing information
4422
Online State

FIG. 44A

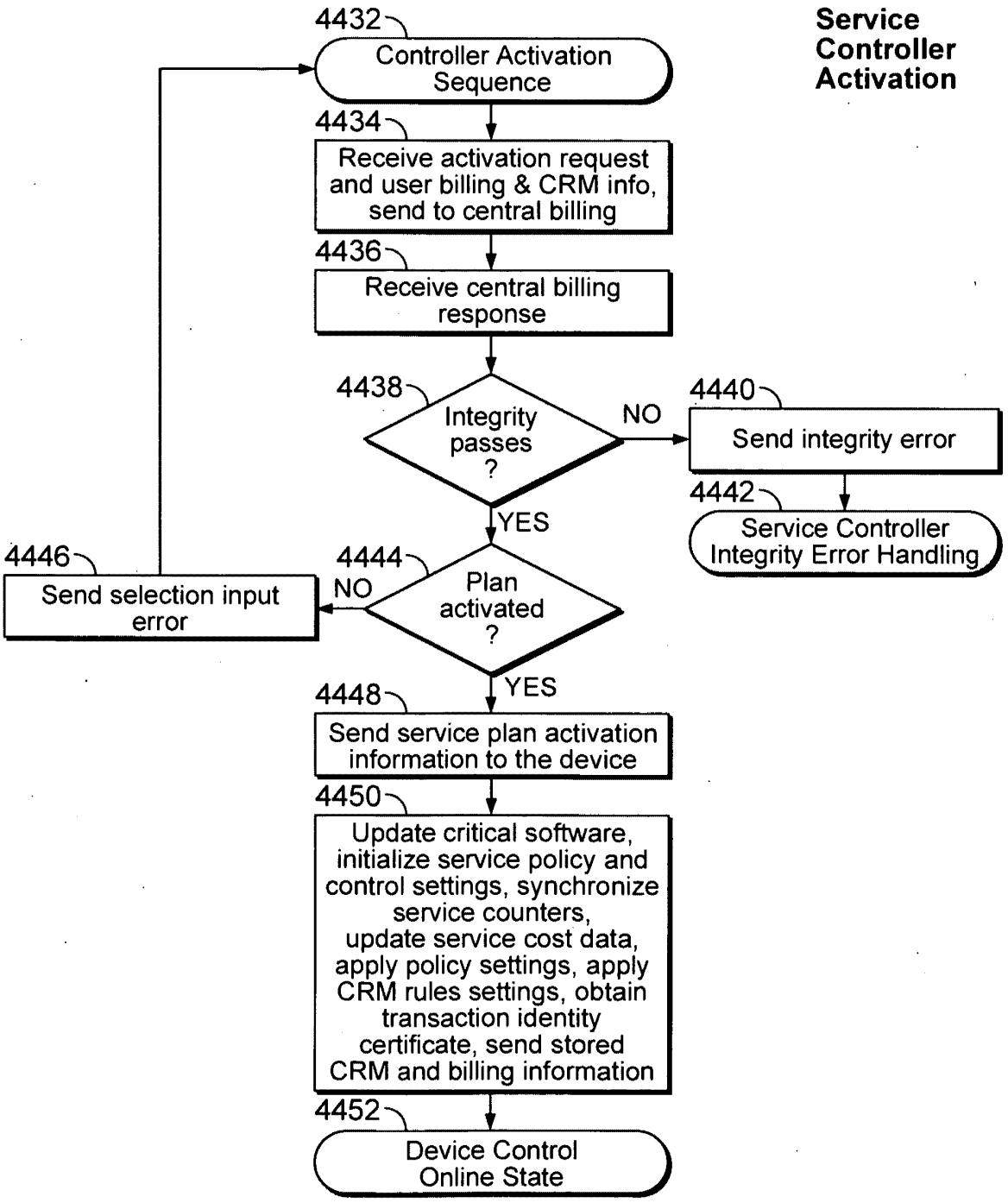

Service Controller Activation
4432
Controller Activation Sequence
4434
Receive activation request and user billing & CRM info, send to central billing
4436
Receive central billing response
4438
Integrity passes ?
NO
4440
Send integrity error
4442
Service Controller Integrity Error Handling
YES
4444
Plan activated ?
NO
4446
Send selection input error
YES
4448
Send service plan activation information to the device
4450
Update critical software, initialize service policy and control settings, synchronize service counters, update service cost data, apply policy settings, apply CRM rules settings, obtain transaction identity certificate, send stored CRM and billing information
4452
Device Control Online State

FIG. 44B

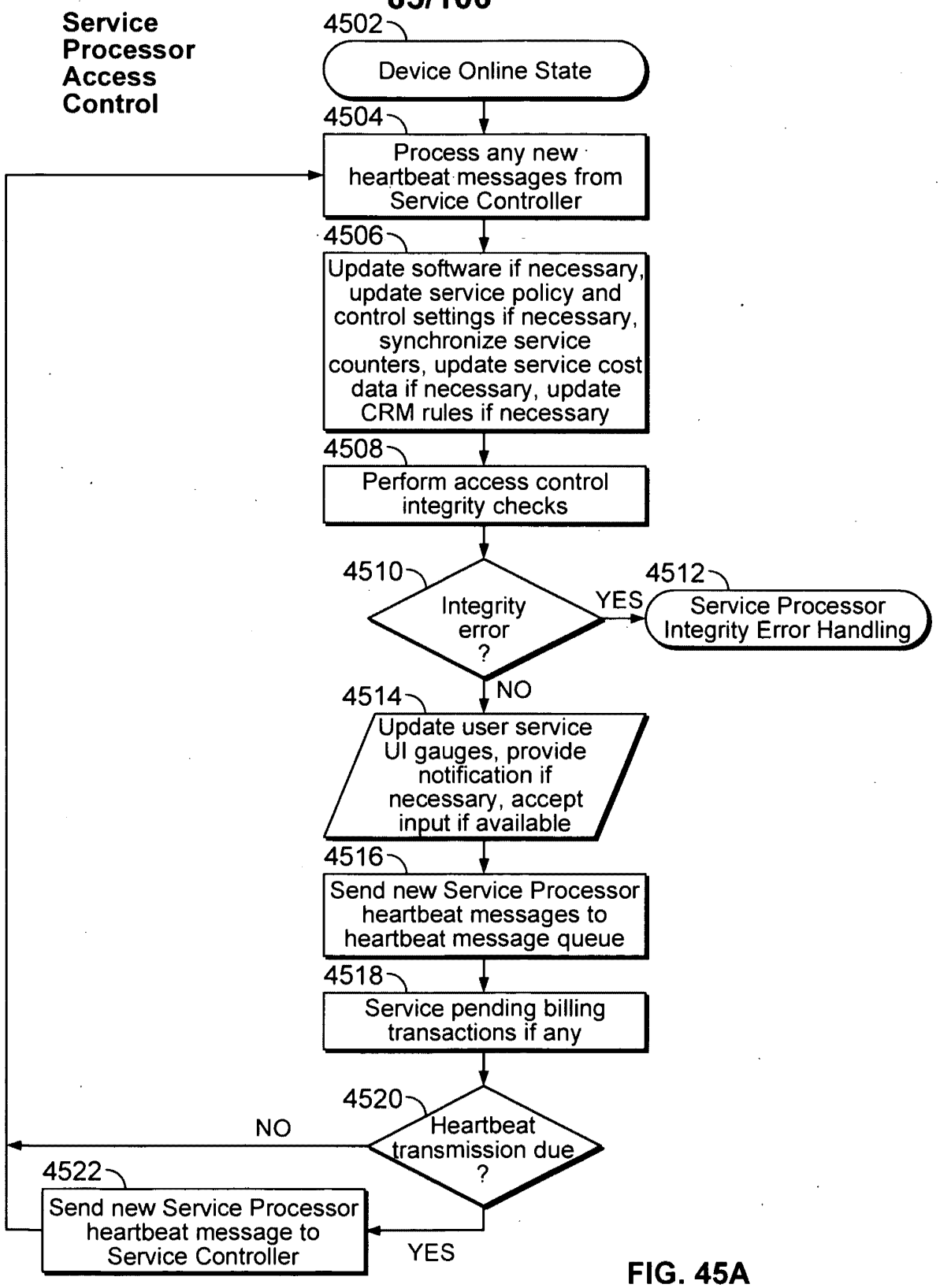

Service Processor Access Control
4502
Device Online State
4504
Process any new heartbeat messages from Service Controller
4506
Update software if necessary, update service policy and control settings if necessary, synchronize service counters, update service cost data if necessary, update CRM rules if necessary
4508
Perform access control integrity checks
4510
Integrity error ?
YES
4512
Service Processor Integrity Error Handling
NO
4514
Update user service UI gauges, provide notification if necessary, accept input if available
4516
Send new Service Processor heartbeat messages to heartbeat message queue
4518
Service pending billing transactions if any
4520
Heartbeat transmission due ?
NO
YES
4522
Send new Service Processor heartbeat message to Service Controller

FIG. 45A

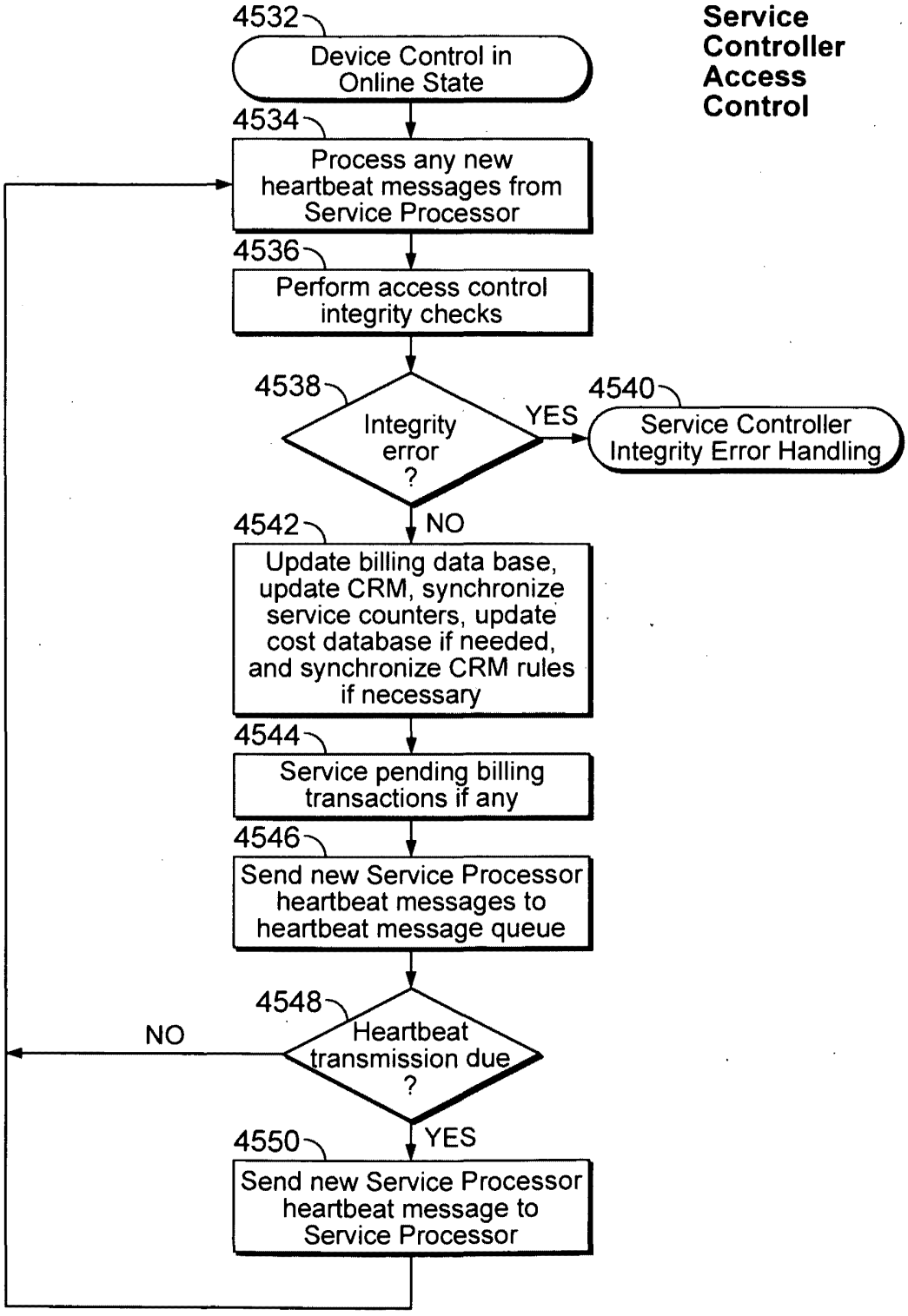

Service Controller Access Control
4532
Device Control in Online State
4534
Process any new heartbeat messages from Service Processor
4536
Perform access control integrity checks
4538
Integrity error ?
YES
4540
Service Controller Integrity Error Handling
NO
4542
Update billing data base, update CRM, synchronize service counters, update cost database if needed, and synchronize CRM rules if necessary
4544
Service pending billing transactions if any
4546
Send new Service Processor heartbeat messages to heartbeat message queue
4548
Heartbeat transmission due ?
NO
YES
4550
Send new Service Processor heartbeat message to Service Processor

FIG. 45B

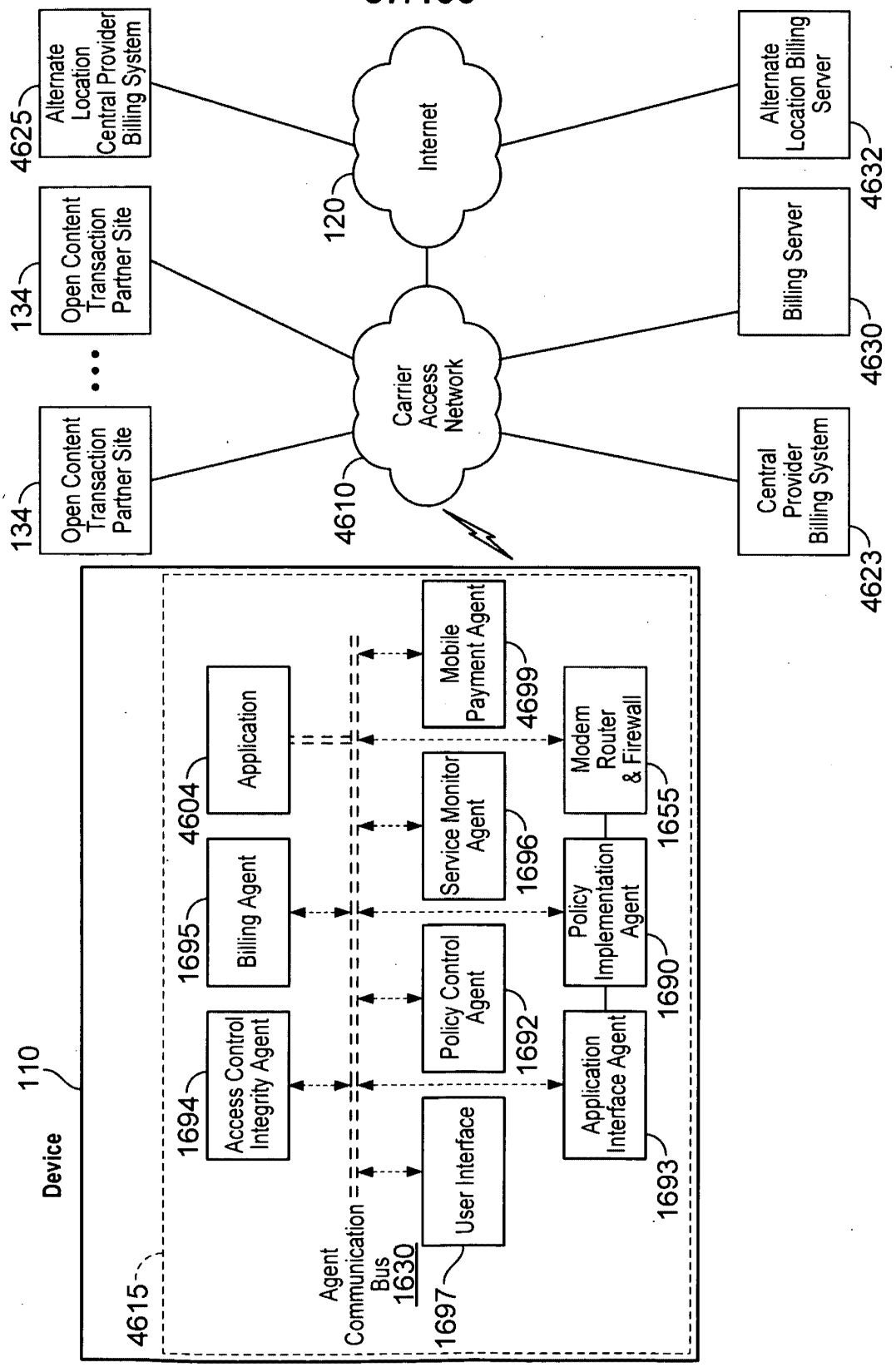

Alternate Location Central Provider Billing System
4625
Open Content Transaction Partner Site
134
Open Content Transaction Partner Site
134
Internet
120
Carrier Access Network
4610
Alternate Location Billing Server
4632
Billing Server
4630
Central Provider Billing System
4623
Device
110
4615
Agent Communication Bus 1630
Access Control Integrity Agent
1694
Billing Agent
1695
Application
4604
User Interface
1697
Policy Control Agent
1692
Service Monitor Agent
1696
Mobile Payment Agent
4699
Application Interface Agent
1693
Policy Implementation Agent
1690
Modem Router & Firewall
1655

FIG. 46

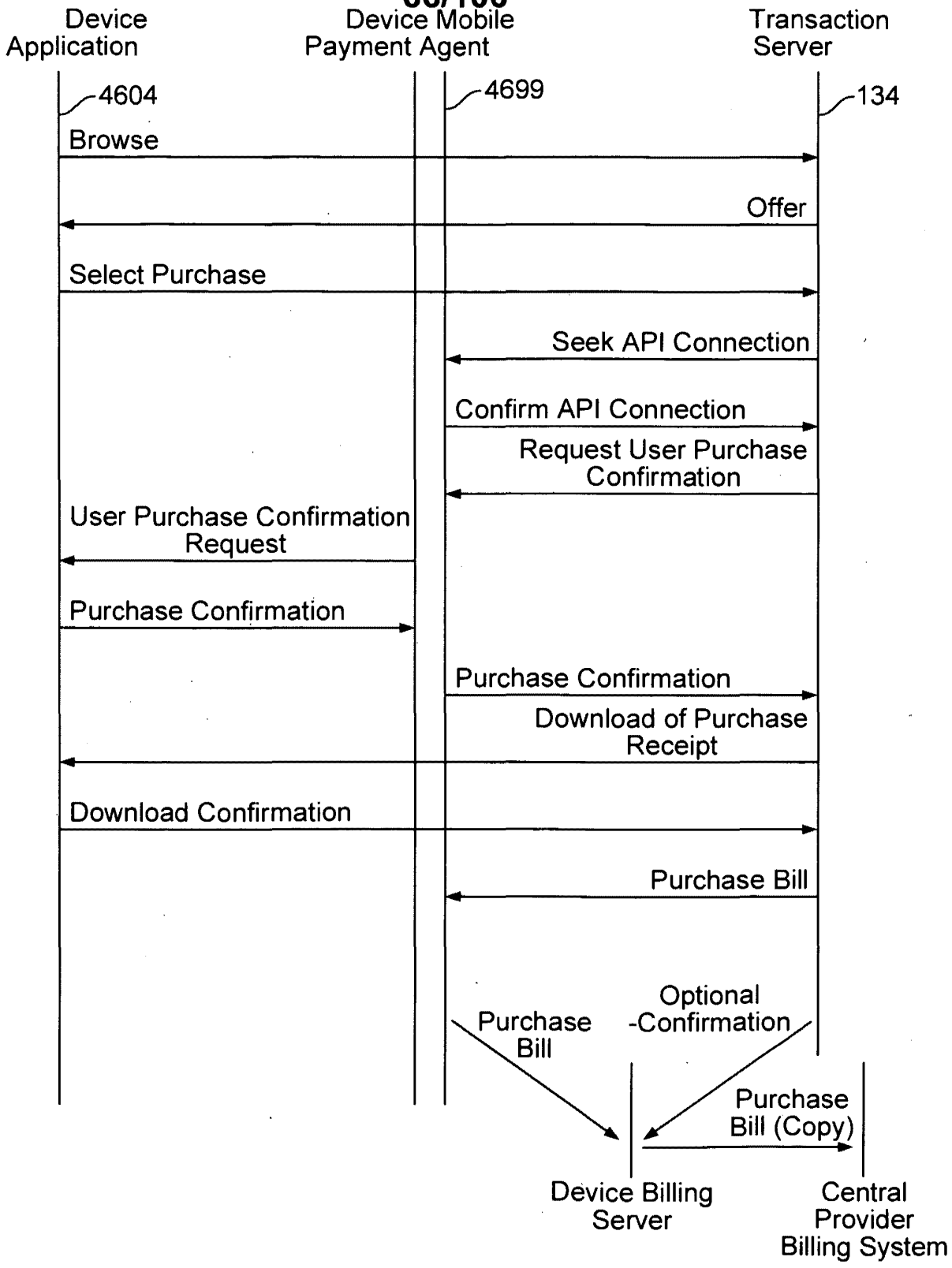

Device Application
Device Mobile Payment Agent
Transaction Server
4604
4699
134
Browse
Offer
Select Purchase
Seek API Connection
Confirm API Connection
Request User Purchase Confirmation
User Purchase Confirmation Request
Purchase Confirmation
Purchase Confirmation
Download of Purchase Receipt
Download Confirmation
Purchase Bill
Optional -Confirmation
Purchase Bill
Purchase Bill (Copy)
Device Billing Server
Central Provider Billing System

FIG. 47A

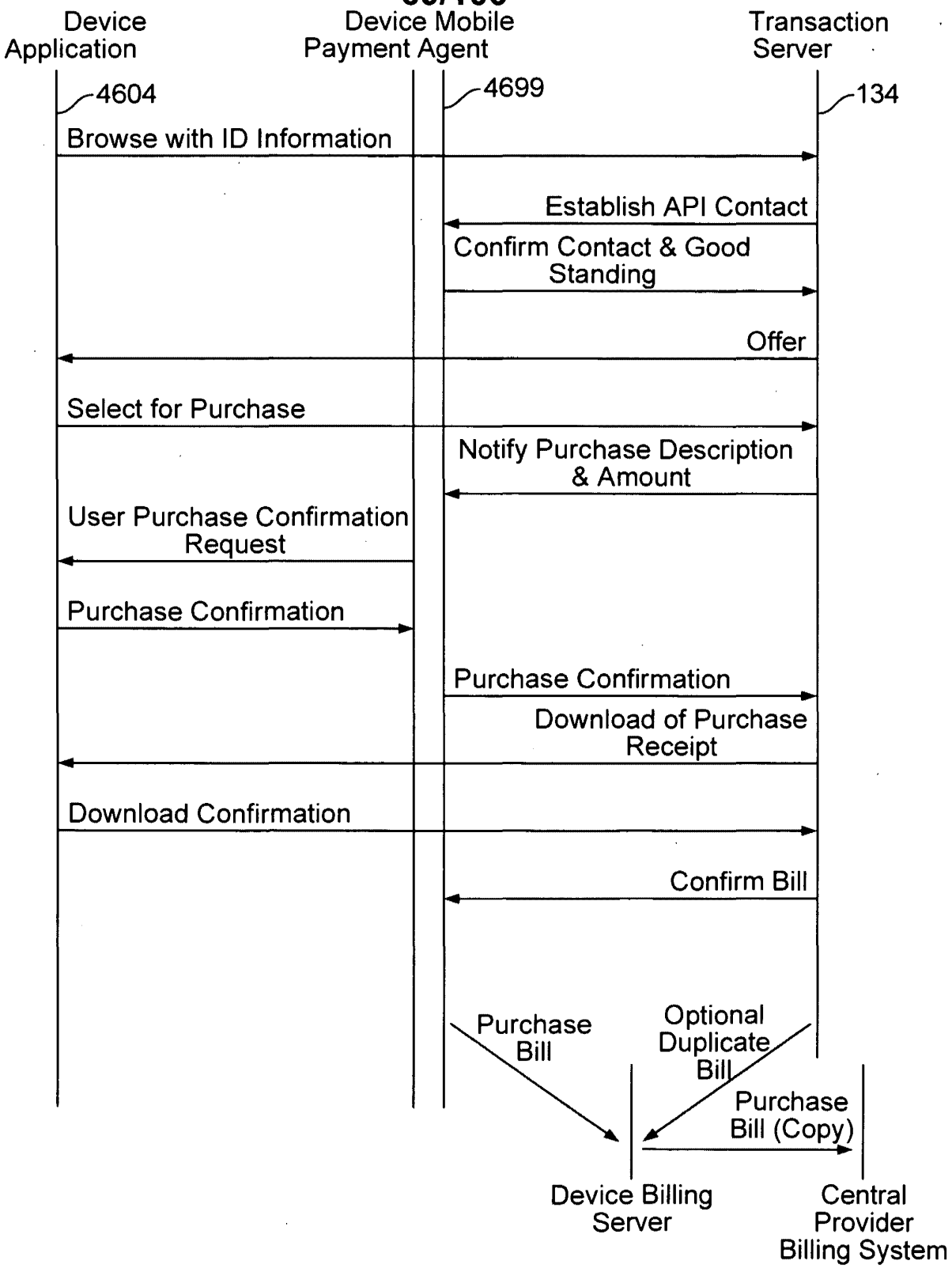

Device Application
Device Mobile Payment Agent
Transaction Server
4604
4699
134
Browse with ID Information
Establish API Contact
Confirm Contact & Good Standing
Offer
Select for Purchase
Notify Purchase Description & Amount
User Purchase Confirmation Request
Purchase Confirmation
Purchase Confirmation
Download of Purchase Receipt
Download Confirmation
Confirm Bill
Purchase Bill
Optional Duplicate Bill
Purchase Bill (Copy)
Device Billing Server
Central Provider Billing System

FIG. 47B

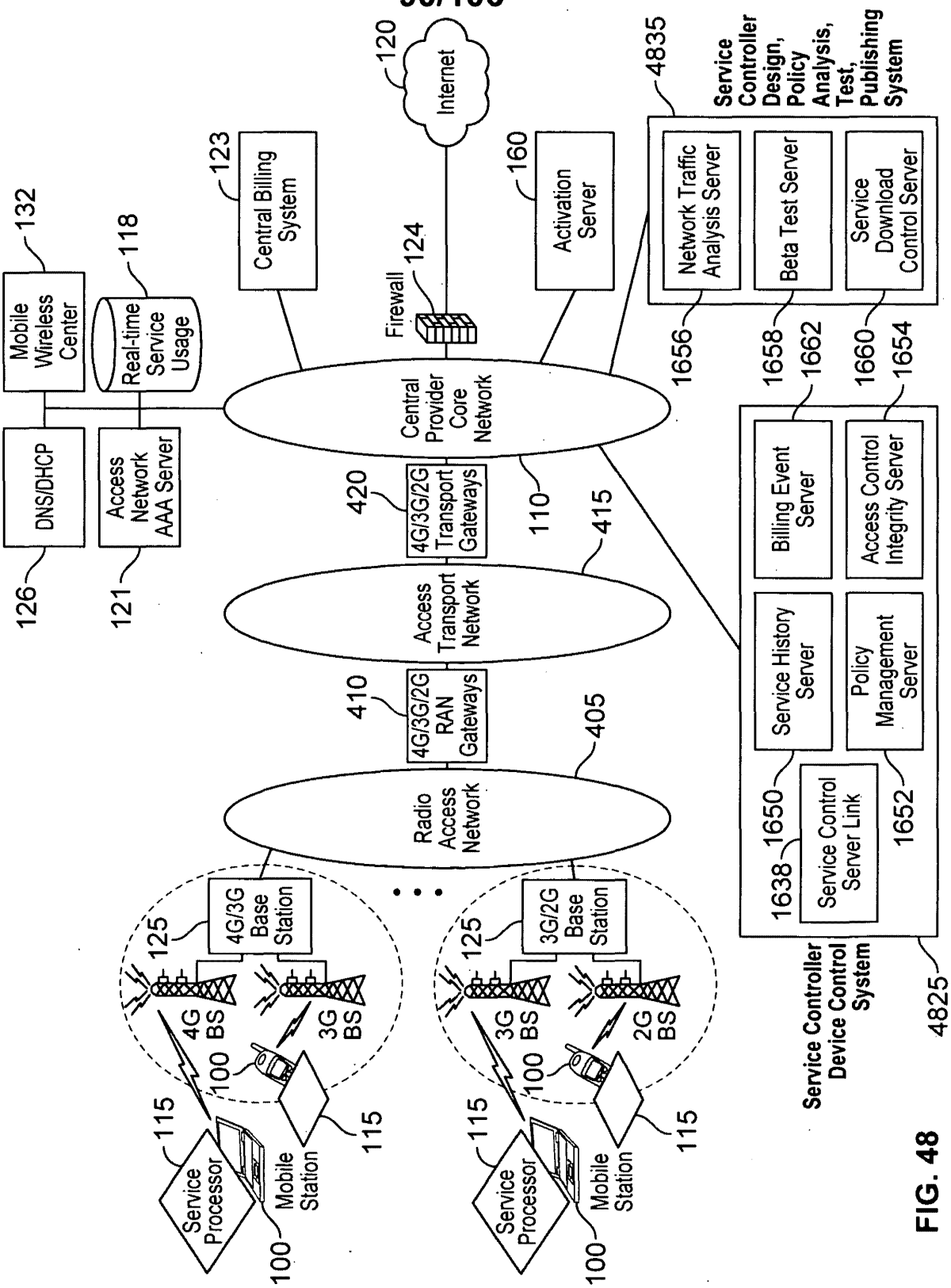

Mobile Wireless Center
132
DNS/DHCP
126
Real-time Service Usage
118
Access Network AAA Server
121
Central Billing System
123
Internet
120
Firewall
124
Activation Server
160
Central Provider Core Network
110
4G/3G/2G Transport Gateways
420
Access Transport Network
415
4G/3G/2G RAN Gateways
410
Radio Access Network
405
4G/3G Base Station
125
3G/2G Base Station
125
4G BS
3G BS
3G BS
2G BS
100
115
Service Processor
Mobile Station
Service Controller Design, Policy Analysis, Test, Publishing System
4835
Network Traffic Analysis Server
Beta Test Server
Service Download Control Server
1656
1658
1660
1662
1654
Billing Event Server
Access Control Integrity Server
Service History Server
Policy Management Server
Service Control Server Link
1650
1652
1638
Service Controller Device Control System
4825

FIG. 48

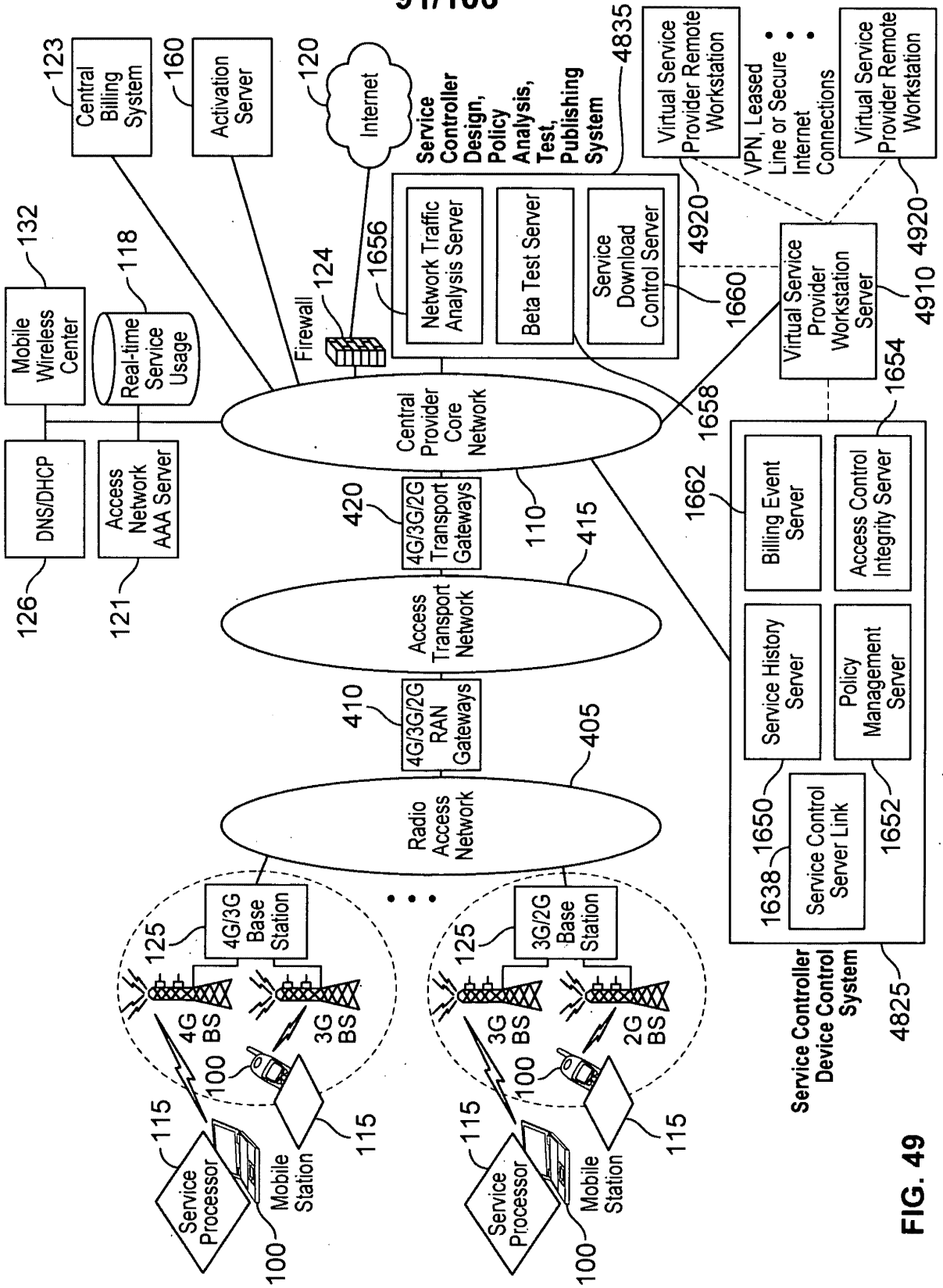

Central Billing System
123
Activation Server
160
Internet
120
Service Controller Design, Policy Analysis, Test, Publishing System
4835
Virtual Service Provider Remote Workstation
VPN, Leased Line or Secure Internet Connections
Virtual Service Provider Remote Workstation
Mobile Wireless Center
132
Real-time Service Usage
118
Firewall
124
1656
Network Traffic Analysis Server
Beta Test Server
Service Download Control Server
4920
1660
4920
Virtual Service Provider Workstation Server
4910
Central Provider Core Network
1658
1654
DNS/DHCP
126
Access Network AAA Server
121
420
4G/3G/2G Transport Gateways
110
415
1662
Billing Event Server
Access Control Integrity Server
Access Transport Network
Service History Server
Policy Management Server
410
4G/3G/2G RAN Gateways
405
Radio Access Network
1650
1638
Service Control Server Link
1652
Service Controller Device Control System
4825
125
4G/3G Base Station
125
3G/2G Base Station
4G BS
3G BS
3G BS
2G BS
100
100
115
115
115
115
Service Processor
Mobile Station
Service Processor
Mobile Station
100
100

FIG. 49

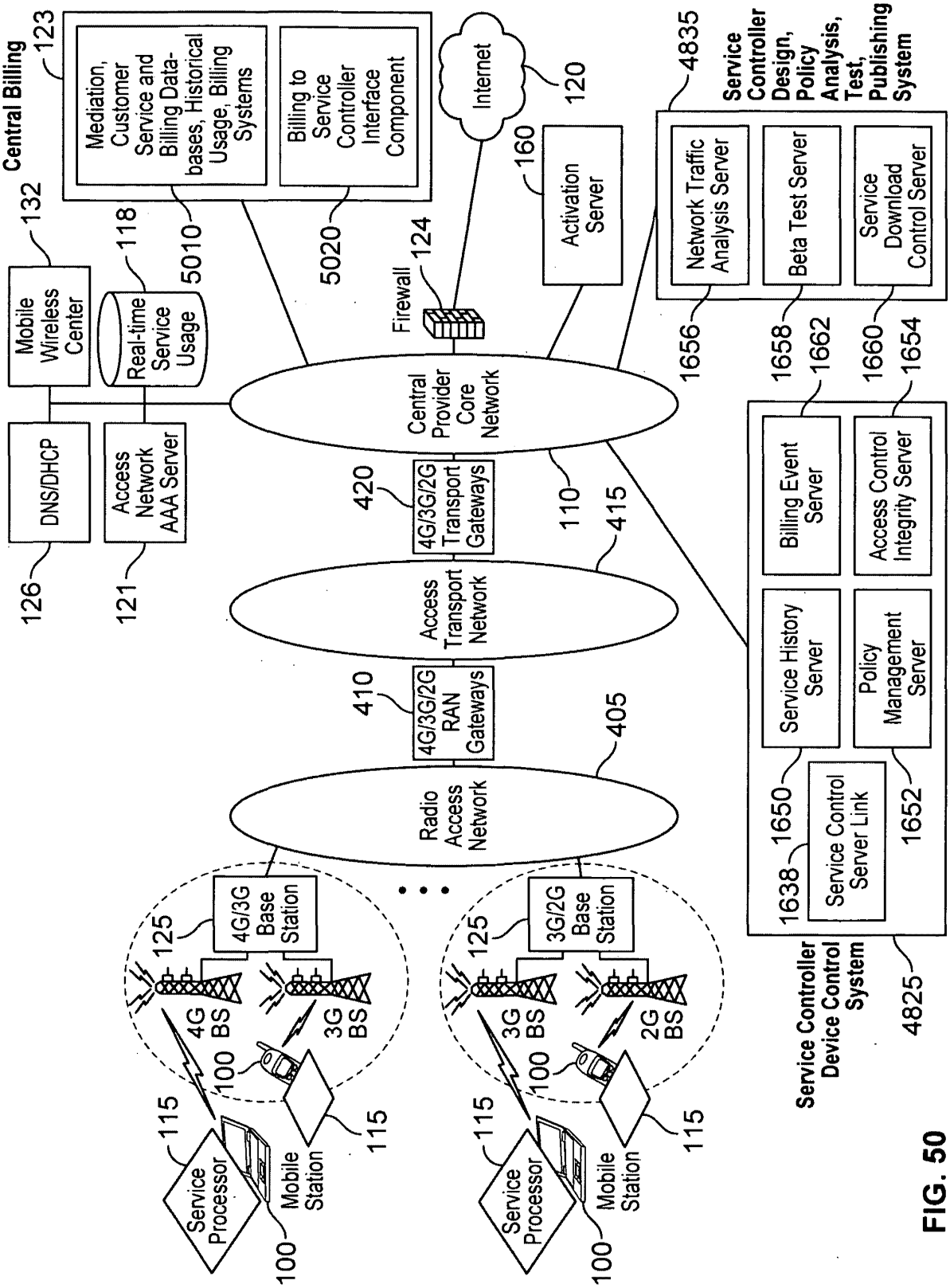

Central Billing
123
Mediation, Customer Service and Billing Data-bases, Historical Usage, Billing Systems
Billing to Service Controller Interface Component
5010
5020
Internet
120
Service Controller Design, Policy Analysis, Test, Publishing System
4835
Network Traffic Analysis Server
Beta Test Server
Service Download Control Server
1656
1658
1660
1662
1654
160
Activation Server
132
Mobile Wireless Center
118
Real-time Service Usage
124
Firewall
Central Provider Core Network
110
DNS/DHCP
126
Access Network AAA Server
121
420
4G/3G/2G Transport Gateways
415
Access Transport Network
410
4G/3G/2G RAN Gateways
405
Radio Access Network
Billing Event Server
Access Control Integrity Server
Service History Server
Policy Management Server
Service Control Server Link
1650
1652
1638
Service Controller Device Control System
4825
125
4G/3G Base Station
3G/2G Base Station
4G BS
3G BS
3G BS
2G BS
100
115
Service Processor
Mobile Station

FIG. 50

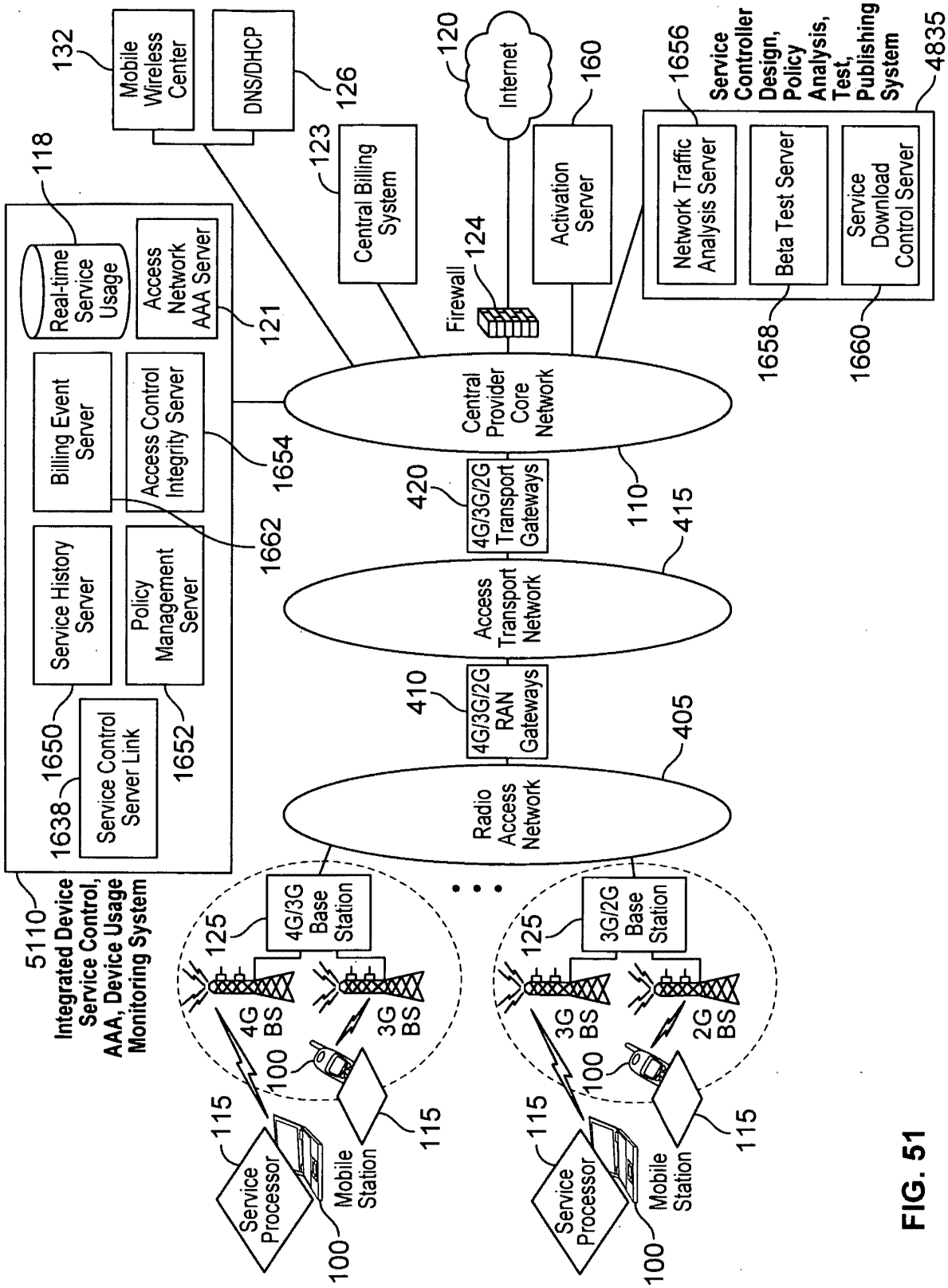

5110
Integrated Device Service Control, AAA, Device Usage Monitoring System
1638
Service Control Server Link
1650
Service History Server
1652
Policy Management Server
1662
Billing Event Server
Access Control Integrity Server
1654
Real-time Service Usage
118
Access Network AAA Server
121
132
Mobile Wireless Center
DNS/DHCP
126
123
Central Billing System
Firewall
124
120
Internet
Activation Server
160
1656
Service Controller Design, Policy Analysis, Test, Publishing System
4835
Network Traffic Analysis Server
Beta Test Server
1658
Service Download Control Server
1660
Central Provider Core Network
110
420
4G/3G/2G Transport Gateways
415
Access Transport Network
410
4G/3G/2G RAN Gateways
405
Radio Access Network
125
4G/3G Base Station
4G BS
3G BS
100
115
Service Processor
Mobile Station
125
3G/2G Base Station
3G BS
2G BS
100
115
Service Processor
Mobile Station

FIG. 51

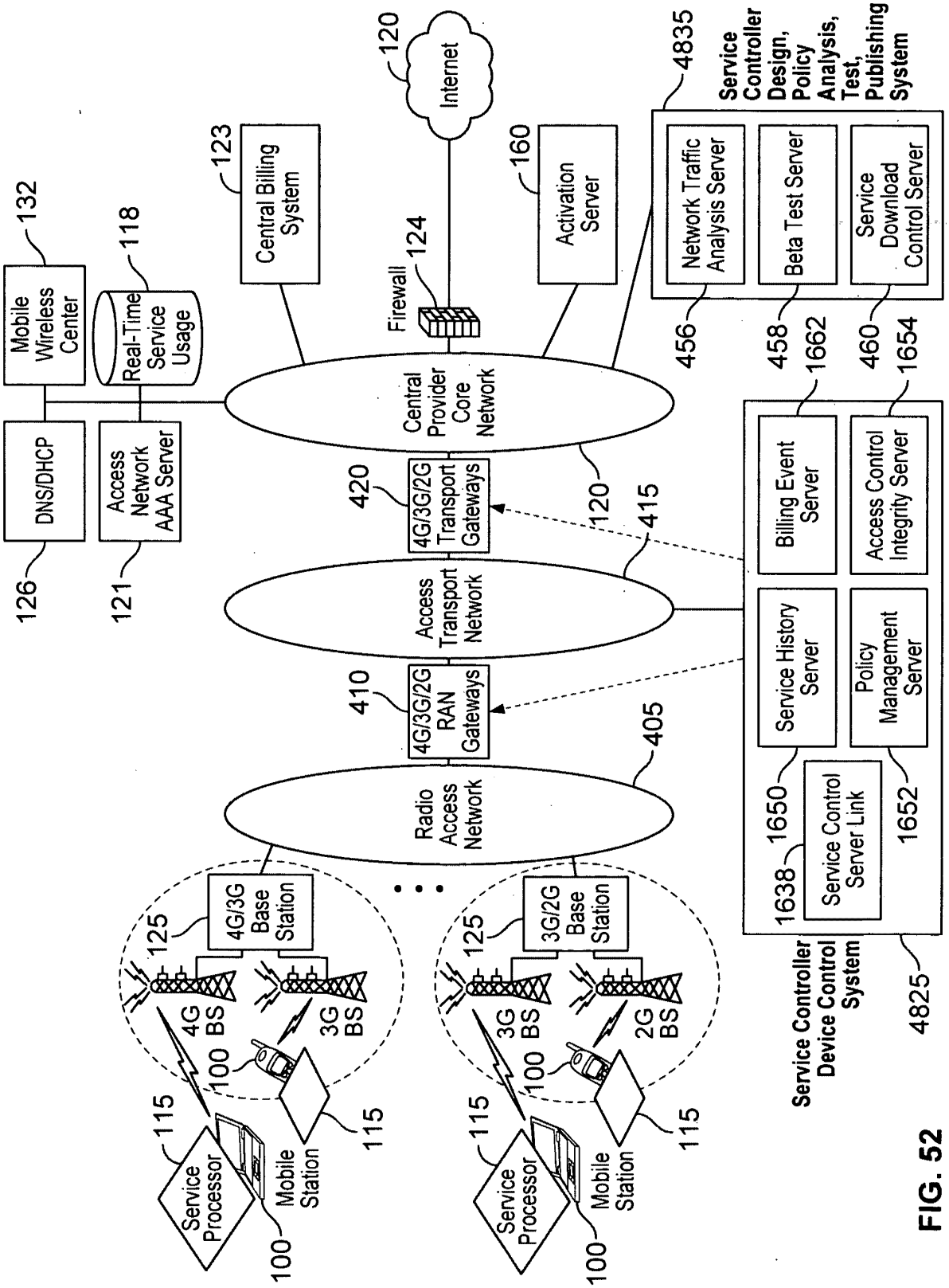

Internet
120
Service Controller Design, Policy Analysis, Test, Publishing System
4835
Network Traffic Analysis Server
Beta Test Server
Service Download Control Server
456
458
460
1662
1654
Central Billing System
123
Activation Server
160
Firewall
124
Mobile Wireless Center
132
Real-Time Service Usage
118
DNS/DHCP
126
Access Network AAA Server
121
Central Provider Core Network
120
4G/3G/2G Transport Gateways
420
Access Transport Network
415
4G/3G/2G RAN Gateways
410
Radio Access Network
405
Billing Event Server
Access Control Integrity Server
Service History Server
Policy Management Server
Service Control Server Link
1650
1638
1652
Service Controller Device Control System
4825
4G/3G Base Station
3G/2G Base Station
125
4G BS
3G BS
3G BS
2G BS
100
115
Service Processor
Mobile Station

FIG. 52

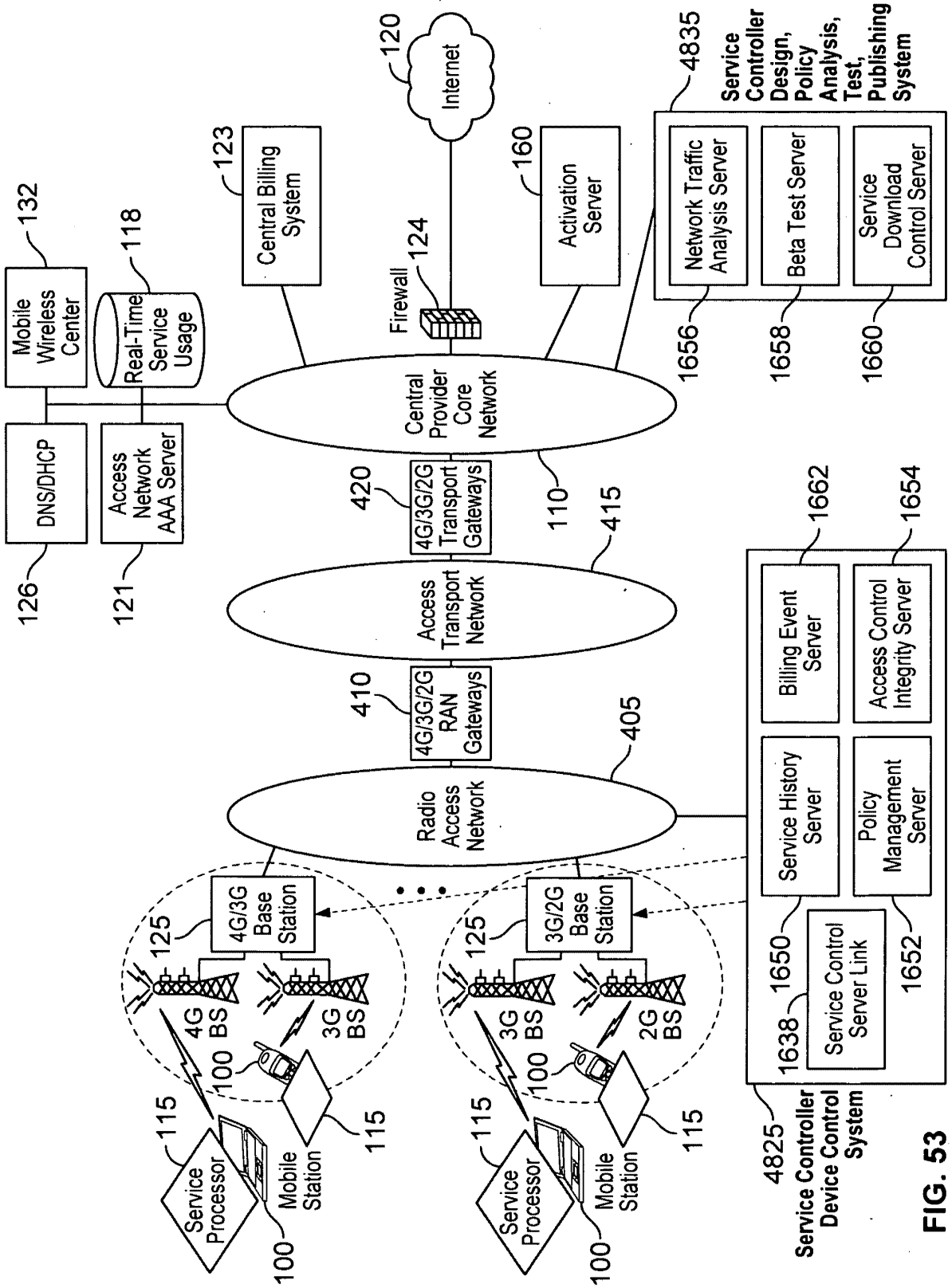

Service Controller Design, Policy Analysis, Test, Publishing System
4835
Network Traffic Analysis Server
Beta Test Server
Service Download Control Server
1656
1658
1660
120
Internet
123
Central Billing System
160
Activation Server
132
Mobile Wireless Center
118
Real-Time Service Usage
Firewall
124
Central Provider Core Network
126
DNS/DHCP
121
Access Network AAA Server
420
4G/3G/2G Transport Gateways
110
415
Access Transport Network
410
4G/3G/2G RAN Gateways
405
Radio Access Network
1662
Billing Event Server
1654
Access Control Integrity Server
Service History Server
Policy Management Server
1650
1652
1638
Service Control Server Link
4825
Service Controller Device Control System
125
4G/3G Base Station
3G/2G Base Station
4G BS
3G BS
3G BS
2G BS
100
115
Service Processor
Mobile Station

FIG. 53

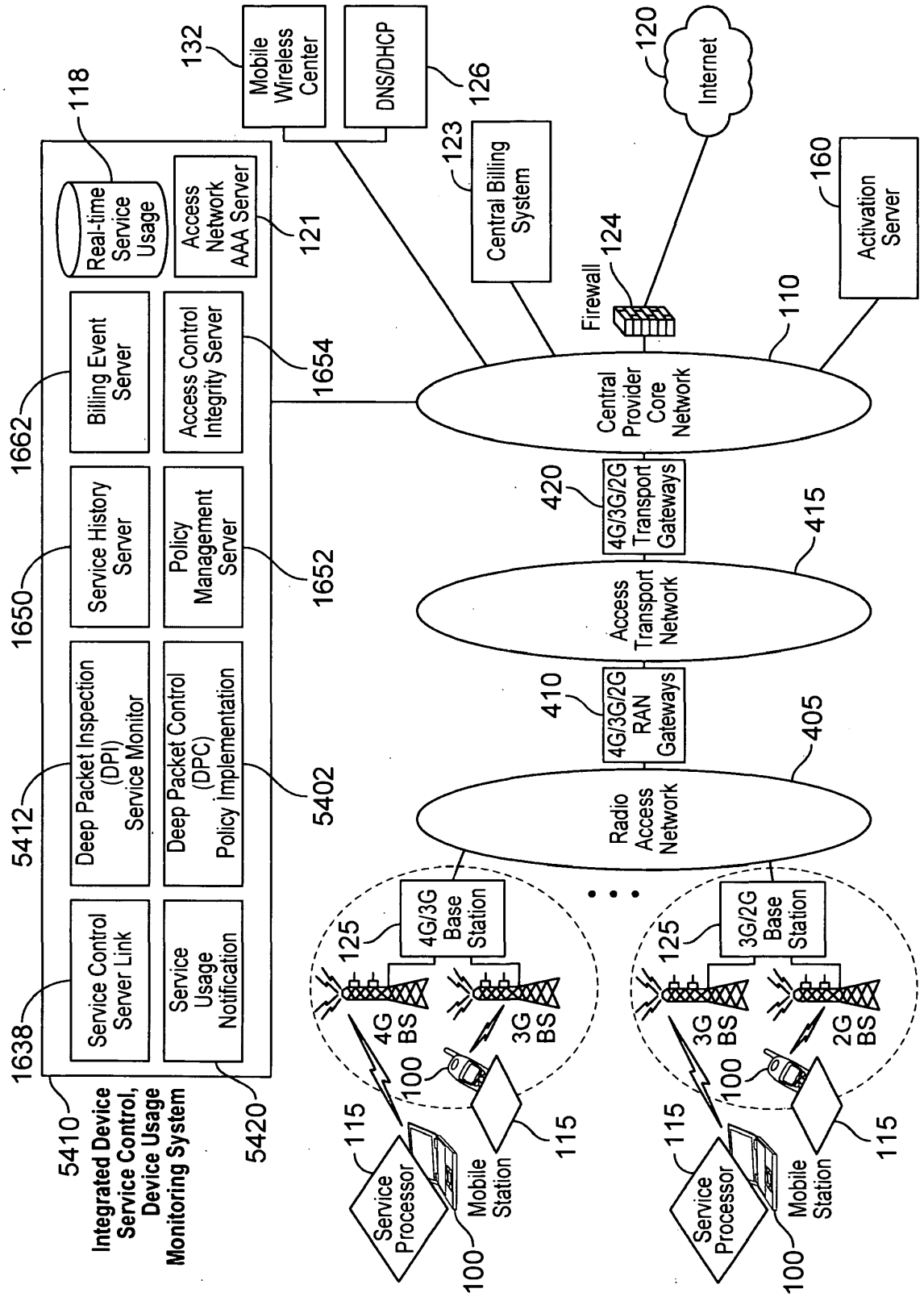

Integrated Device Service Control, Device Usage Monitoring System
5410
1638
Service Control Server Link
Service Usage Notification
5420
5412
Deep Packet Inspection (DPI) Service Monitor
Deep Packet Control (DPC) Policy Implementation
5402
1650
Service History Server
Policy Management Server
1652
1662
Billing Event Server
Access Control Integrity Server
1654
118
Real-time Service Usage
Access Network AAA Server
121
132
Mobile Wireless Center
DNS/DHCP
126
123
Central Billing System
Internet
120
160
Activation Server
Firewall
124
110
Central Provider Core Network
420
4G/3G/2G Transport Gateways
415
Access Transport Network
410
4G/3G/2G RAN Gateways
405
Radio Access Network
125
4G/3G Base Station
3G/2G Base Station
4G BS
3G BS
3G BS
2G BS
100
115
Service Processor
Mobile Station

FIG. 54

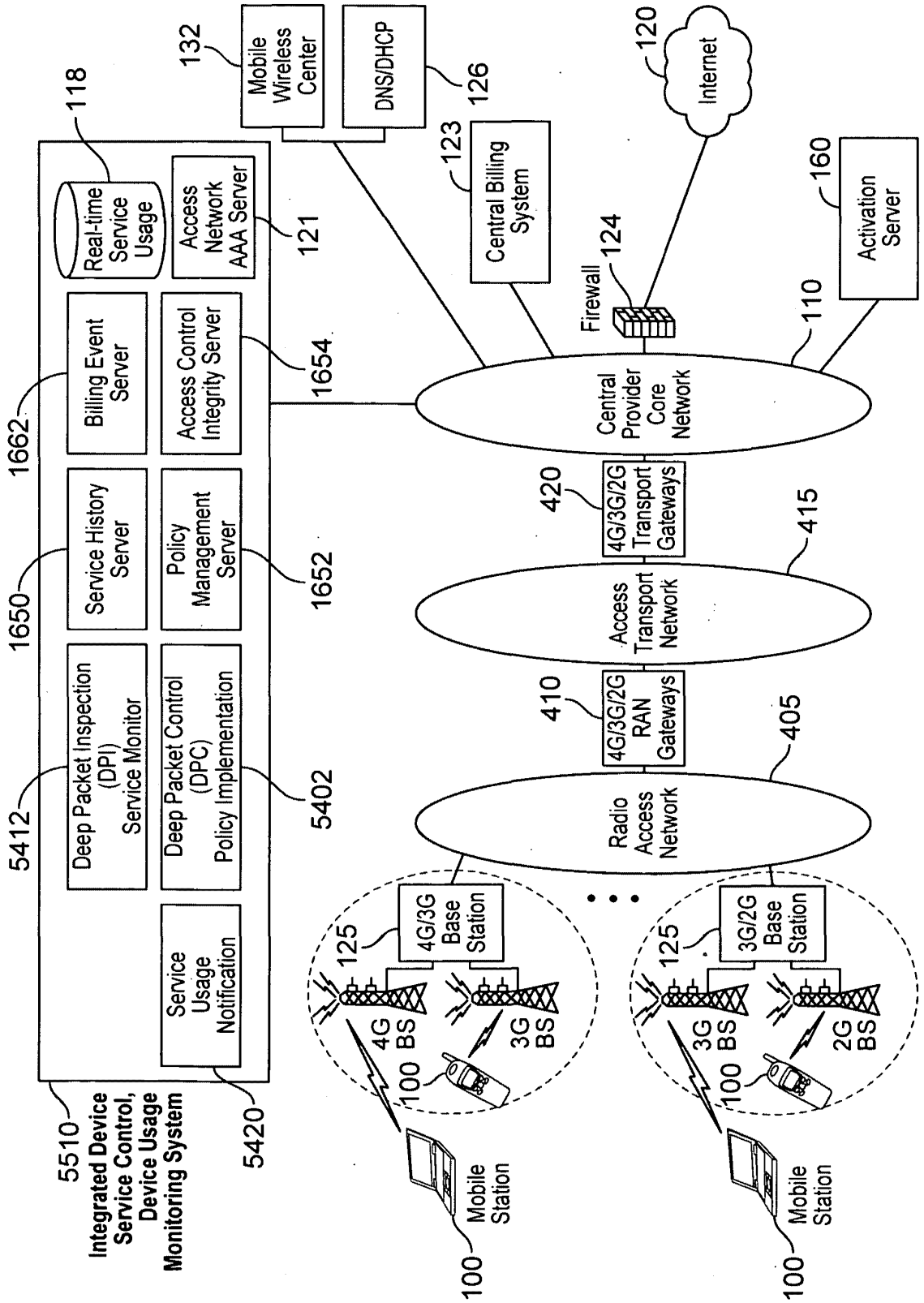

Mobile Wireless Center
132
DNS/DHCP
126
Internet
120
118
Real-time Service Usage
Access Network AAA Server
121
Central Billing System
123
Activation Server
160
Firewall
124
Billing Event Server
Access Control Integrity Server
1654
1662
Central Provider Core Network
110
Service History Server
Policy Management Server
1652
1650
4G/3G/2G Transport Gateways
420
Access Transport Network
415
Deep Packet Inspection (DPI) Service Monitor
Deep Packet Control (DPC) Policy Implementation
5402
5412
4G/3G/2G RAN Gateways
410
Radio Access Network
405
Service Usage Notification
5420
4G/3G Base Station
3G/2G Base Station
125
4G BS
3G BS
3G BS
2G BS
100
Mobile Station
5510
Integrated Device Service Control, Device Usage Monitoring System

FIG. 55

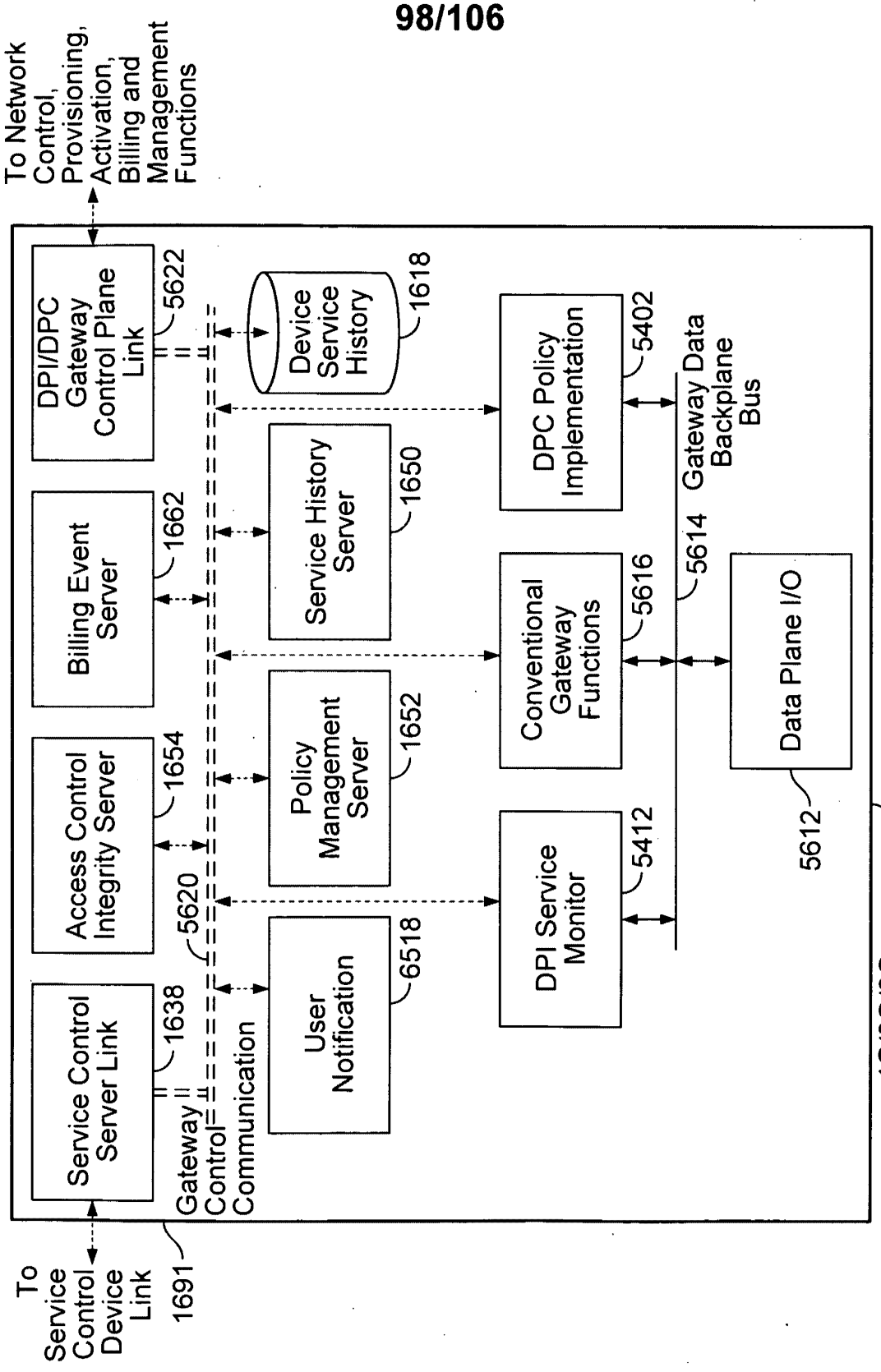

To Network Control, Provisioning, Activation, Billing and Management Functions
DPI/DPC Gateway Control Plane Link
5622
Device Service History
1618
Billing Event Server
1662
Service History Server
1650
DPC Policy Implementation
5402
Access Control Integrity Server
1654
Policy Management Server
1652
Conventional Gateway Functions
5616
5614
Gateway Data Backplane Bus
Service Control Server Link
1638
User Notification
6518
DPI Service Monitor
5412
Data Plane I/O
5612
5620
Gateway Control Communication
4G/3G/2G DPI/DPC Gateway
5610
To Service Control Device Link
1691

FIG. 56

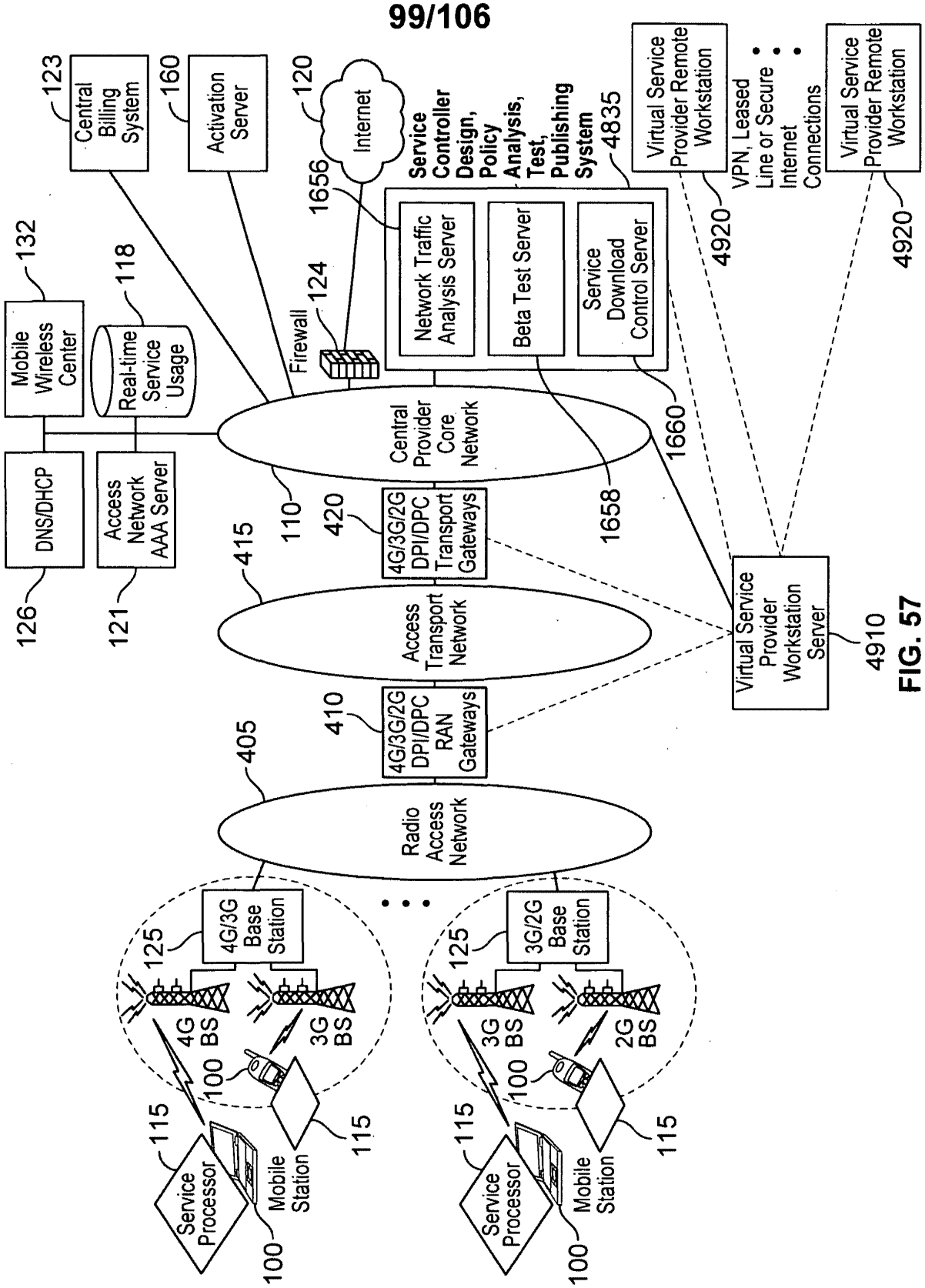

Central Billing System
123
Activation Server
160
Internet
120
Service Controller Design, Policy Analysis, Test, Publishing System
4835
Virtual Service Provider Remote Workstation
VPN, Leased Line or Secure Internet Connections
4920
Mobile Wireless Center
132
Real-time Service Usage
118
Firewall
124
1656
Network Traffic Analysis Server
Beta Test Server
Service Download Control Server
DNS/DHCP
126
Access Network AAA Server
121
Central Provider Core Network
110
1660
1658
4G/3G/2G DPI/DPC Transport Gateways
420
415
Access Transport Network
4G/3G/2G DPI/DPC RAN Gateways
410
405
Radio Access Network
Virtual Service Provider Workstation Server
4910
4G/3G Base Station
3G/2G Base Station
125
4G BS
3G BS
3G BS
2G BS
100
115
Service Processor
Mobile Station

FIG. 57

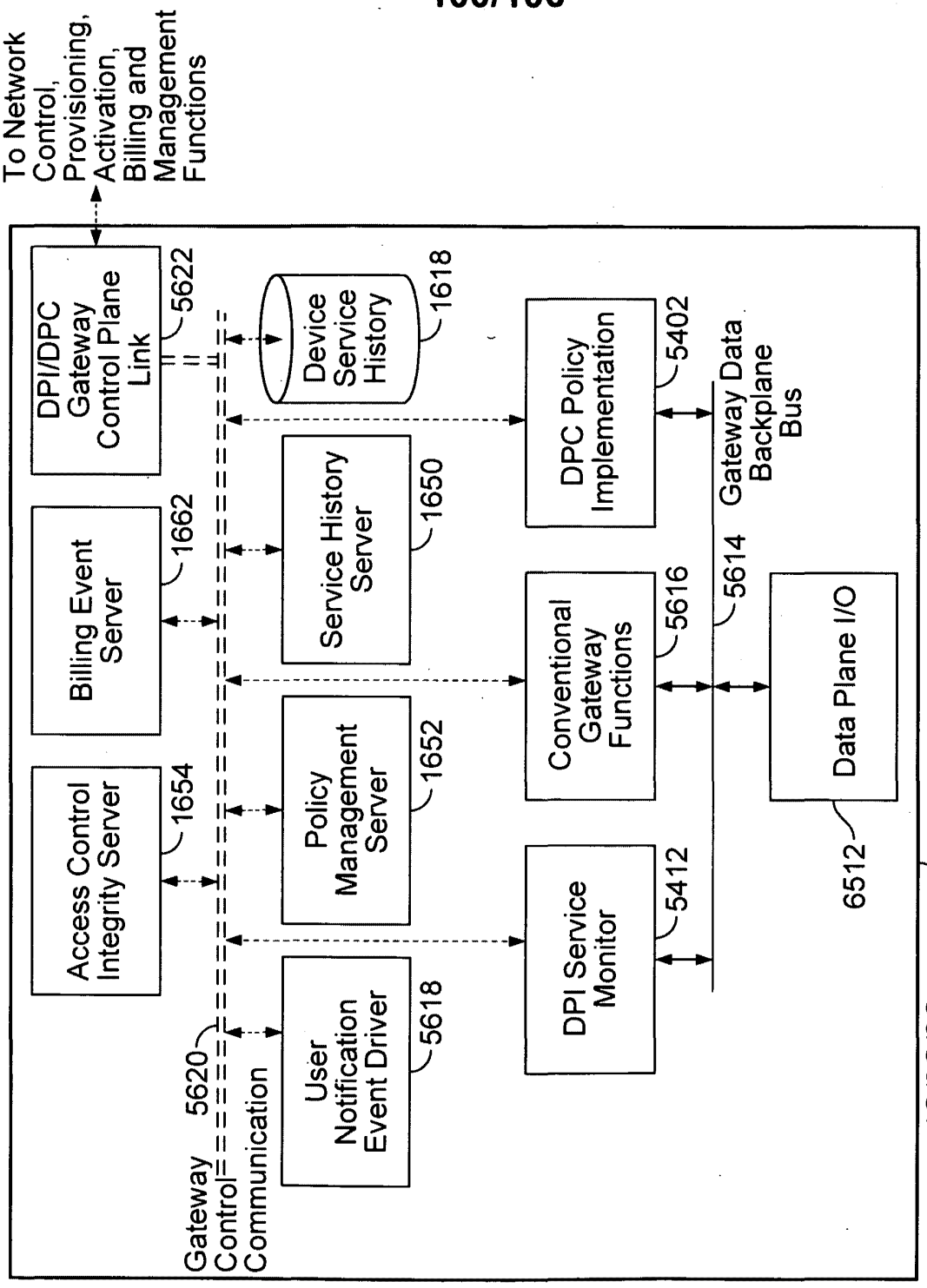

To Network Control, Provisioning, Activation, Billing and Management Functions
DPI/DPC Gateway Control Plane Link
5622
Device Service History
1618
Billing Event Server
1662
Service History Server
1650
DPC Policy Implementation
5402
Gateway Data Backplane Bus
Access Control Integrity Server
1654
Policy Management Server
1652
Conventional Gateway Functions
5616
5614
Data Plane I/O
User Notification Event Driver
5618
DPI Service Monitor
5412
6512
Gateway Control Communication
5620
4G/3G/2G DPI/DPC Gateway
5810

FIG. 58

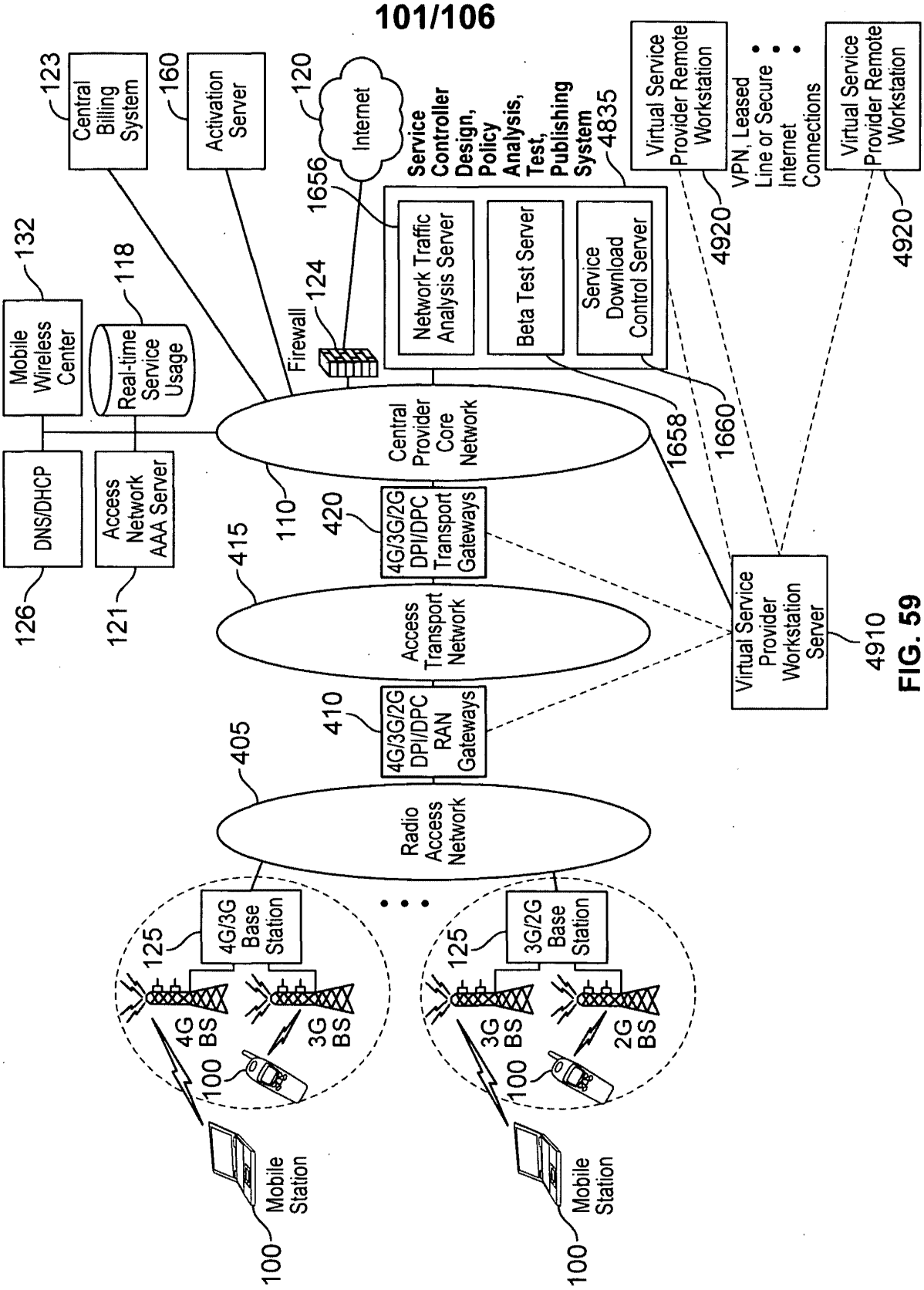

Central Billing System
123
Activation Server
160
Internet
120
Service Controller Design, Policy Analysis, Test, Publishing System
4835
Virtual Service Provider Remote Workstation
VPN, Leased Line or Secure Internet Connections
4920
Mobile Wireless Center
132
Real-time Service Usage
118
Firewall
124
1656
Network Traffic Analysis Server
Beta Test Server
Service Download Control Server
1658
1660
Central Provider Core Network
110
DNS/DHCP
126
Access Network AAA Server
121
4G/3G/2G DPI/DPC Transport Gateways
420
415
Access Transport Network
4G/3G/2G DPI/DPC RAN Gateways
410
405
Radio Access Network
Virtual Service Provider Workstation Server
4910
4G/3G Base Station
3G/2G Base Station
125
4G BS
3G BS
3G BS
2G BS
100
Mobile Station

FIG. 59

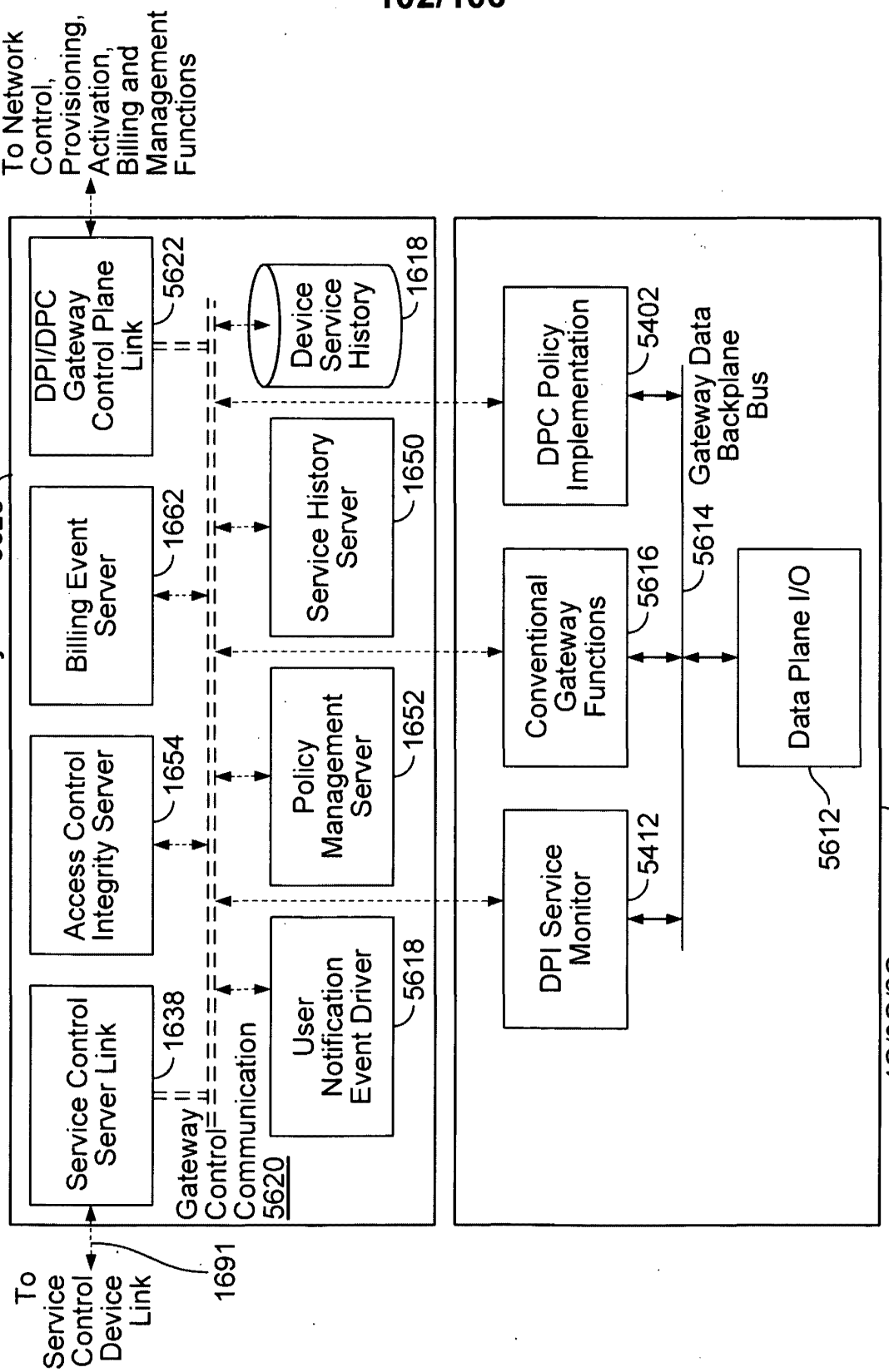

To Network Control, Provisioning, Activation, Billing and Management Functions
Service Controller Device Control System 6025
DPI/DPC Gateway Control Plane Link
5622
Device Service History
1618
Billing Event Server
1662
Service History Server
1650
Access Control Integrity Server
1654
Policy Management Server
1652
Service Control Server Link
1638
User Notification Event Driver
5618
Gateway Control Communication 5620
DPC Policy Implementation
5402
Conventional Gateway Functions
5616
Gateway Data Backplane Bus
5614
DPI Service Monitor
5412
Data Plane I/O
5612
4G/3G/2G DPI/DPC Gateway
6010
To Service Control Device Link
1691

FIG. 60

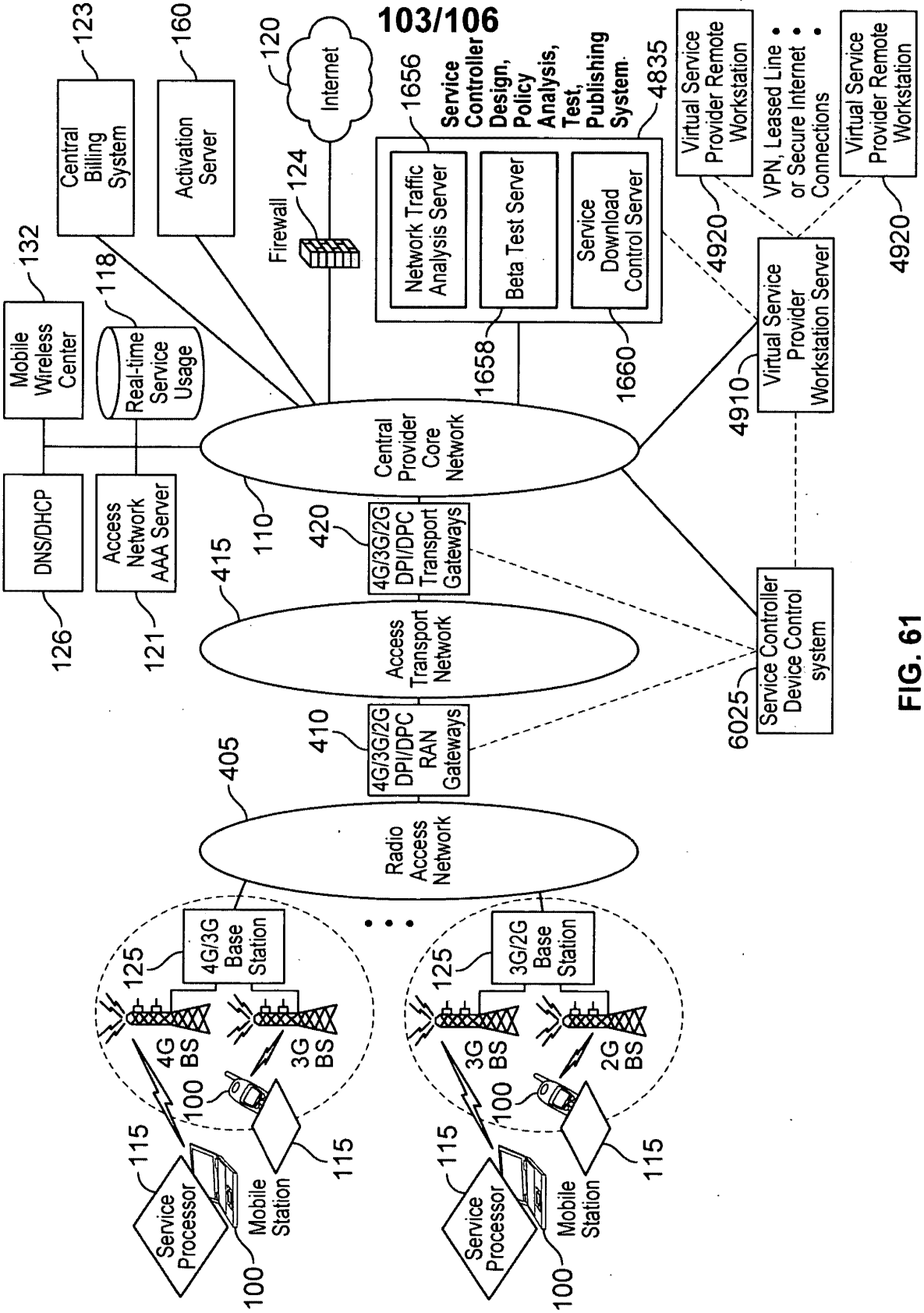

103/106
Service Controller Design, Policy Analysis, Test, Publishing System.
1656
4835
Network Traffic Analysis Server
Beta Test Server
Service Download Control Server
1658
1660
Internet
120
Firewall
124
Central Billing System
123
Activation Server
160
Mobile Wireless Center
132
Real-time Service Usage
118
DNS/DHCP
126
Access Network AAA Server
121
Central Provider Core Network
110
4G/3G/2G DPI/DPC Transport Gateways
420
Access Transport Network
415
4G/3G/2G DPI/DPC RAN Gateways
410
Radio Access Network
405
4G/3G Base Station
125
3G/2G Base Station
4G BS
3G BS
3G BS
2G BS
100
115
Service Processor
Mobile Station
Virtual Service Provider Remote Workstation
4920
VPN, Leased Line or Secure Internet Connections
Virtual Service Provider Workstation Server
4910
Service Controller Device Control system
6025

FIG. 61

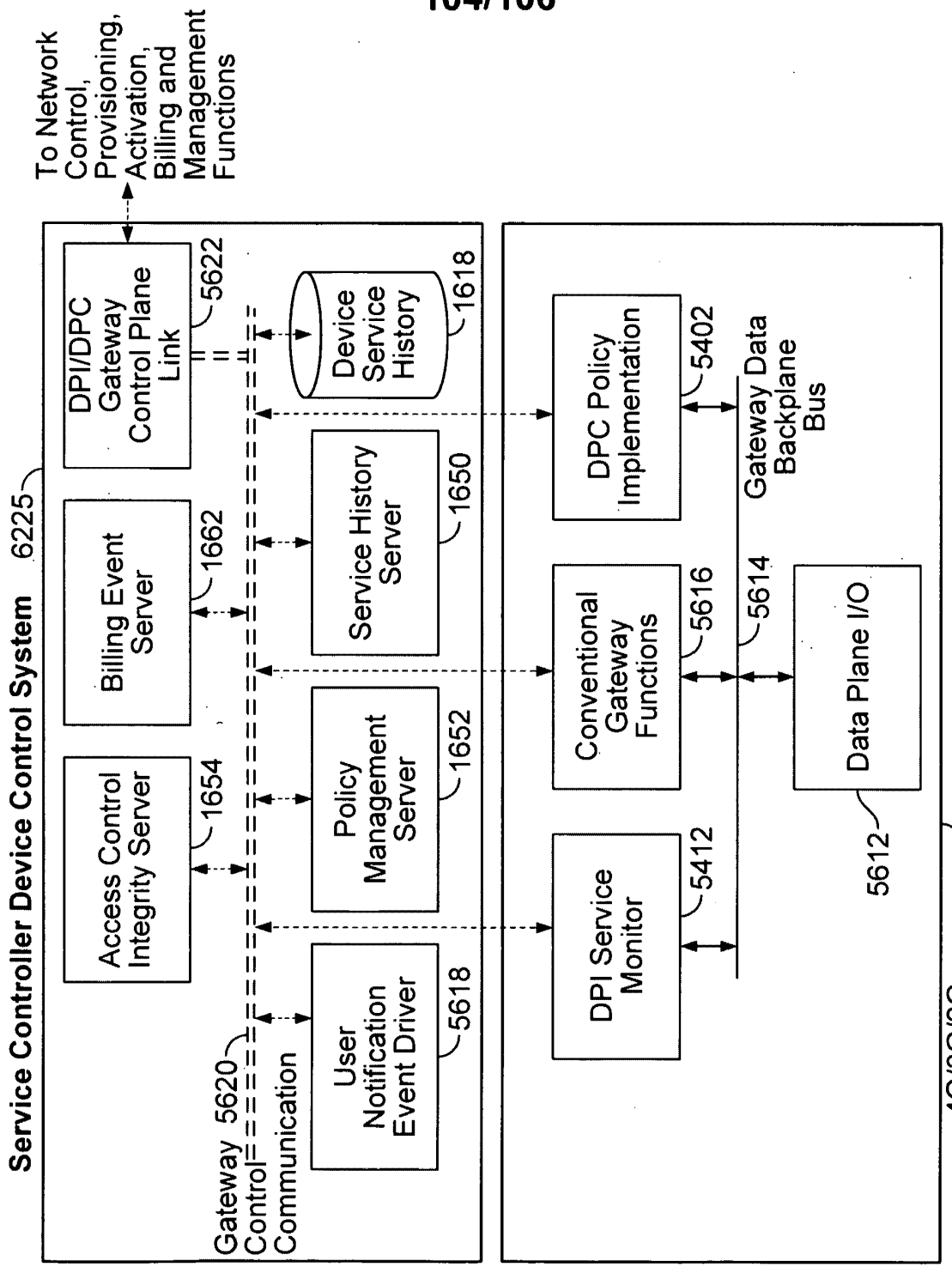

To Network Control, Provisioning, Activation, Billing and Management Functions
Service Controller Device Control System
6225
DPI/DPC Gateway Control Plane Link
5622
Billing Event Server
1662
Access Control Integrity Server
1654
Policy Management Server
1652
User Notification Event Driver
5618
Service History Server
1650
Device Service History
1618
Gateway Control Communication
5620
DPC Policy Implementation
5402
Conventional Gateway Functions
5616
DPI Service Monitor
5412
Gateway Data Backplane Bus
5614
Data Plane I/O
5612
4G/3G/2G DPI/DPC Gateway
6210

FIG. 62

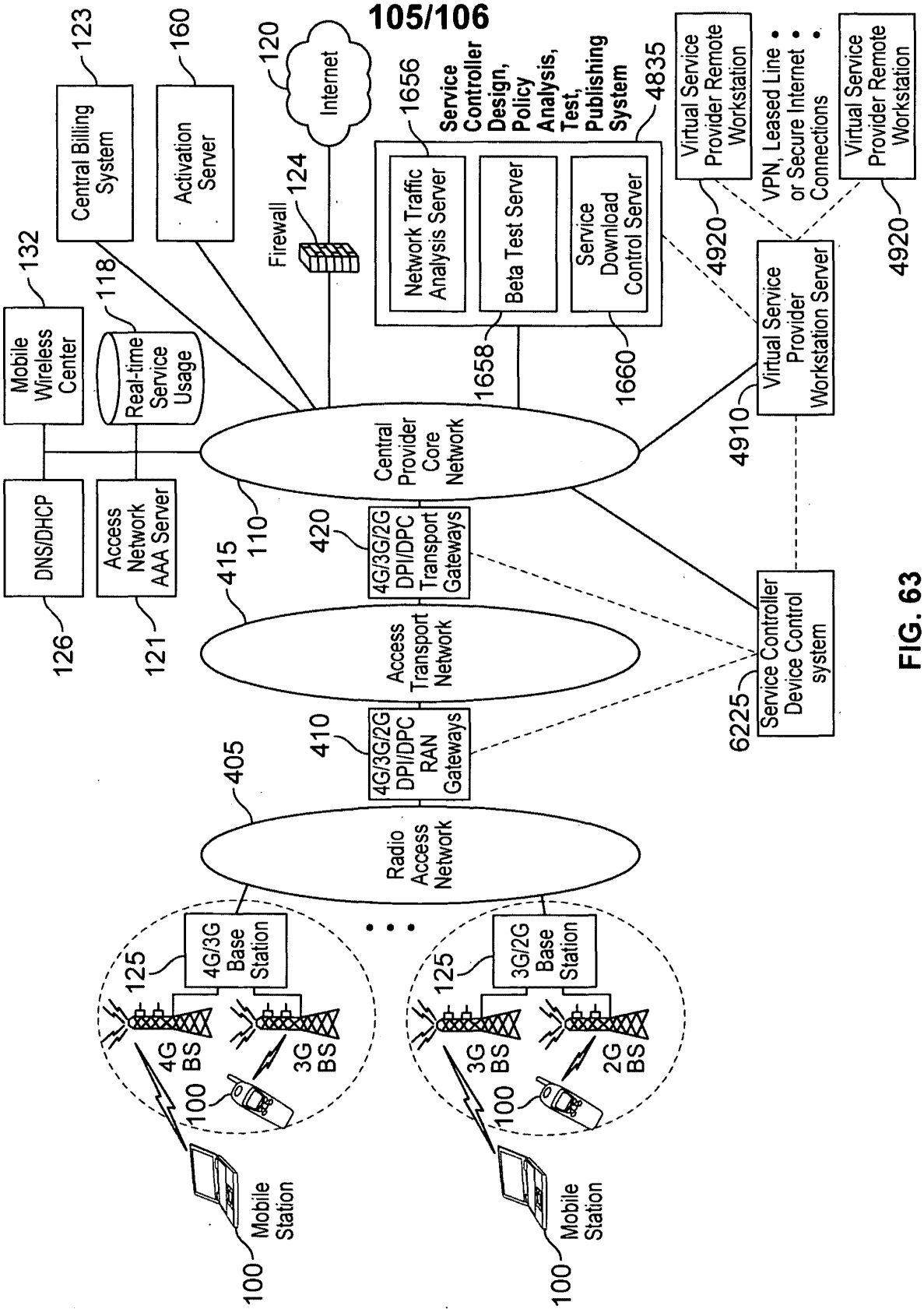

105/106
Central Billing System
123
Activation Server
160
Internet
120
Service Controller Design, Policy Analysis, Test, Publishing System
1656
4835
Network Traffic Analysis Server
Beta Test Server
Service Download Control Server
Firewall
124
Virtual Service Provider Remote Workstation
4920
VPN, Leased Line or Secure Internet Connections
Mobile Wireless Center
132
Real-time Service Usage
118
Central Provider Core Network
110
1658
1660
Virtual Service Provider Workstation Server
4910
DNS/DHCP
126
Access Network AAA Server
121
4G/3G/2G DPI/DPC Transport Gateways
420
415
Access Transport Network
4G/3G/2G DPI/DPC RAN Gateways
410
405
Radio Access Network
Service Controller Device Control system
6225
4G/3G Base Station
125
3G/2G Base Station
4G BS
3G BS
2G BS
100
Mobile Station

FIG. 63

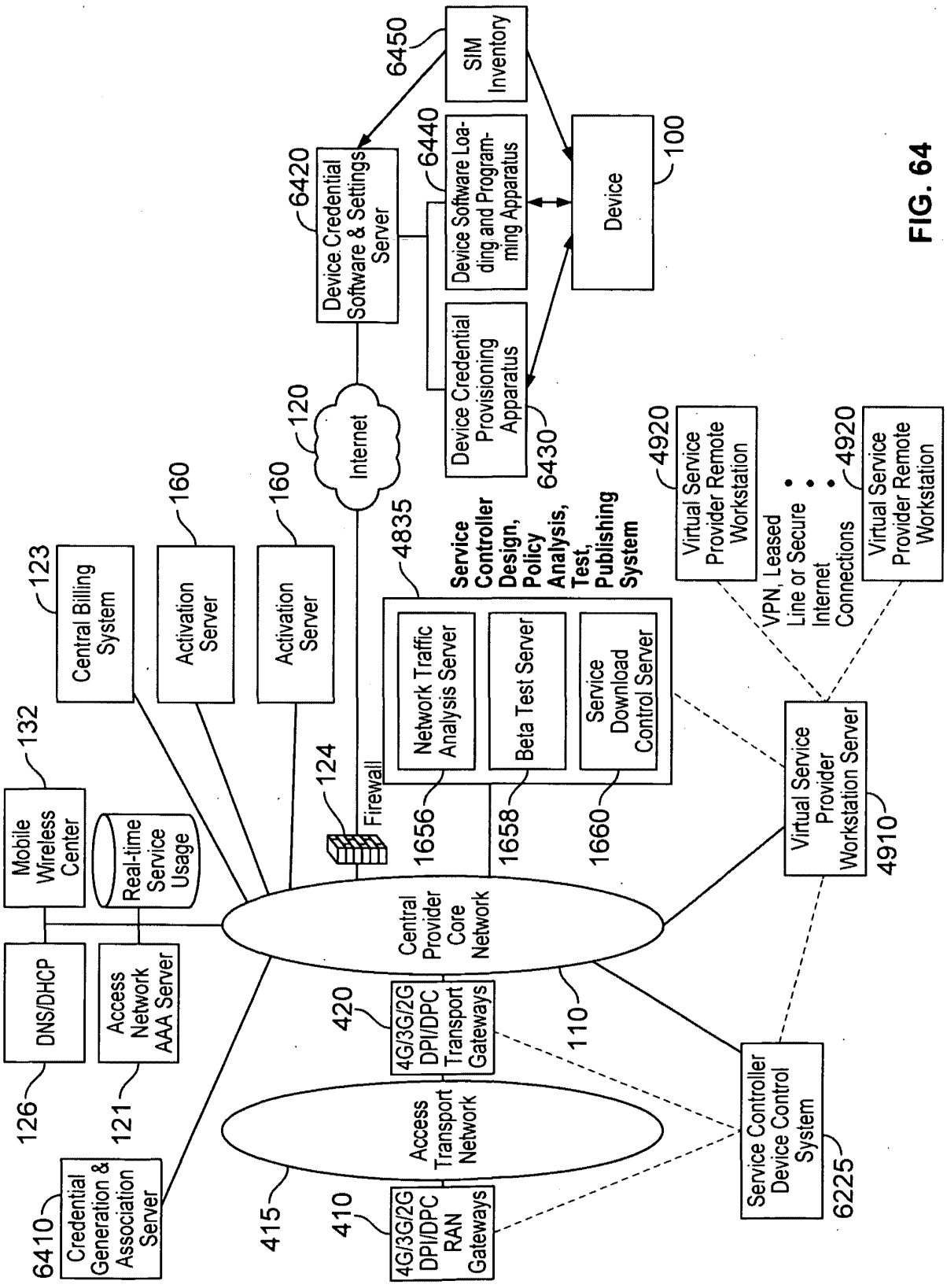

6450
SIM Inventory
6420
Device Credential Software & Settings Server
6440
Device Software Loading and Programming Apparatus
100
Device
120
Internet
6430
Device Credential Provisioning Apparatus
4920
Virtual Service Provider Remote Workstation
4920
Virtual Service Provider Remote Workstation
VPN, Leased Line or Secure Internet Connections
160
Activation Server
160
Activation Server
123
Central Billing System
4835
Service Controller Design, Policy Analysis, Test, Publishing System
Network Traffic Analysis Server
Beta Test Server
Service Download Control Server
1656
1658
1660
124
Firewall
132
Mobile Wireless Center
Real-time Service Usage
Virtual Service Provider Workstation Server
4910
Central Provider Core Network
DNS/DHCP
Access Network AAA Server
126
121
420
4G/3G/2G DPI/DPC Transport Gateways
110
Access Transport Network
Service Controller Device Control System
6225
6410
Credential Generation & Association Server
415
410
4G/3G/2G DPI/DPC RAN Gateways

FIG. 64

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
12/380,778	03/02/2009	2614	0.00	RALEP004	37	10

CONFIRMATION NO. 9622

21912
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

FILING RECEIPT

OC000000035092845

Date Mailed: 03/25/2009

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;

Assignment For Published Patent Application

Gregory G. Raleigh

Power of Attorney: None

Domestic Priority data as claimed by applicant

This appln 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

Foreign Applications

If Required, Foreign Filing License Granted: 03/19/2009

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/380,778**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No

Title

Verifiable device assisted service usage billing with integrated accounting, mediation accounting, and multi-account

Preliminary Class

379

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

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).

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
12/380,778	03/02/2009	Gregory G. Raleigh	RALEP004

CONFIRMATION NO. 9622

21912
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

FORMALITIES LETTER

OC000000035092846

Date Mailed: 03/25/2009

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 and pay any fees required 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 statutory basic filing fee is missing.
  *Applicant must submit $**330** to complete the basic filing fee for a non-small entity. If appropriate, applicant may make a written assertion of entitlement to small entity status and pay the small entity filing fee (37 CFR 1.27).*
- 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) 1-20, 22-23, 26A-38, 46-57, 59-61, 63-64.
  - Numbers, letters, and reference characters on the drawings must measure at least 0.32 cm (1/8 inch) in height. See Figure(s) 22-23, 26A-31, 32-46.
  - The drawings submitted to the Office are not electronically reproducible because portions of figures 1-15, 48-55, 57, 59, 61, 63 are missing and/or blurry.

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:

- Additional claim fees of $**2424** as a non-small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.
- 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 $**130** for a non-small entity, must be submitted with the missing items identified in this notice.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is $**4994** for a non-small entity

- $**330** Statutory basic filing fee.
- $**130** Surcharge.
- The application search fee has not been paid. Applicant must submit $**540** to complete the search fee.
- The application examination fee has not been paid. Applicant must submit $**220** to complete the examination fee for a non-small entity.
- The specification and drawings contain more than 100 pages. Applicant owes $**1350** for **234** pages in excess of **100** pages for a non-small entity.
- Total additional claim fee(s) for this application is $**2424**
  - $**1540** for **7** independent claims over 3.
  - $**884** for **17** total claims over 20.

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.

/mkanno/

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

U.S. PTO
12/380778
03/02/2009

030209
17607 U.S. PTO

UTILITY PATENT APPLICATION TRANSMITTAL (New Nonprovisional Applications Under 37 CFR § 1.53(b))	Attorney Docket No. RALEP004

TO THE COMMISSIONER FOR PATENTS:

Transmitted herewith is the patent application of ( ) application identifier or (X) first named inventor, Gregory G. Raleigh, entitled VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT, for a(n):

(X) Original Patent Application.

( ) Continuing Application (prior application not abandoned):
( ) Continuation ( ) Divisional ( ) Continuation-in-part (CIP)
of prior Application No. _____, filed _____.

( ) Please add after the title of the application "This is a
( ) Continuation ( ) Divisional ( ) Continuation-in-part (CIP)
of Application No. _____, filed _____, which is hereby incorporated by reference."

(X) This application claims the benefit of U.S. Provisional Application No. 61/206,354 (Attorney Docket No. RALEP001+) entitled SERVICES POLICY COMMUNICATION SYSTEM AND METHOD filed January 28, 2009, U.S. Provisional Patent Application No. 61/206,944 (Attorney Docket No. RALEP002+) entitled SERVICES POLICY COMMUNICATION SYSTEM AND METHOD filed February 4, 2009, U.S. Provisional Application No. 61/207,393 (Attorney Docket No. RALEP003+) entitled SERVICES POLICY COMMUNICATION SYSTEM AND METHOD filed February 10, 2009, and U.S. Provisional Patent Application No. _____ (Attorney Docket No. RALEP004+) entitled SERVICES POLICY COMMUNICATION SYSTEM AND METHOD filed on February 13, 2009, which are incorporated herein by reference for all purposes.

Enclosed are:
(X) Specification; 249 Total Pages. (X) Drawing(s); 84 Total Sheets.
( ) Oath or Declaration:
( ) A Newly Executed Combined Declaration and Power of Attorney:
( ) Signed. ( ) Unsigned. ( ) Partially Signed.
( ) A Copy from a Prior Application for Continuation/Divisional (37 CFR § 1.63(d)).
( ) Signed Statement Deleting Inventor(s) Named in the Prior Application. (37 CFR § 163(d)(2)).
( ) Power of Attorney. (X) Return Receipt Postcard.
( ) Associate Power of Attorney. ( ) A Check in the amount of $_____for the Filing Fee.
( ) Preliminary Amendment. ( ) Information Disclosure Statement and Form PTO-1449.
( ) A Duplicate Copy of this Form for Processing Fee Against Deposit Account.
( ) A Certified Copy of Priority Documents (if foreign priority is claimed).
( ) Statement(s) of Status as a Small Entity.
( ) Statement(s) of Status as a Small Entity Filed in Prior Application, Status Still Proper and Desired.
(X) Non Publication Request.
( ) Other: _____

PLEASE DO NOT CHARGE THE FILING FEE AT THIS TIME.

Respectfully submitted,

By: _____
Michael J. Schallop, Reg. No. 44,319

Date: March 2, 2009

Correspondence Address:

Customer No. 21912
Van Pelt, Yi & James LLP
10050 N. Foothill Blvd.
Suite 200
Cupertino, CA 95014
Telephone: 408-973-2585
Fax: 408-973-2595

I hereby certify that this is being deposited with the U.S. Postal Service "Express Mail Post Office to Addressee" service under 37 CFR § 1.10 on the date indicated below and is addressed to:

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

By: _____

Typed Name: Stephanie Valenzuela

Express Mail Label No.: EM156124074US
Date of Deposit: March 2, 2009

PTO/SB/35 (09-04)
Approved for use through 07/31/2006. 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.

NONPUBLICATION REQUEST UNDER 35 U.S.C. 122(b)(2)(B)(i)		
	First Named Inventor	Gregory G. Raleigh
	Title	VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT
	Attorney Docket Number	RALEP004

I hereby certify that the invention disclosed in the attached application **has not and will not be** the subject of an application filed in another country, or under a multilateral agreement, that requires publication at eighteen months after filing.

I hereby request that the attached application not be published under 35 U.S.C. 122(b).

Michael J. Schallop
Signature

3/2/09
Date

Michael J. Schallop
Typed or printed name

44,319
Registration Number, if applicable

408-207-4762
Telephone Number

This request must be signed in compliance with 37 CFR 1.33(b) and submitted with the application **upon filing.**

Applicant may rescind this nonpublication request at any time. If applicant rescinds a request that an application not be published under 35 U.S.C. 122(b), the application will be scheduled for publication at eighteen months from the earliest claimed filing date for which a benefit is claimed.

If applicant subsequently files an application directed to the invention disclosed in the attached application in another country, or under a multilateral international agreement, that requires publication of applications eighteen months after filing, the applicant **must** notify the United States Patent and Trademark Office of such filing within forty-five (45) days after the date of the filing of such foreign or international application. **Failure to do so will result in abandonment of this application (35 U.S.C. 122(b)(2)(B)(iii)).**

This collection of information is required by 37 CFR 1.213(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.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Attorney Docket No. RALEP004

APPLICATION FOR UNITED STATES PATENT

VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT

By Inventor:

Gregory G. Raleigh
Woodside, CA
A Citizen of the United States

Assignee: Gregory G. Raleigh

VAN PELT, YI & JAMES LLP
10050 N. Foothill Blvd., Suite 200
Cupertino, CA 95014
Telephone (408) 973-2585

VERIFIABLE DEVICE ASSISTED SERVICE USAGE BILLING WITH INTEGRATED ACCOUNTING, MEDIATION ACCOUNTING, AND MULTI-ACCOUNT

CROSS REFERENCE TO OTHER APPLICATIONS

[0001] This application claims priority to U.S. Provisional Patent Application No. 61/206,354 (Attorney Docket No. RALEP001+) entitled SERVICES POLICY COMMUNICATION SYSTEM AND METHOD filed January 28, 2009, U.S. Provisional Patent Application No. 61/206,944 (Attorney Docket No. RALEP002+) entitled SERVICES POLICY COMMUNICATION SYSTEM AND METHOD filed February 4, 2009, U.S. Provisional Application No. 61/207,393 (Attorney Docket No. RALEP003+) entitled SERVICES POLICY COMMUNICATION SYSTEM AND METHOD filed February 10, 2009, and U.S. Provisional Patent Application No. _____ (Attorney Docket No. RALEP004+) entitled SERVICES POLICY COMMUNICATION SYSTEM AND METHOD filed on February 13, 2009, which are incorporated herein by reference for all purposes.

BACKGROUND OF THE INVENTION

[0002] With the advent of mass market digital communications and content distribution, many access networks such as wireless networks, cable networks and DSL (Digital Subscriber Line) networks are pressed for user capacity, with, for example, EVDO (Evolution-Data Optimized), HSPA (High Speed Packet Access), LTE (Long Term Evolution), WiMax (Worldwide Interoperability for Microwave Access), and Wi-Fi (Wireless Fidelity) wireless networks increasingly becoming user capacity constrained. Although wireless network capacity will increase with new higher capacity wireless radio access technologies, such as MIMO (Multiple-Input Multiple-Output), and with more frequency spectrum being deployed in the future, these capacity gains are likely to be less than what is required to meet growing digital networking demand.

[0003] Similarly, although wire line access networks, such as cable and DSL, can have higher average capacity per user, wire line user service consumption habits are trending toward

very high bandwidth applications 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.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] Various embodiments of the invention are disclosed in the following detailed description and the accompanying drawings.

[0005] **Figure 1** illustrates a simplified (e.g., "flattened") network architecture in accordance with some embodiments.

[0006] **Figure 2** illustrates another simplified (e.g., "flattened") network architecture including an MVNO (Mobile Virtual Network Operator) relationship in accordance with some embodiments.

[0007] **Figure 3** illustrates another simplified (e.g., "flattened") network architecture including two central providers in accordance with some embodiments.

[0008] **Figure 4** illustrates a network architecture including a Universal Mobile Telecommunications System (UMTS) overlay configuration in accordance with some embodiments.

[0009] **Figure 5** illustrates a network architecture including an Evolution Data Optimized (EVDO) overlay configuration in accordance with some embodiments.

[0010] **Figure 6** illustrates a network architecture including a 4G LTE and Wi-Fi overlay configuration in accordance with some embodiments.

[0011] **Figure 7** illustrates a network architecture including a WiMax and Wi-Fi overlay configuration in accordance with some embodiments.

[0012] **Figure 8** illustrates another simplified (e.g., "flattened") network architecture including multiple wireless access networks (e.g., 3G and 4G Wireless Wide Area Networks (WWANs)) and multiple wire line networks (e.g., Data Over Cable Service Interface Specification (DOCSIS) and Digital Subscriber Line Access Multiplexer (DSLAM) wire line networks) in accordance with some embodiments.

[0013] **Figure 9** illustrates a hardware diagram of a device that includes a service processor in accordance with some embodiments.

[0014] **Figure 10** illustrates another hardware diagram of a device that includes a service processor in accordance with some embodiments.

[0015] **Figure 11** illustrates another hardware diagram of a device that includes a service processor in accordance with some embodiments.

[0016] **Figure 12** illustrates another hardware diagram of a device that includes a service processor in accordance with some embodiments.

[0017] **Figure 13** illustrates another hardware diagram of a device that includes a service processor implemented in external memory of a System On Chip (SOC) in accordance with some embodiments.

[0018] **Figure 14** illustrates another hardware diagram of a device that includes a service processor implemented in external memory of a System On Chip (SOC) in accordance with some embodiments.

[0019] **Figures 15A** through **15C** illustrate hardware diagrams of a device that include a service processor and a bus structure extension using intermediate modem or networking device combinations in accordance with various embodiments.

[0020] **Figure 16** is a functional diagram illustrating a device based service processor and a service controller in accordance with some embodiments.

[0021] **Figure 17** is another functional diagram illustrating the device based service processor and the service controller in accordance with some embodiments.

[0022] **Figure 18** is another functional diagram illustrating the device based service processor and the service controller in which the service processor controls the policy implementation for multiple access network modems and technologies in accordance with some embodiments.

[0023] **Figure 19** is another functional diagram illustrating the service processor and the service controller in accordance with some embodiments.

[0024] **Figure 20** is another functional diagram illustrating the service processor and the service controller in accordance with some embodiments.

[0025] **Figure 21** is another functional diagram illustrating the service processor and the service controller in accordance with some embodiments.

[0026] **Figure 22** provides a table summarizing various service processor agents (and/or components/functions implemented in software and/or hardware) in accordance with some embodiments.

[0027] **Figure 23** provides a table summarizing various service controller server elements (and/or components/functions implemented in software and/or hardware) in accordance with some embodiments.

[0028] **Figure 24** is a functional diagram illustrating the service control device link of the service processor and the service control service link of the service controller in accordance with some embodiments.

[0029] **Figure 25** is a functional diagram illustrating framing structure of a service processor communication frame and a service controller communication frame in accordance with some embodiments.

[0030] **Figures 26A** through **26E** provide tables summarizing various service processor heartbeat functions and parameters in accordance with some embodiments.

[0031] **Figures 27A** through **27G** provide tables summarizing various device based service policy implementation verification techniques in accordance with some embodiments.

[0032] **Figures 28A** through **28C** provide tables summarizing various techniques for protecting the device based service policy from compromise in accordance with some embodiments.

[0033] **Figure 29** is a functional diagram illustrating a device communications stack that allows for implementing verifiable traffic shaping policy, access control policy and/or service monitoring policy in accordance with some embodiments.

[0034] **Figure 30** is another functional diagram illustrating the device communications stack that allows for implementing traffic shaping policy, access control policy and/or service monitoring policy in accordance with some embodiments.

[0035] **Figure 31** is another functional diagram illustrating the device communications stack that allows for implementing traffic shaping policy, access control policy and/or service monitoring policy in accordance with some embodiments.

[0036] **Figure 32** is another functional diagram illustrating the device communications stack that allows for implementing traffic shaping policy, access control policy and/or service monitoring policy in accordance with some embodiments.

[0037] **Figure 33** is another functional diagram illustrating the device communications stack that allows for implementing traffic shaping policy, access control policy and/or service monitoring policy in accordance with some embodiments.

[0038] **Figure 34** is another functional diagram illustrating the device communications stack that allows for implementing traffic shaping policy, access control policy and/or service monitoring policy in accordance with some embodiments.

[0039] **Figure 35** is another functional diagram illustrating the device communications stack that allows for implementing traffic shaping policy, access control policy and/or service monitoring policy in accordance with some embodiments.

[0040] **Figure 36** is another functional diagram illustrating the device communications stack that allows for implementing traffic shaping policy, access control policy and/or service monitoring policy in accordance with some embodiments.

[0041] **Figure 37** is another functional diagram illustrating the device communications stack that allows for implementing traffic shaping policy, access control policy and/or service monitoring policy in accordance with some embodiments.

[0042] **Figure 38** is a functional diagram illustrating a device service processor packet processing flow in accordance with some embodiments.

[0043] **Figure 39** is another functional diagram illustrating the device service processor packet processing flow in accordance with some embodiments.

[0044] **Figure 40** is another functional diagram illustrating the device service processor packet processing flow in accordance with some embodiments.

[0045] **Figure 41** provides a table summarizing various privacy levels for service history reporting in accordance with some embodiments.

[0046] **Figures 42A** through **42F** provide tables summarizing various service policy control commands in accordance with some embodiments.

[0047] **Figures 43A** through **43B** are flow diagrams illustrating a flow diagram for a service processor authorization sequence as shown in Figure 43A and a flow diagram for a service controller authorization sequence as shown in Figure 43B in accordance with some embodiments.

[0048] **Figures 44A** through **44B** are flow diagrams illustrating a flow diagram for a service processor activation sequence as shown in Figure 44A and a flow diagram for a service controller activation sequence as shown in Figure 44B in accordance with some embodiments.

[0049] **Figures 45A** through **45B** are flow diagrams illustrating a flow diagram for a service processor access control sequence as shown in Figure 45A and a flow diagram for a service controller access control sequence as shown in Figure 45B in accordance with some embodiments.

[0050] **Figure 46** is a functional diagram illustrating open, decentralized, device based mobile commerce transactions in accordance with some embodiments.

[0051] **Figures 47A** through **47B** are transactional diagrams illustrating open, decentralized, device based mobile commerce transactions in accordance with some embodiments.

[0052] **Figure 48** illustrates a network architecture including a service controller device control system and a service controller analysis and management system in accordance with some embodiments.

[0053] **Figure 49** illustrates a network architecture for an open developer platform for virtual service provider (VSP) partitioning in accordance with some embodiments.

[0054] **Figure 50** illustrates a network architecture including a billing to service controller interface for accommodating minimum changes in existing central billing, AAA and/or other network components in accordance with some embodiments.

[0055] **Figure 51** illustrates a network architecture for locating service controller device control functions with AAA and network service usage functions in accordance with some embodiments.

[0056] **Figure 52** illustrates a network architecture for locating service controller device control functions in the access transport network in accordance with some embodiments.

[0057] **Figure 53** illustrates a network architecture for locating service controller device control functions in the radio access network in accordance with some embodiments.

[0058] **Figure 54** illustrates a network architecture for locating service controller device control functions with AAA and network service usage including deep packet inspection functions in accordance with some embodiments.

[0059] **Figure 55** illustrates another network architecture for locating service controller device control functions with AAA and network service usage including deep packet inspection functions in accordance with some embodiments.

[0060] **Figure 56** illustrates a 4G/3G/2G DPI/DPC enabled gateway in accordance with some embodiments.

[0061] **Figure 57** illustrates a network architecture including the VSP workstation server in communication with the 4G/3G/2G DPI/DPC gateways in accordance with some embodiments.

[0062] **Figure 58** illustrates another 4G/3G/2G DPI/DPC enabled gateway in accordance with some embodiments.

[0063] **Figure 59** illustrates another network architecture including the VSP workstation server in communication with the 4G/3G/2G DPI/DPC gateways in accordance with some embodiments.

[0064] **Figure 60** illustrates a 4G/3G/2G DPI/DPC enabled gateway and service controller device control system in accordance with some embodiments.

[0065] **Figure 61** illustrates another network architecture including the VSP workstation server in communication with the 4G/3G/2G DPI/DPC gateways in accordance with some embodiments.

[0066] **Figure 62** illustrates another 4G/3G/2G DPI/DPC enabled gateway and service controller device control system in accordance with some embodiments.

[0067] **Figure 63** illustrates another network architecture including the VSP workstation server in communication with the 4G/3G/2G DPI/DPC gateways in accordance with some embodiments.

[0068] **Figure 64** illustrates another network architecture including a system located in the manufacturing or distribution chain for the device that provides the device provisioning or partial provisioning, and any pre-activation required for the device to later activate on the network in accordance with some embodiments.

DETAILED DESCRIPTION

[0069] 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.

[0070] 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.

[0071] With the development and increasing proliferation of mass market digital communications and content distribution, communication network capacity gains are being outpaced by growing digital networking demand. For example, some industry experts project average wireless device usage of four devices per subscriber, with a mixture of general purpose devices like smart phones and computers along with special purpose devices like music players, electronic readers, connected (e.g., networked) cameras and connected gaming devices. In

addition, wire line user service consumption habits are trending toward very high bandwidth applications that can quickly consume the available capacity and degrade overall network service experience if not efficiently managed. Because some components of service provider costs go up with increasing bandwidth, this trend will also negatively impact service provider profits.

[0072] There is a need for a communication system and method that provides for flexible service plans and management of user network services to provide consumer choice of more refined service plan offerings and efficient management of network capacity.

[0073] Also, it is becoming increasingly important to more deeply manage the level of services delivered to networked devices to provide cost effective services that match growing digital networking usage patterns. For example, access providers can move away from only billing for basic access and move toward billing for higher level service delivery with example services including rich Internet access and email, application based billing, content distribution, entertainment activities, information or content subscription or gaming. In addition, a growing number of new special purpose and general purpose networked devices are fueling demand for new service plans, for example, tailored to the new device usage models (e.g., a special service plan for an e-book reader device).

[0074] As network capabilities grow and new networked device offerings grow, access network service providers will realize increasing value in opening up their networks to allow innovation and expanded offerings for network service consumers. However, opening up the networks to provide efficient third party definition of alternative service and billing models requires more flexible service and billing policy management solutions. For example, machine to machine applications such as telemetry, surveillance, shipment tracking and two way power control systems are example new applications that would require new offerings to make such available to network service customers. The need to customize service offerings for these new applications requires more efficient methods for defining, testing and launching new services with more refined control of service functions and service costs. In some embodiments, this means billing for different types of service elements, such as total traffic, content downloads, application usage, information or content subscription services, people or asset tracking services, real time machine to machine information or electronic commerce transactions.

[0075] In some embodiments, network user capacity is increased and user service costs are reduced by managing and billing for service consumption in a more refined manner (e.g., to satisfy network neutrality requirements). By managing service consumption in a user friendly manner, the overall service capacity required to satisfy the user device needs can be tailored more closely to the needs of a given user thereby reducing user service costs and increasing service provider profits. For example, managing service usage while maintaining user satisfaction includes service usage policy implementation and policy management to identify, manage and bill for service usage categories, such as total traffic consumption, content downloads, application usage, information or content subscription services, electronic commerce transactions, people or asset tracking services or machine to machine networking services. As described herein, service activity is used to refer to any service usage or traffic usage that can be associated with, for example, an application; a network communication end point, such as an address, uniform resource locator (URL) or other identifier with which the device is communicating; a traffic content type; a transaction where content or other material, information or goods are transacted, purchased, reserved, ordered or exchanged; a download, upload or file transfer; email, text, SMS, IMS or other messaging activity or usage; VOIP services; video services; a device usage event that generates a billing event; service usage associated with a bill by account activity (also referred to as billing by account) as described herein; device location; device service usage patterns, device user interface (UI) discovery patterns, content usage patterns or other characterizations of device usage; or other categories of user or device activity that can be identified, monitored, recorded, reported, controlled or processed in accordance with a set of verifiable service control policies. As will be apparent to one of ordinary skill in the art in view of the embodiments described herein, some embodiments identify various service activities for the purpose of decomposing overall service usage into finer sub-categories of activities that can be verifiably monitored, categorized, cataloged, reported, controlled, monetized and used for end user notification in a manner that results in superior optimization of the service capabilities for various levels of service cost or for various types of devices or groups. In some embodiments, it will be apparent to one of ordinary skill in the art that the terms service activity or service usage are associated with categorizing and possibly monitoring or controlling data traffic, application usage, communication with certain network end points, or transactions, and it will also be apparent that in some embodiments the term service activity is

intended to include one or more of the broader aspects listed above. The shortened term service usage can be used interchangeably with service activity, but neither term is intended in general to exclude any aspect of the other. In some cases, where the terms service usage or service activity are used, more specific descriptors such as traffic usage, application usage, website usage, and other service usage examples are also used to provide more specific examples or focus in on a particular element of the more encompassing terms.

[0076] In some embodiments, employing this level of service categorization and control is accomplished in a manner that satisfies user preferences. In some embodiments, employing this level of service categorization and control is accomplished in a manner that also satisfies government rules or regulations regarding open access, for example, network neutrality requirements. In some embodiments, service management solutions that also collect and/or report user or device service usage or service activity behavior to determine how best to meet the user's simultaneous desires for service quality and lower service costs are disclosed. For example, such monitoring and reporting are accomplished in a manner that includes approval by the user and in a manner that also protects the privacy of user information and service usage behavior or service activity history.

[0077] In some embodiments, a system and method is disclosed for increasing network user capacity for wireless networks in the face of increasing service demand per user by providing for a greater number of base stations, also sometimes referred to as access points, base terminals, terminal nodes or other well known acronyms, to be more easily and/or more cost effectively deployed. For example, to simplify the process of deploying base stations, the installation complexity and the network infrastructure required for the base station to obtain backhaul service to the various networks that users desire to connect with are reduced.

[0078] In some embodiments, dense base station deployments are simplified by reducing the requirement to aggregate or concentrate the base station traffic through a specific dedicated core network infrastructure, so that the base stations connect to the desired user networks through a more diverse set of local loop, back bone and core routing options. This approach also reduces network infrastructure equipment, installation and maintenance costs. In some embodiments, this is accomplished by distributing the network traffic policy implementation and

control away from the core network by providing for more control for service policy implementation and management on the end user device and, in some embodiments, in the end user device with respect to certain service policies and the network (e.g., control plane servers) with respect to other service policies. For example, this approach facilitates connecting the base stations directly to the local loop Internet with a minimum of specific dedicated networking infrastructure.

[0079] In some embodiments, service and transaction billing event capture and logging are distributed to the device. For example, providing service and transaction billing event capture and logging at the device provides a greater capability to monitor, classify and control deeper aspects of service usage or service activity at the device as compared to the relatively less capability for the same in the network infrastructure (e.g., for certain traffic flows, such as encrypted traffic flows). Furthermore, billing at the device provides for very specialized with many different billing and service plans for different device and service usage or service activity scenario combinations without the problem of attempting to propagate and manage many different deep packet inspection (DPI) and traffic shaping profiles in the networking equipment infrastructure. For example, service billing at the device can provide for more sophisticated, more specialized and more scalable billing and service plans.

[0080] Another form of billing that needs improvement is electronic commerce transaction billing with device assisted central billing. Today, most central billing and content distribution models require either centralized content distribution maintained by the central service provider or central billing authority, or a centralized ecommerce website or portal traffic aggregation system controlled by the central service provider or central billing provider, or both. In such systems, content and transaction providers such as media providers, application developers, entertainment providers, transaction website providers and others must adapt their mainstream electronic offering and commerce systems, such as shopping experience websites, to fit within the various proprietary customized infrastructure and content storage solutions for ecommerce markets, such as BREW® (Binary Runtime Environment for Wireless from Qualcomm® Inc.), Symbian OS (from Symbian Software Ltd) and Apple iPhone 3G App Store (from Apple Inc.). This approach requires a large amount of unnecessary custom interface development and stifles open market creativity for HTTP, WAP or portal/widget based shopping

destinations and experiences. As disclosed below, a superior approach includes device based transaction billing for an open ecosystem in which a central billing provider provides users and ecommerce transaction providers with a central billing solution and experience that does not require extensive custom development or ecommerce infrastructure interfacing.

[0081] In some embodiments, products that incorporate device assisted service policy implementation, network services and service profiles (e.g., a service profile includes a set of one or more service policy settings for the device for a service on the network) are disclosed, as described below. For example, aspects of the service policy (e.g., a set of policies/policy settings for the device for network services, typically referring to lower level settings, such as access control settings, traffic control settings, billing system settings, user notification settings, user privacy settings, user preference settings, authentication settings and admission control settings) that are moved out of the core network and into the end user device include, for example, certain lower level service policy implementations, service usage or service activity monitoring and reporting including, for example, privacy filtering, customer resource management monitoring and reporting including, for example, privacy filtering, adaptive service policy control, service network access control services, service network authentication services, service network admission control services, service billing, transaction billing, simplified service activation and sign up, user service usage or service activity notification and service preference feedback and other service capabilities.

[0082] As discussed below, product designs that move certain aspects of one or more of these service profile or service policy implementation elements into the device provide several advantageous solutions to the needs described above. For example, benefits of certain embodiments include the ability to manage or bill for a richer and more varied set of network services, better manage overall network capacity, better manage end user access costs, simplify user or new device service activation, simplify development and deployment of new devices with new service plans (e.g., service profile and billing/costs information associated with that service profile), equip central service providers with more effective open access networks for new third party solutions, simplify the equipment and processes necessary to deploy wireless base stations and simplify the core networking equipment required to deploy certain access networks.

[0083] As discussed below, there are two network types that are discussed: a central provider network and a service provider network. The central provider network generally refers to the access network required to connect the device to other networks. The central provider network generally includes the physical layer, the Media Access Control (MAC) and the various networking functions that can be implemented to perform authentication, authorization and access control, and to route traffic to a network that connects to the control plane servers, as discussed below. The service provider network generally refers to the network that includes the control plane servers. In some embodiments, a central provider network and a service provider network are the same, and in some embodiments, they are different. In some embodiments, the owner or manager of the central provider network and the owner or manager of the service provider network are the same, and in some embodiments, they are different.

[0084] In some embodiments, control of the device service policies is accomplished with a set of service control plane servers that reside in the access network or any network that can be reached by the device. This server based control plane architecture provides for a highly efficient means of enabling third party control of services and billing, such as for central carrier open development programs or Mobile Virtual Network Operator (MVNO) relationships. As device processing and memory capacity expands, moving to this distributed service policy processing architecture also becomes more efficient and economical. In some embodiments, several aspects of user privacy and desired network neutrality are provided by enabling user control of certain aspects of device based service usage or service activity reporting, traffic reporting, service policy control and customer resource management (CRM) reporting.

[0085] In many access networks, such as wireless access networks, bandwidth capacity is a valuable resource in the face of the increasing popularity of devices, applications and content types that consume more bandwidth. To maintain reasonable service profit margins, a typical present service provider practice is to charge enough per user for access to make service plans profitable for the higher bandwidth users. However, this is not an optimal situation for users who desire to pay less for lower bandwidth service usage or service activity scenarios.

[0086] Accordingly, in some embodiments, a range of service plan pricing can be enabled that also maintains service profitability for the service provider, for example, by

providing a more refined set of management and control capabilities for service profiles. For example, this approach generally leads to service management or traffic shaping where certain aspects of a service are controlled down based on service policies to lower levels of quality of service. Generally, there are three problems that arise when these techniques are implemented. The first problem is maintaining user privacy preferences in the reporting of service usage or service activity required to set, manage or verify service policy implementation. This problem is solved in a variety of ways by the embodiments described below with a combination of user notification, preference feedback and approval for the level of traffic information the user is comfortable or approves and the ability to filter service usage or service activity, in some embodiments, specifically traffic usage or CRM reports so that only the level of information the user prefers to share is communicated. The second problem is satisfying network neutrality requirements in the way that traffic is shaped or services are managed. This problem is solved in a variety of ways as described in the embodiments described below by empowering the user to make the choices on how service usage, service activity, traffic usage or CRM data is managed down to control costs, including embodiments on user notification and service policy preference feedback. By allowing the user to decide how they want to spend and manage their service allowance or resources, a more neutral or completely neutral approach to network usage can be maintained by the service provider. The third problem is to help the user have an acceptable and enjoyable service experience for the lower cost plans that will result in much wider scale adoption of connected devices and applications but are more constrained on service activity usage or options or bandwidth or traffic usage. As lower cost service plans are offered, including plans where the basic connection service may be free, these service plans will require service provider cost controls to maintain profitability or preserve network capacity that result in lower limits on service usage or service activity. These lower service usage or service activity limit plans will result in more users who are likely run over service usage limits and either experience service shutdown or service cost overages unless they are provided with more capable means for assistance on how to use and control usage for the lower cost services. This problem is solved in a variety of ways with a rich collection of embodiments on user notification, service usage and cost projection, user notification policy feedback, user service policy preference feedback, and adaptive traffic shaping or service policy implementation. As described herein, some embodiments allow a wide range of flexible and verifiable service plan and service profile

implementations ranging from examples such as free ambient services that are perhaps sponsored by transaction revenues and/or bill by account sponsored service partner revenues, to intermediately priced plans for basic access services for mass market user devices or machine to machine communication devices, to more expensive plans with very high levels of service usage or service activity limits or no limits at all. Several bill by account embodiments also provide for the cataloging of service usage that is not a direct benefit to end users but is needed for basic maintenance of the device control channels and access network connection, so that the maintenance traffic service cost can be removed from the user billing or billed to non-user accounts used to track or account for such service costs. These embodiments and others result in a service usage or service activity control capability that provides more attractive device and service alternatives to end users while maintaining profitability for service providers and their partners.

[0087] In some embodiments, the above described various embodiments for device based service policy and/or service profile communications control are implemented using network based service control, for example, for satisfying various network neutrality and/or privacy requirements, based on indication(s) received from the device (e.g., user input provided using the device UI using the service processor) and network based service control (e.g., using a DPI service monitor or DPC policy implementation and/or other network elements).

[0088] In some embodiments, a virtual network overlay includes a device service processor, a network service controller and a control plane communication link to manage various aspects of device based network service policy implementation. In some embodiments, the virtual network overlay networking solution is applied to an existing hierarchical network (e.g., for wireless services), and in some embodiments, is applied to simplify or flatten the network architecture as will be further described below. In some embodiments, the large majority of the complex data path network processing required to implement the richer service management objectives of existing hierarchical networks (e.g., for wireless services) are moved into the device, leaving less data path processing required in the edge network and in some cases even less in the core network. Because the control plane traffic between the service control servers and the device agents that implement service policies can be several orders of magnitude slower than the data plane traffic, service control server network placement and back-haul

infrastructure is much less performance sensitive than the data plane network. In some embodiments, as described further below, this architecture can be overlaid onto all the important existing access network architectures used today. In some embodiments, this architecture can be employed to greatly simplify core access network routing and data plane traffic forwarding and management. For example, in the case of wireless networks, the incorporation of device assisted service policy implementation architectures can result in base stations that directly connect to the Internet local loop and the data traffic does not need to be concentrated into a dedicated core network. This results, for example, in a large reduction in backhaul cost, core network cost and maintenance cost. These cost savings can be re-deployed to purchase and install more base stations with smaller cells, which results in higher data capacity for the access network leading to better user experience, more useful applications and lower service costs. This flattened networking architecture also results in latency reduction as fewer routes are needed to move traffic through the Internet. In some embodiments, the present invention provides the necessary teaching to enable this powerful transformation of centralized network service architectures to a more distributed device based service architectures.

[0089] Device based billing can be compromised, hacked and/or spoofed in many different ways. Merely determining that billing reports are being received from the device, that the device agent software is present and properly configured (e.g., the billing agent is present and properly configured) is insufficient and easily spoofed (e.g., by spoofing the agent itself, providing spoofed billing reports using a spoofed billing agent or providing spoofed agent configurations). Accordingly, in some embodiments, verifiable device assisted and/or network based service policy implementation is provided. For example, verifiable service usage and/or service usage billing can be provided as described herein with respect to various embodiments.

[0090] While much of the below discussion and embodiments described below focus on paid service networks, those of ordinary skill in the art will appreciate that many of the embodiments also apply to other networks, such as enterprise networks. For example, the same device assisted network services that create access control services, ambient activation services and other service profiles can be used by corporate IT managers to create a controlled cost service policy network for corporate mobile devices. As another example, embodiments described below for providing end user service control can also allow a service provider to offer

parental controls by providing parents with access to a website with a web page that controls the policy settings for the access control networking service for a child's device.

[0091] **Network Architecture for Device Assisted/Based Service Control**

[0092] **Figure 1** illustrates a simplified (e.g., "flattened") network architecture in accordance with some embodiments. As shown, this provides for a simplified service infrastructure that exemplifies a simplified and "flattened" network architecture in accordance with some embodiments that is advantageous for wireless network architectures. This also reduces the need for complex data path protocol interaction between the base station and network infrastructure. For example, in contrast to a complex edge and core network infrastructure connecting base stations to the central service provider network, as shown the base stations 125 are connected directly to the Internet 120 via firewalls 124 (in some embodiments, the base stations 125 include the firewall functionality 124). Accordingly, in some embodiments, a central provider network is no longer required to route, forward, inspect or manipulate data plane traffic, because data plane traffic policy implementation is conducted in the device 100 by the service processor 115. However, it is still an option, in some embodiments, to bring data plane traffic in from the base stations 125 to a central provider network using either open or secure Internet routing if desired. Base station control plane communication for access network AAA (Authentication, Authorization, and Accounting) server 121, DNS/DHCP (Domain Name System/Dynamic Host Configuration Protocol) server 126, mobile wireless center 132 (sometimes referenced to in part as a home location register (HLR) or other acronym) or other necessary functions are accomplished, for example, with a secure IP tunnel or TCP connection between the central provider network and the base stations. The base station 125 is used to refer to multiple base station embodiments where the base station itself is directly connected to the RAN, or where the base station connects to a base station controller or base station aggregator function that in turn connects to the RAN, and all such configurations are collectively referred to herein as base station 125 in Figure 1 and most figures that follow that reference base station 125 as described below.

[0093] As shown, the central provider access network is both 3G and 4G capable, the devices 100 can be either 3G, 4G or multi-mode 3G and 4G. Those of ordinary skill in the art

will also appreciate that in the more general case, the network could be 2G, 3G and 4G capable, or the device could be 2G, 3G and 4G capable with all or a subset of Global System for Mobile (GSM), General Packet Radio Service (GPRS), Code Division Multiple Access (CDMA) 1X, High Speed Packet Access (HSPA), Evolution Data Optimized (EVDO), Long Term Evolution (LTE) and WiMax modem capability. If the devices are single mode, then the 3G devices 100 will be activated with a service profile applied to service processor 115 that is consistent with the 3G network capacity and speed, and the 4G devices will be activated with service profiles applied to service processor 115 that are consistent with 4G network capacity and speed. In both cases, the same service controller 122 manages services for both sets of devices in accordance with some embodiments. If the devices are multimode, then the service processor 115 can be activated with a dual mode service profile capability in which the service profile for 3G offers a similar rich set of services as the service profile for 4G but with, for example, scaled back bandwidth. For example, this approach is allows central providers to offer a richer set of service offerings with 3G and then migrate the same set of service offerings to 4G but with higher performance. In particular, this approach allows 3G to 4G rich service migration to occur, for example, with the only change being the increased bandwidth settings in the service profiles that will be available in 4G at the same cost as 3G with lower service profile bandwidth settings.

[0094] In some embodiments, if the devices are multimode, a network selection policy implementation within service processor 115 is provided, or in some embodiments, a network selection policy is driven by policy decisions made in service controller 122 based on service availability reports received from service processor 115. The network selection policy allows the selection of the network that corresponds to the most desirable service profile to meet the user's service preferences. For example, if the user specifies, within the framework of the service notification and user preference feedback embodiments described below, that maximum performance is the most important factor in selecting which access network to connect to, then the best profile is likely to be the 4G network as 4G is typically faster, except perhaps, for example, if the device 100 is closer to the 3G base station so that there is a much stronger signal or if the 4G network is much more heavily loaded than the 3G network. On the other hand, if the user preference set specifies cost as the most important factor, then depending on the central provider service costs the 3G network may prove to be the most desirable service profile. This is

a simple example and many other selection criteria are possible in the network selection embodiment as discussed further below.

[0095] **Network Based Service Usage Monitoring for Verification and Other Purposes**

[0096] In some embodiments, if the base station data plane traffic is transmitted via the Internet 120 as discussed above, then IPDRs (Internet Protocol Detail Records, also sometimes and interchangeably referred to herein as Charging Data Records or CDRs, which as used herein refer to any network measure of service usage or service activity for voice and/or data traffic (e.g., IPDRs can include a time stamp, a device ID, and various levels of network measures of service usage for the device associated with that device ID, such as perhaps total traffic usage, network destination, time of day or device location)) are generated by and collected from the access network equipment. Depending on the specific network configuration, as discussed herein, for a WWAN network the IPDRs can be generated by one or more of the following: base station 125, RAN or transport gateways and AAA 121. In some access network embodiments, the IPDRs are transmitted to equipment functions that aggregated the IPDRs for the purpose of service billing and other functions. Aggregation can occur in the AAA, the transport gateways or other functions including the billing system 123. As discussed below, it is often the case that the IPDRs is assumed to be obtained from the AAA server 121 and/or a service usage data store 118 (e.g., a real-time service usage collection stored in a database or a delayed feed service usage collection stored in a database), or some other network function. However, this does not imply that the IPDRs may not be obtained from a variety of other network functions, and in some embodiments, the IPDRs are obtained from other network functions as disclosed herein. In some embodiments, existing IPDR sources are utilized to obtain network based service usage measures for multiple purposes including but not limited to service policy or profile implementation verification, triggering service verification error responds actions, and service notification synchronization. Certain types of IPDRs can be based on, or based in part on, what are sometimes referred to as CDRs (Charging Data Records, which can track charges for voice and data usage) or modifications of CDRs. Although the capability to monitor, categorize, catalog, report and control service usage or service activity is in general higher on the device than it is in the network, and, as described herein, device based service monitoring or control assistance is in

some ways desirable as compared to network based implementations, as described herein many embodiments take advantage of network based service monitoring or control to augment device assisted service monitoring or control and vice versa. For example, even though many embodiments work very well with minimal IPDR service usage or service activity information that is already available in a network, deeper levels of IPDR packet inspection information in general enable deeper levels of service monitoring or service control verification, which can be desirable in some embodiments. As another example, deeper levels of network capability to control service usage or service activity can provide for more sophisticated error handling in some embodiments, for example, providing for more options of the Switched Port Analyzer (SPAN) and network quarantine embodiments as described herein. As another example, in some embodiments it is advantageous to take advantage of network based service monitoring or control for those service aspects the network is capable of supporting, while using device assisted service monitoring or control for the service aspects advantageously implemented on the device.

[0097] In some embodiments, where base station data plane traffic is backhauled and concentrated in a central provider core network 110, then the IPDRs can originate in the base stations or a router or gateway in the central provider network 110, and the IPDRs are collected at the AAA server 121 and stored in the service usage data store 118. In some embodiments, the central billing system 123 collects the IPDRs from the AAA server 121 for service billing accounting purposes. In some embodiments, a central billing system 123 collects the IPDRs directly from the initial IPDR source or some other aggregator. In some embodiments, outside partners like MVNOs gain access to the IPDRs from the central billing system 123. As discussed below, it is assumed that the IPDRs are obtained from the AAA server 121, and it is understood that the source of the IPDRs is interchangeable in the embodiments.

[0098] In some embodiments, the IPDR information is used by the service processor 115, the service controller 122 and/or other network apparatus or device apparatus to implement service control verification is provided as described below. In some embodiments, an IPDR feed (e.g., also referred to as a charging data record (CDR)) flows between network elements. For example, an IPDR feed can flow from the RAN gateway 410 (e.g., SGSN 410, BSC packet control 510 or RNC 512) and the transport gateway 420 (e.g., GGSN or PDSN). In other

embodiments, the IPDRs originate and flow from the base station 125 or some other component/element in the network. In some embodiments, one or more of these IPDR feeds is transmitted to an IPDR aggregation function (e.g., also referred to as a charging gateway). For example, this aggregation function can be located in the AAA 121, in the mobile wireless center 132 (and/or in the home location register (HLR) or other similar function referred to by other common industry names), in the transport gateway 420, or in some other network element. This aggregation function collects the IPDR feeds into a database with an entry for each device 100. In some embodiments, an intermediate aggregation function is provided that feeds a higher level aggregation function, for example, the transport gateway 420 can receive IPDR feeds from the RAN gateway 410 or the base station 125 before sending them to another aggregation function. At some point in time (e.g., at the end of a specified time period, at the end of a device network connection session and/or at a specified time of day), the IPDR aggregation function sends summary information or detailed information of the IPDRs for a given device or group of devices to the billing system for billing and/or reconciliation. In some embodiments, in which the IPDR aggregation feed to the billing system is frequent enough for one or more of the IPDR information purposes described herein, the IPDR feed for the service controller 122 is derived from the aggregated feed, either by having the billing system 123 transmit it to the service controller 122, or by copying it from the IPDR aggregation function.

[0099] In some embodiments, the IPDR feed is obtained from the network function that is generating or aggregating the IPDR feed as described herein. In some embodiments, the IPDR feed is copied from the aggregation function in a manner that does not interrupt the operation of the network. For example, a switch based port analysis function can be used to copy the traffic to a traffic analysis or server element that filters out the IPDR traffic and records it to a data base that is then either pushed to the service controller 122 (or any other network element that uses IPDR information as described herein), or is queried by the service controller 122 (or any other function that uses the IPDR information as described herein). In some embodiments, if the aggregated IPDR information transmitted to the billing system is delayed from real-time traffic usage events by an amount of time that is, for example, too long for desired operation, or for any other reason that makes it less desirable to obtain the IPDR information from the same aggregated feed used for the billing system 123, the IPDR information can be collected from one or more of the sources discussed above including, for example, from another aggregation point

(e.g., the feed to the charging gateway, AAA server and/or mobile wireless center/HLR), one or more of the gateways 410, 420, 508, 512, 520, 608, 612, 620, 708, 712, 720 the base station 125 and/or another network element. In some embodiments, the IPDR feeds from these or other network functions are copied to a database as described above, which is either pushed or queried to get the information to the service controller 122 or other network elements that request the IPDR information.

[00100] In some embodiments, the service processor 115 includes various components, such as device agents, that perform service policy implementation or management functions. In some embodiments, these functions include service policy or implementation verification, service policy implementation tamper prevention, service allowance or denial, application access control, traffic control, network access control services, various network authentication services, service control plane communication, device heartbeat services, service billing, transaction billing, simplified activation services and/or other service implementations or service policy implementations. It will be apparent to those of ordinary skill in the art that the division in functionality between one device agent and another is a design choice, that the functional lines can be re-drawn in any technically feasible way that the product designers see fit, and that the placing divisions on the naming and functional breakouts for device agents aids in understanding, although in more complex embodiments, for example, it can make sense to the product designer to break out device agent functionality specifications in some other manner in order to manage development specification and testing complexity and workflow.

[00101] In some embodiments, network control of the service policy settings and services as discussed above is accomplished with the service controller 122 which in various embodiments includes one or more server functions. As with the service processor 115 agent naming and functional break out, it is understood that service controller 122 server naming and functional breakout is also a design choice and is provided mainly to aid in the discussion. It will be apparent to those of ordinary skill in the art that the server names and functional breakouts do not imply that each name is an individual server, and, for example, a single named function in the various embodiments can be implemented on multiple servers, or multiple named functions in the various embodiments can be implemented on a single server.

[00102] As shown, there are multiple open content transaction partner sites 134 (e.g., open content transaction servers), which represent the websites or experience portals offered by content partners or ecommerce transaction partners of the service provider. For example, transaction servers 134 can provide an electronic commerce offering and transaction platform to the device. In some embodiments, the central provider has ownership and management of the service controller 122, so the central provider and the service provider are the same, but as discussed below the service provider that uses the service controller 122 to manage the device services by way of service processor 115 is not always the same as the central provider who provides the access network services.

[00103] In some embodiments, further distribution of central provider access networking functions such as access network AAA server 121, DNS/DHCP server 126, and other functions are provided in the base stations 125. In some embodiments, network based device service suspend/resume control are also provided in the base stations 125 (or in some embodiments, for hierarchical or overlay networks, this function is provided by one or more of the following: RAN gateways, transport gateways, AAA 121 or some other network function). As shown, the following are connected (e.g., in network communication with) the central provider network 110: central provider billing system 123, dedicated leased lines 128 (e.g., for other services/providers), central provider service controller 122, a content management (e.g., content switching, content billing, and content catching) system 130, central provider DNS/DHCP server 126, access network AAA server 121, service usage data store 118 and central provider mobile wireless center 132. These embodiments may be advantageous particularly for flat networks as that shown in Figure 1 that are provided by the present invention.

[00104] In some embodiments, the base stations 125 implement a firewall function via firewall 124 and are placed directly onto the local loop Internet for backhaul. Voice traffic transport is provided with a secure protocol with Voice Over IP (VOIP) framing running over a secure IP session, for example, Virtual Private Network (VPN), IP Security (IPSEC) or another secure tunneling protocol. In some embodiments, the VOIP channel employs another layer of application level security on the aggregated VOIP traffic trunk before it is placed on the secure IP transport layer. Base station control traffic and other central provider traffic can be provided in a number of ways with secure transport protocols running over Transmission Control Protocol

(TCP), Internet Protocol (IP) or User Datagram Protocol (UDP), although TCP provides a more reliable delivery channel for control traffic that is not as sensitive to delay or jitter. One example embodiment for the control channel is a control link buffering, framing, encryption and secure transport protocol similar to that described below for the service control link between a device and the network. In some embodiments, a service control heartbeat function is provided to the base stations 125 similar to that implemented between the service controller 122 and the service processor 115 as described below. If the need to maintain a bandwidth efficient control plane channel between the base stations and the central provider base station control network is not as critical as it is in the case of access network connection to the device, then there are many other approaches for implementing a secure control channel over the Internet including, for example, one or more of various packet encryption protocols running at or just below the application layer, running TCP Transport Layer Security (TLS), and running IP level security or secure tunnels.

[00105] In some embodiments, the device based services control plane traffic channel between the service processor 115 and the service controller 122 is implemented over the same control plane channel used for the flat base station control architecture, or in some embodiments, over the Internet. As discussed below, it is assumed that the device bases services control plane channel for service processor 115 to service controller 122 communications is established through the Internet 120 or through the access network using IP protocols as this is the more general case and applies to overlay network applications for various embodiments as well as applications where various embodiments are used to enable flattened access networks.

[00106] In some embodiments, by enabling the device to verifiably implement a rich set of service features as described herein, and by enabling the base station 125 to connect directly to the Internet 120 with a local firewall for device data traffic, tunnel the voice to a voice network with VOIP and secure Internet protocols, and control the base station 125 over a secure control plane channel using base station control servers located in a central provider network, base stations 125 can be more efficiently provisioned and installed, because, for example, the base station 125 can accommodate a greater variety of local loop backhaul options. In such embodiments, it is advantageous to perform certain basic network functions in the base station 125 rather than the central provider network.

[00107] In some embodiments, a basic device suspend/resume function for allowing or disallowing the device Internet access is provided by the base stations 125 (or in some embodiments, for hierarchical or overlay networks in some embodiments this function is provided by one or more of the following: RAN gateways, transport gateways, AAA 121 or some other network function). This functionality, as will be discussed below, is important for certain embodiments involving taking action to resolve, for example, service policy verification errors. In some embodiments, this function is performed at the base station (e.g., base stations 125) thereby eliminating the need for a more complex networking equipment hierarchy and traffic concentration required to perform the suspend/resume function deeper in the network. Access network base stations control media access and are therefore designed with awareness of which device identification number a given traffic packet, group of packets, packet flow, voice connection or other traffic flow originates from and terminates to. In some embodiments, the suspend/resume function is implemented in the base station 125 by placing an access control function in the traffic path of each device traffic flow. The suspend resume function can be used by various network elements, and in the context of the present embodiment can be used by the service controller 122 (e.g., in some embodiments, access control integrity server 1654 (Figure 16) of service controller 122 or other service controller elements) to suspend and resume device service based on the assessment of the service policy implementation verification status as described below.

[00108] In some embodiments, at least a basic traffic monitoring or service monitoring function is performed at the base station (e.g., base stations 125) similar to the service history records or IPDRs collected deeper in the network in more conventional hierarchical access network infrastructure architectures. For example, the service or traffic monitoring history records are advantageous for tracking device network service usage or service activity behavior and for certain verification methods for device based service policy implementation or higher device based services as discussed below. In some embodiments, a traffic monitoring function is provided in the base station 125 in which the traffic for each device is at least counted for total traffic usage and recorded. In some embodiments, traffic inspection beyond simply counting total traffic usage is provided. For example, the base station traffic monitor can record and report IP addresses or include a DNS lookup function to report IP addresses or IP addresses and associated Uniform Resource Locators (URLs). Another example allows the base station 125 to

attach location data to the IPDR to provide device location data in the records. In some embodiments, traffic inspection includes recording deeper levels of traffic or service monitoring.

[00109] In some embodiments, device traffic associated with service verification conditions indicating service usage is out of policy or profile limits or allowances is routed to a quarantine network rather than or as an initial alternative to a suspending service. For example, the advantages for this approach and a more detailed description of the quarantine network are discussed below. In some embodiments, the quarantine network capability is provided for in which rather than simply suspending device traffic completely from the network as described above, the base station 125 includes a firewall function (e.g., firewall 124) that is capable of passing device access traffic with the quarantine network destinations and blocking device access to all other destinations. In some embodiments, when it is discovered that service verification conditions indicate that service usage is out of policy or profile limits or allowances, then one or more of the following actions are taken: the user is notified of the overage condition, the user is required to acknowledge the overage condition, the user account is billed for the overage condition, and the device is flagged for further analysis by a network device analysis function or a network manager.

[00110] In some embodiments, network complexity is reduced using the device without moving completely to a flat base station network as described above. Device participation in the core network services implementation provides for numerous measures for simplifying or improving network architecture, functionality or performance. For example, two approaches are discussed below ranging from a simple overlay of the service processor 115 onto devices and the service controller 122 in a conventional hierarchical access network as illustrated in Figures 4 through 7, to a completely flat network as illustrated in Figures 1 through 3 and 8. Those of ordinary skill in the art will appreciate that the disclosed embodiments provided herein can be combined with the above embodiments and other embodiments involving flat network base stations to provide several advantages including, for example, richer service capability, less access network complexity, lower access network expenses, more flexible base station deployments, or less complex or less expensive base station back haul provisioning and service costs.

[00111] In most of the discussion that follows, the network based service history records and the network based suspend-resume functionality used in certain embodiments involving service implementation verification are assumed to be derived from the device service history 1618 (as shown in Figure 16) central provider network element and the AAA server 121 central provider network element, and in some embodiments, working in conjunction with other central provider network elements. It is understood that these functions provided by the network can be rearranged to be provided by other networking equipment, including the base station as discussed above. It is also understood that the network based device traffic monitoring, recording and reporting to the device service history 1618 element can be accomplished at the base stations. Furthermore, it is understood that while the AAA server 121 is assumed to provide the suspend/resume functionality, quarantine network routing or limited network access called for in some embodiments, the AAA server 121 can be a management device in which the actual implementation of the traffic suspend/resume, firewall, routing, re-direction forwarding or traffic limiting mechanisms discussed in certain embodiments can be implemented in the base stations as discussed above or in another network element.

[00112] In some embodiments, an activation server 160 (or other activation sequencing apparatus) provides for provisioning, as described below, of the devices 100 and/or network elements in the central provider network so that, for example, the device credentials can be recognized for activation and/or service by the network. In some embodiments, the activation server 160 provides activation functions, as described below, so that, for example, the devices can be recognized by the network, gain access to the network, be provided with a service profile, be associated with a service account and/or be associated with a service plan. As shown in Figure 1, the activation server 160 is connected to the central provider core network 110. In this configuration, the activation server 160 acts as, an over the network or over the air, activation function. In some embodiments, the activation server 160, or variations of the activation server 160 as described below, is connected to apparatus in the manufacturing or distribution channel, or over the Internet 120, or as part of the service controller 122 to service provisioning or activation functions. In some embodiments, the activation server 160 is connected to the central provider core network 110. In some embodiments, the activation server 160 is connected to other network extensions such as an MVNO network or the Internet 120 if, for example, the routers in the service gateways or base stations have the capability to direct traffic from devices

that are not fully activated or provisioned to an Internet destination, or if the service processor 115 is used for such direction. In some embodiments, the activation server 160 is included in the service controller 122.

[00113] **Figure 2** illustrates another simplified (e.g., "flattened") network architecture including an MVNO (Mobile Virtual Network Operator) relationship in accordance with some embodiments. As shown, an open MVNO configuration is provided in a simplified network as similarly described above with respect to Figure 1. In some embodiments, the service provider (e.g., service owner) is defined by the entity that maintains and/or manages the service controller 122 associated with and controlling the service processors 115 that are inside the devices 100 using the service. In some embodiments, the service controller 122 requires only a non-real time relatively low data rate secure control plane communication link to the service processors 115. Accordingly, in some embodiments, the service controller 122 servers can reside in any network that can connect to (e.g., be in network communication with) the Internet 120. For example, this approach provides for a more efficient provisioning of the equipment used to set up an MVNO partnership between the central provider and the service provider, and as shown in Figure 2, an MVNO network 210 is in network communication with the Internet 120 just as with the central provider network 110 is in network communication with the Internet 120. As shown, the following are connected to (e.g., in network communication with) the MVNO core network 210: MVNO billing system 123, MVNO service controller 122, MVNO content management system 130, MVNO DNS/DHCP server 126, MVNO AAA server 121, and MVNO mobile wireless center 132.

[00114] By showing two service controllers 122, one connected to (e.g., in network communication with) the MVNO network 210 and one connected to the central provider network 110, Figure 2 also illustrates that some embodiments allow two entities on the same access network to each use the service controller 122 and service processor 115 to control different devices and offer different or similar services. As described below, the unique secure communication link pairing that exists between the two ends of the service control link, 1691 and 1638 (as shown in Figure 16), ensure that the two service controllers 122 can only control the devices associated with the correct service provider service profiles.

[00115] **Figure 3** illustrates another simplified (e.g., "flattened") network architecture including two central providers in accordance with some embodiments. For example, this provides for roaming agreements while maintaining rich services across different networks with completely different access layers. As shown, the mobile devices 100 are assumed to have a dual mode wireless modem that will operate on both a 4G network, for example LTE or WiMax, and a 3G network, for example HSPA or EVDO. One example roaming condition would be both Central Provider #1 and Central Provider #2 providing 3G and 4G network resources. In this example, the mobile devices 100 can connect to both 3G and 4G base stations 125 owned and operated by the central provider with whom they have signed up for service, or when neither is available from the central provider the user signed up with the device can roam onto the other central provider access network and still potentially offer the same rich service set using the same service profiles provided, for example, the roaming service costs are reasonable. In some embodiments, if roaming service costs are significantly more expensive than home network service costs, then the service processor 115 is configured with a roaming service profile that reduces or tailors service usage or service activity through a combination of one or more of user notification, user preference feedback regarding traffic shaping or service policy management preference collected and acted on by service processor 115, adaptive policy control in service processor 115 that tracks increasing roaming service costs and scales back service, or recognition of the change in network that causes the service controller 122 to configure service processor 115 of device 100 with a roaming service profile. In some embodiments, in roaming situations, network selection can be based on an automatic network selection with network selection being determined, for example, by a combination of user service profile preferences, service provider roaming deals and/or available roaming network capabilities and cost, as discussed further below.

[00116] In some embodiments, the devices 100 are again assumed to be multimode 3G and 4G devices (e.g., the mobile devices 100 are assumed to have a dual mode wireless modem that will operate on both a 4G network, for example LTE, and a 3G network, for example HSPA or EVDO), with the devices 100 being billed for service by Central Provider #1 being, for example, EVDO and LTE capable, and the devices 100 being billed for service by Central Provider #2 being, for example, HSPA and LTE capable. For example, the devices 100 can roam using the 4G LTE network of the roaming central provider when neither the 3G nor 4G

networks are available with the home central provider. As similarly discussed above with respect to the above described roaming embodiments, the service processors 115 and service controllers 122 are capable of providing similar services on the 4G roaming network and the 3G home network as on the 4G home network, however, the varying costs and available network capacity and speed differences of 3G home, 4G roaming and 4G home may also encourage the use of different, such as three different, service profiles to allow for the most effective and efficient selection and control of services based on the current network.

[00117] **Figure 4** illustrates a network architecture including a Universal Mobile Telecommunications System (UMTS) overlay configuration in accordance with some embodiments. As shown, Figure 4 includes a 4G/3G/2G HSPA/Transport access network operated by a central provider and two MVNO networks 210 operated by two MVNO partners. In some embodiments, the central provider can offer improved service capabilities using a conventional UMTS network. As shown, the base stations 125 do not connect directly to the Internet 120, and instead the base stations 125 connect to the conventional UMTS network. However, as in various previous embodiments, the service processor 115 still connects through the secure control plane link to service controller 122. In some embodiments, the data plane traffic is backhauled across the various UMTS network routers and gateways as is the control plane traffic, and the IPDRs are obtained from the access network AAA server 121. Referring now to the 4G/3G/2G HSPA/Transport access network as shown in Figure 4, the LTE/HSPA and HSPA/GPRS base stations/nodes 125 are in communication with 4G/3G/2G Service/Serving GPRS Support Nodes (SGSNs) cluster 410 via a radio access network 405, which are in communication with 4G/3G/2G Gateway GPRS Support Nodes (GGSNs) cluster 420 via an access transport network 415 (e.g., a GPRS-IP network), which are then in communication with central provider core network 110.

[00118] As shown in Figure 4, as discussed elsewhere, service usage data store 118 is a functional descriptor for a network level service usage information collection and reporting function located in one or more of the networking equipment boxes attached to one or more of the sub-networks in the Figure (e.g., RAN, transport and/or core networks). As shown in Figure 4, service usage 118 is shown as an isolated function connected to the central provider core network 110 and the intention of this depiction is to facilitate all the possible embodiments for

locating the service usage 118 function. In some UMTS network embodiments, the service usage 118 function is located or partially located in the GGSN gateway (or gateway cluster) 420. In some embodiments, service usage 118 functionality is located or partially located in the SGSN gateway (or gateway cluster) 410. In some embodiments, service usage 118 functionality is located or partially located in the equipment cluster that includes the AAA 121 and/or the mobile wireless center 132. 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 4 and many other figures described herein. In some embodiments, service usage 118 functionality is located or partially located in a networking component in the transport network 415, a networking component in the core network 110, the billing system 123 and/or in another network component or function. This discussion on the possible locations for the network based service usage history logging and reporting function can be easily generalized to all the other figures described herein by one of ordinary skill in the art (e.g., RAN Gateway 410 and/or Transport Gateway 420), and this background will be assumed even if not directly stated in all discussion above and below.

[00119] In some embodiments, a central provider provides open development services to MVNO, Master Value Added Reseller (MVAR) and/or Original Equipment Manufacturer (OEM) partners. In some embodiments, all three service providers, central provider service provider, MVNO #1 service provider and MVNO #2 service provider have service control and billing control of their own respective devices 100 through the unique pairing of the service processors 115 and service controllers 122. For example, MVNO #1 and MVNO #2 can each have open development billing agreements with the central provider and each can own their respective billing systems 123. As shown in Figure 4, MVNO #1 core network 210 is in communication with the central provider core network 110 via the Internet 120, and MVNO #2 core network 210 is in communication with the central provider core network 110 via an alternate landline(LL)/VPN connection 425. In some embodiments, the two MVNOs each offer completely different devices and/or services, and the devices and/or services also differ significantly from those offered by the central provider, and the service profiles are adapted as required to service the different devices and respective service offerings. In addition, the central billing system 123 allows all three service provider user populations to access ecommerce experiences from transaction provider partners operating transaction servers 134, to choose

central provider billing options that combine their third party transaction bills on their service provider bill, and each subscriber population can experience a service provider specified look and feel that is unique to the respective service provider even though the different user populations are interfacing to the same transaction servers and the transaction partners do not need to require significant custom development to provide the unique central billing and unique consistent user experience look and feel.

[00120] In some embodiments, a central provider offers open network device and service developer services using one service controller server 122 (e.g., a service controller server farm) and allows the open development partners to lease server time and server tools to build their own service profiles. The central provider also provides service billing on behalf of services to the open development partners. For example, this reduces costs associated with setting up an MVNO network for the open development partners and does not require the partners to give up significant control or flexibility in device and/or service control.

[00121] **Figure 5** illustrates a network architecture including an Evolution Data Optimized (EVDO) overlay configuration in accordance with some embodiments. This figure is similar to Figure 4 except for the various particular variations of the EVDO network architecture as compared to the HSPA/GPRS wireless access network architecture as will be apparent to one of ordinary skill in the art. As shown, Figure 5 includes an EVDO access network operated by a central provider and two MVNO networks 210 operated by two MVNO partners. The EVDO access network includes LTE/EVDO and EVDO/1xRTT base stations 125 in communication with Base Station Controller (BSC) packet control 508 and radio network controller 512 via a radio access network (RAN) 505, which are in communication with packet data service node 520 via an access transport network 515, which is in communication with central provider core network 110. As shown, a RAN AAA server 521 is also in communication with the access transport network 515.

[00122] In some embodiments, the central provider can offer improved service capabilities using a wireless access network. As shown, the base stations 125 do not connect directly to the Internet 120, and instead the base stations 125 connect to the wireless access network. However, as in various previous embodiments, the service processor 115 still connects through the secure

control plane link to service controller 122. In some embodiments, the data plane traffic is backhauled as shown across the various network routers and gateways as is the control plane traffic, and the IPDRs are obtained from the access network AAA server 121.

[00123] **Figure 6** illustrates a network architecture including a 4G LTE and Wi-Fi overlay configuration in accordance with some embodiments. This figure is also similar to Figure 4 except for the various particular variations of the 4G LTE/Wi-Fi network architecture as compared to the HSPA/GPRS wireless access network architecture as will be apparent to one of ordinary skill. As shown, Figure 6 includes a 4G LTE and Wi-Fi access network operated by a central provider and two MVNO networks 210 operated by two MVNO partners. The 4G LTE/Wi-Fi access network as shown includes LTE eNodeB and HSPA/EVDO base stations 125 in communication with Base Station Controller (BSC) packet control (EVDO & 1xRTT) 608 and SGSN (HSPA & GPRS) 612 via a radio access network (RAN) 605, which are in communication with System Architecture Evolution (SAE) Gateway (GW) 620 via an access transport network 615, which is then in communication with central provider (core) network 110. As shown, a Mobile Management Entity (MME) server 619 is also in communication with the access transport network 615. Also as shown, a Wi-Fi Access Point (AP) 602 is also in communication with the access transport network 615 via Wi-Fi Access Customer Premises Equipment (CPE) 604. As will be apparent to those of ordinary skill in the art, the embodiments of network architectures shown, for example, in Figures 1-8 are exemplary network architecture embodiments in which one or more of the shown network elements may not be required or included, alternative network elements included, and/or additional network elements included based on network design choices, network standards and/or other functional/design considerations and choices.

[00124] In some embodiments, the central provider can offer improved service capabilities using the wireless access network as depicted in Figure 6. As shown, the base stations 125 do not connect directly to the Internet 120, and instead the base stations 125 connect to the wireless access network. However, as in various previous embodiments, the service processor 115 still connects through the secure control plane link to service controller 122. In some embodiments, the data plane traffic is backhauled as shown across the various network routers and gateways as is the control plane traffic, and the IPDRs are obtained from the access network AAA server 121.

Accordingly, as shown in Figures 4 through 6, various embodiments can be implemented independent of the wireless access network technology, and for example, can be implemented in 3G, 4G and any other wireless access network technology.

[00125] **Figure 7** illustrates a network architecture including a WiMax and Wi-Fi overlay configuration in accordance with some embodiments. This figure is also similar to Figure 4 except for the various particular variations of a combined WiMax/Wi-Fi network as compared to the HSPA/GPRS wireless access network architecture as will be apparent to one of ordinary skill in the art. As shown, Figure 7 includes both a WiMax and Wi-Fi network (e.g., a combined WiMax/Wi-Fi network) operated by a central provider and two MVNO networks 210 operated by two MVNO partners. Although the Wi-Fi and WiMax access technologies are different wireless access networking technologies, with WiMax providing a wide area networking technology and Wi-Fi providing a local area networking technology, which efficiently operates using the two wireless access networking capabilities. As similarly discussed above with respect to the switching between 3G and 4G networks, some embodiments employ the automatic network selection capability as described above to choose the best available network service profile, and, for example, the user can force the decision or the service controller can make the decision. For example, if free Wi-Fi services have adequate coverage, in most cases, the decision criteria programmed into the automatic network selection algorithm will select Wi-Fi as long as the Wi-Fi access points are associated with a known and trusted provider. In some embodiments, transaction billing from central provider billing system 123 or MVNO #1 or MVNO #2 billing systems 123 will work with the transaction servers when connected over Wi-Fi just as when connected over any other access technology (including wire line based connections). The WiMax/Wi-Fi access network as shown includes WiMax base stations 125, Wi-Fi access points/hotspots 702 and/or Wi-Fi mesh access networks 702 (in some embodiments, femto cells can be used in addition to and/or as an alternative to Wi-Fi), and Wi-Fi access customer-premises equipment (CPE) 704 in communication with WiMax service controller 708 and Wi-Fi service controller 712 via a radio access network 705, which are in communication with WiMax core gateway 720 via an access transport network 715, which is then in communication with central provider (core) network 110.

[00126] In some embodiments, the central provider can offer improved service capabilities using the wireless access network as depicted in Figure 7. As shown, the base stations 125 do not connect directly to the Internet 120, and instead the base stations 125 connect to the wireless access network. However, as in various previous embodiments, the service processor 115 still connects through the secure control plane link to service controller 122. In some embodiments, the data plane traffic is backhauled as shown across the various network routers and gateways as is the control plane traffic, and the IPDRs are obtained from the access network AAA server 121.

[00127] Referring to Figure 7, the Wi-Fi connection can be replaced with a femto cell (and the Wi-Fi modem shown in Figures 15B(3) and 15B(4) can be replaced with a femto cell modem (base station side functionality)). In some embodiments, the service processor 115 is provided on the femto cell to control subscriber access in a verifiable manner as similarly described herein with respect to various embodiments (e.g., the Wi-Fi related embodiments). For example, the femto cell service provider (e.g., the entity that owns the spectrum the femto cell is using) can operate the femto cell as a local access mechanism for the home subscriber (or other who purchased or installed the femto cell), and then also use it to provide pay-for-service or additional free services, with controlled access and/or traffic control and/or service control and/or billing control performed locally or in combination with network equipment as described herein. In some embodiments, the WWAN devices being used at home or work with the femto cell include a portion of the service processor functionality. For example, this allows the service provider for femto cells to provide service and monetize service in a controlled way even though the femto cell is not connected to the service provider network the way conventional base stations are connected to the service provider network, but is connected through the Internet 120. For example, the secure heartbeat function can be extended to include data traffic so that it is encrypted and secured along with the control plane traffic. The decision of whether or not to admit a device onto the femto cell can be made through the service processor 115 connection to the service controller 122 and subsequent look up of the credentials for the device and the associated service plan and service profile that is then programmed into the service processor on the femto cell and/or the device itself. The femto cell can also offer a landing page to devices through the service processor so that devices that do not belong to the network can gain access to the network by signing up over the femto cell. For example, the intermediate device embodiments for Wi-Fi on one end and WWAN on the other can be accomplished by using the

Wi-Fi connection in the cell phone in AP mode so that it becomes the intermediate device. The service processor 115 on the cell phone can then act in the same manner as described for the intermediate device as described herein.

[00128] **Figure 8** illustrates another simplified (e.g., "flattened") network architecture including multiple wireless access networks (e.g., 3G and 4G Wireless Wide Area Networks (WWANs)) and multiple wire line networks (e.g., Data Over Cable Service Interface Specification (DOCSIS) and Digital Subscriber Line Access Multiplexer (DSLAM) wire line networks) in accordance with some embodiments. It is a common network architecture for multi-access central providers to have one or more wired access networks and one or more wireless access networks. As shown, Figure 8 includes both 3G and 4G wireless access networks, including a 4G base station 125 and a 3G base station 125, and both DOCSIS and DSLAM wire line networks (e.g., a combined WWAN/wire line network), including DOCSIS Head End 125 and DSLAM 125, operated by a central provider via central provider (core) network 110 and an MVNO partner via MVNO network 210 via the Internet 120.

[00129] As shown, the service processor 115 can reside on a number of different types of devices 100 that work on 3G or 4G wireless, DSL or DOCSIS, and the service controller 122 is capable of controlling each of these types of devices with a consistent service experience, for example, using different service profiles, service capabilities and service profile cost options depending on which network the device is connected to and/or other criteria. For example, a download of a High Definition (HD) movie can be allowed when the service controller 122 is managing service profile policies for a service processor 115 residing on a DOCSIS device 100 (e.g., a computer or laptop connected to a cable modem), but not when the same service controller 122 is managing service profile policies for a service processor 115 residing on a 3G device 100 (e.g., a smart phone connected to a mobile 3G network).

[00130] As will now be apparent to one of ordinary skill in the art in view of the above description of Figures 1 through 8, the present invention can be provided across any access network and a set of service profiles can be defined in a variety of ways including, for example, to user preference feedback, access network performance, access network cost, access network central provider partnership status with the service provider central provider and roaming deals

and costs. For example, as discussed below, various embodiments allow for users to have superior service experiences based on the ability to control certain of their service settings, and service providers can also more efficiently deploy a greater variety of services/service plans to users.

[00131] In some embodiments, the service processor 115 and the service controller 122 provide an overlay for existing networks without significantly changing the billing system 123, gateways/routers or other network components/elements, and also provide verifiable service monitoring to control services and/or service usage/costs without involving, for example, a service provider or MVNO (e.g., for smart phone devices and/or laptops or netbooks (or any other network accessible device) with an unlimited data plan or any other service plan). For example, applications that are deployed by device owners or service subscribers (e.g., an IT manager) and do not involve a service provider include roaming services provided as an after-market product without carrier/service provider involvement. In this example, device activity is recorded by the service processor 115 and transmitted to the service controller 122 (e.g., the IT manager controls the service controller 122). In another example, a third party after-market product is provided in which the service controller 122 is hosted by the third party and the device management entity (e.g., the IT manager or parents of the device user for parental controls) uses a secure Virtual Service Provider (VSP) website to control the devices that belong to that management entity's device partition (e.g., VSP partitions and techniques are described below with respect to Figure 49). The VSP secure website techniques described herein can also be applied to service provider owned servers with device partitions for the purpose of controlling, for example, Deep Packet Inspection (DPI) controllers (e.g., DPC policy implementation 5402 as shown in Figure 54) to provide similar or substantially equivalent service usage/control capabilities using network based service control techniques, as similarly described in detail below with respect to Figures 49 and 54 (e.g., IT manager VSP control of a group partition and/or MVNO VSP control of a group partition).

[00132] **Service Processor Configurations for Devices**

[00133] **Figure 9** illustrates a hardware diagram of a device 100 that includes a service processor 115 in accordance with some embodiments. As shown in Figure 9, the service

processor 115 is stored in a non volatile memory 910 and a memory 920 of the device 100. As will be appreciated by those of ordinary skill in the art, the present invention can operate with virtually any device architecture, and the device architectures discussed herein (e.g., with respect to Figures 9 through 15) are examples of various implementations on certain devices (e.g., of different representations of device 100).

[00134] As shown in Figure 9, device 100 also includes a processor 930, sometimes referred to as a CPU or central processor unit, an APU or application processor unit, a core processor, a computing device, or many other well known terms. In some embodiments, device 100 includes one or more processors and/or a multicore processor. As shown, processor 930 includes a sub-processor 935. In some embodiments, processor 930 and/or sub-processor 935 are based on an architecture sometimes referred to as a complex instruction set computer or CISC, a reduced instruction set computer or RISC, a parallel processor, a combination of two or more architectures or any other processor architecture. In some embodiments, processor 930 has a design that is based on logic and circuitry from one or more standard design library or published architecture, or includes specialized logic and circuitry designed for a given device 100 or collection of such devices. In some embodiments, a device includes more than one processor and/or sub-processor, and in such a device, one processor and/or sub-processor can have one architecture while another may have a somewhat different or completely different architecture. In some embodiments, one or more of the processors and/or sub-processors can have a general purpose architecture or instruction set, can have an architecture or instruction set that is partially general or partially specialized, or can have an instruction set or architecture that is entirely specialized. In some embodiments, a device includes more than one processor and/or sub-processor, and in such a device, there can be a division of the functionality for one or more processors and/or sub-processors. For example, one or more processors and/or sub-processors can perform general operating system or application program execution functions, while one or more others can perform communication modem functions, input/output functions, user interface functions, graphics or multimedia functions, communication stack functions, security functions, memory management or direct memory access functions, computing functions, and/or can share in these or other specialized or partially specialized functions. In some embodiments, any processor 930 and/or any sub-processor 935 can run a low level operating system, a high level operating system, a combination of low level and high level operating systems, or can include

logic implemented in hardware and/or software that does not depend on the divisions of functionality or hierarchy of processing functionality common to operating systems.

[00135] As shown in Figure 9, device 100 also includes non-volatile memory 910, memory 920, graphics memory 950 and/or other memory used for general and/or specialized purposes. As shown, device 100 also includes a graphics processor 938 (e.g., for graphics processing functions). In some embodiments, graphics processing functions are performed by processor 930 and/or sub-processor 935, and a separate graphics process 938 is not included in device 100. As shown in Figure 9, device 100 includes the following modems: wire line modem 940, WWAN modem 942, USB modem 944, Wi-Fi modem 946, Bluetooth modem 948, and Ethernet modem 949. In some embodiments, device 100 includes one or more of these modems and/or other modems (e.g., for other networking/access technologies). In some embodiments, some or all of the functions performed by one or more of these modems are performed by the processor 930 and/or sub processor 935. For example, processor 930 can implement some or all of certain WWAN functional aspects, such as the modem management, modem physical layer and/or MAC layer DSP, modem I/O, modem radio circuit interface, or other aspects of modem operation. In some embodiments, processor 930 as functionality discussed above is provided in a separate specialized processor as similarly shown with respect to the graphics and/or multimedia processor 938.

[00136] As also shown in Figure 9, device 100 includes an internal (or external) communication bus structure 960. The internal communication bus structure 960 generally connects the components in the device 100 to one another (e.g., allows for intercommunication). In some embodiments, the internal communication bus structure 960 is based on one or more general purpose buses, such as AMBA, AHP, USB, PCIe, GPIO, UART, SPI, I^2C, Fire wire, DisplayPort, Ethernet, Wi-Fi, Bluetooth, Zigbee, IRDA, and/or any other bus and/or I/O standards (open or proprietary). In some embodiments, the bus structure is constructed with one or more custom serial or parallel interconnect logic or protocol schemes. As will be apparent to one of ordinary skill in the art, any of these or other bus schemes can be used in isolation and/or in combination for various interconnections between device 100 components.

[00137] 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 (as discussed herein) is implemented and stored in software that can be performed on (e.g., executed by) various components in device 100. Figure 9 illustrates an embodiment in which service processor 115 is stored in device memory, as shown, in memory 920 and/or non-volatile memory 910, or a combination of both. 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 (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 930 can be secure non-volatile memory) that is not accessible without pass keys and/or other security mechanisms. 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 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 discussed below (and as shown in Figure 16). 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. In some embodiments, the service processor 115 which as shown in Figure 9 is stored or implemented in non volatile memory 910 and memory 920, can be implemented in part on other components in device 100.

[00138] As shown, device 100 also includes a user interfaces device component 980 for communicating with user interface devices (e.g., keyboards, displays and/or other interface devices) and other I/O devices component 985 for communicating with other I/O devices. User interface devices, such as keyboards, display screens, touch screens, specialized buttons or switches, speakers, and/or other user interface devices provide various interfaces for allowing one or more users to use the device 100.

[00139] **Figure 10** illustrates another hardware diagram of a device 100 that includes a service processor 115 in accordance with some embodiments. As shown in Figure 10, the service processor 115 is implemented on the processor 930 of the device 100. In some embodiments, this implementation can be in part or whole accomplished in software stored, implemented and/or executed on the processor 930. In some embodiments, the implementation and/or execution can be in part or whole accomplished in hardware that is on the processor 930. While the service processor 115 is shown in Figure 10 as stored, implemented and/or executed on the processor 930, in other embodiments, the service processor 115 is implemented in part on other components in device 100, for example, as discussed below.

[00140] **Service Processor Implemented on a Communications Modem**

[00141] **Figure 11** illustrates another hardware diagram of a device 100 that includes a service processor 115 in accordance with some embodiments. As shown in Figure 11, the service processor 115 is implemented on the WWAN modem 942 of the device 100. In some embodiments, this implementation can be in part or whole accomplished in software stored, implemented and/or executed on the WWAN modem 942. In some embodiments, the implementation and/or execution can be in part or whole accomplished in hardware that is on the WWAN modem 942. In some embodiments, service process 115 is implemented on another modem component of device 100 and/or one or more of the modem components of device 100.

[00142] In some embodiments, the service processor 115 is implemented on a modem processor (e.g., WWAN modem 942 or WWAN/Wi-Fi modem), and the service processor 115 can be installed and/or executed in protected and/or secure memory or processor hardware on the modem. The modem memory can be made robust to hacking or tampering and, in some embodiments, is only accessible from a secure network management channel or secure device management port and not by most end users. In some embodiments, a portion of the service processor 115 is implemented on a modem processor (e.g., WWAN modem 942 hardware or software), and a portion of the service processor 115 is implemented on another device 100 processor 930. For example, the device service monitor agent 1696 and one or more service usage measurement points (see discussion associated with Figure 21) can be implemented on a modem processor, and other service processor 115 elements can be implemented in the main

device operating system processor 930. As another example, a second (or first) service monitor agent 1696 and one or more service usage measurement points can be implemented on a modem processor, and a first (or second) service monitor 1696 with one or more service measurement points can be implemented on the main operating system processor 930 for device 100. For example, such embodiments can be configured to provide a service usage measurement and reporting system that offers a diversified countermeasure to protect against hacking, tampering or other errors for device based service usage measurements that can be made harder to hack or tamper with than certain software embodiments on the processor 930. For example, such embodiments can be employed when one or more of the following capabilities are not available: network based service usage measures, network based service profile or policy implementation verification measures, and network based service usage verification error response action capabilities.

[00143] In some embodiments, certain portions of the service processor 115 that deal with application layer service monitoring or traffic flow identification (e.g., tagging or traffic flow shaping as disclosed elsewhere) are implemented on a main processor 930, and other portions of the service processor 115 are implemented on a modem processor (e.g., WWAN modem 942).

[00144] In some embodiments, the WWAN modem is a wide area access technology modem such as 2G, 2.5G, 3G or 4G. As discussed above and below, the connection to the WWAN modem 942 can be a connection internal to device 100, for example a USB, GPIO, AMBA or other bus, or can be a connection that extends external to the device such as for example a USB, Ethernet, Wi-Fi, Bluetooth or other LAN or PAN connection. Three example embodiments in which the bus is internal to the device are as follows: a PCIe modem card running over USB or PCIe, a GPIO connection running from a processor 930 chipset to a modem chipset inside a mobile device, or a Wi-Fi connection running from a Wi-Fi modem inside of device 100 to an intermediate modem or networking device combination that forwards the access network traffic between the access network connection and the device via the Wi-Fi connection. In some embodiments, in addition to the service processor 115 being implemented on the WWAN modem 942 either internal or external to the device 100, similarly service processor 115 can be implemented on a wire line modem 940, such as DSL, Cable or fiber, another wireless LAN or PAN modem, such as Wi-Fi, Zigbee, Bluetooth modem 948, White Space, or some other

modem, connected internal to device 100 or external to device 100 via a LAN or PAN extension of internal or external communications bus structure 960.

[00145] In some embodiments, a complete turn-key reference design product for the device modem (one or more of 942, 946, 948, 949, 944, 940) combined with a built-in service processor 115, possibly with a well defined and documented application interface and a well defined and documented service processor developers kit (SPDK) provides for a powerful product embodiment for the purpose of achieving mass market distribution and usage for the modem with service processor 115 and associated service controller 122 features. For example, embodiments that include the WWAN modem 942, possibly in combination with one or more additional modems including Wi-Fi modem 946, bluetooth modem 948, USB modem 944 and Ethernet modem 949, can be combined with a pre-tested or pre-certified integrated embodiment of the service processor 115, possibly in combination with a well defined API for writing software applications that interface to, reside on or communicate with this turn-key modem embodiment. As disclosed herein, the advantageous capabilities of the service processor 115, possibly in conjunction with the service controller 122, to assist in monitoring, control, billing and verification for services is made more available for device 100 manufacturers in such a form, because the manufacturers do not need to spend as much time and resources to develop a custom modem only for a subset of devices that the turn-key modem can be used to support. In some embodiments, the service processor 115, as discussed herein, can be configured to provide device assisted service monitoring, control, billing and/or verification across not just when connected to the WWAN network via the WWAN modem, but also when connected to the other networks corresponding to the other access modems included in the turn-key combined module plus service processor 115 (or SPDK or chipset plus service processor 115) design. The pre-integrated service processor 115 and API possibly in combination with testing and certification can be packaged in a small form factor that may have standardized interfaces such as USB, PCIe, firewire, Display Port, GPIO, or other interface. The form factor may be miniaturized into standard configurations such as minicard, half minicard or even smaller form factors, or it can be designed into a non-standard or proprietary form factor. The module form factor can be well documented to simplify integration into various device 100 designs. The SPDK embodiments can be designed to contain one or more of the following: hardware integration and use documentation, software integration documentation, software programming documentation,

application interface documentation, service controller documentation, overall testing guidelines and overall use guidelines. In some embodiments, the modem module can be integrated with the service processor 115 functionality as a combined chipset, firmware and/or software product, with other SPDK features very similar to those listed above. The service controller programming guide for these turn-key embodiments can also be documented for the SPDK service processor 115 software, turn-key module with service processor 115 or integrated chipset with service processor 115. Accordingly, these embodiments provide various solutions to simplify the OEM task of integrating, developing, testing and shipping device 100 products (or integrated networking device products) with any of the device assisted service monitoring, control, billing or verification capabilities disclosed herein.

[00146] **Figure 12** illustrates another hardware diagram of a device 100 that includes a service processor 115 in accordance with some embodiments. As shown in Figure 12, the service processor 115 is implemented on the other I/O devices component 980 of the device 100. In some embodiments, this implementation can be in part or whole accomplished in software stored, implemented and/or executed on the other I/O devices component 980 (e.g., a SIM/USIM card or other secure hardware I/O device). In some embodiments, the implementation and/or execution can be in part or whole accomplished in hardware that is on the other I/O devices component 980.

[00147] As discussed above, various embodiments include product designs in which the service processor 115 resides on device volatile or non-volatile memory (see Figure 9), the device application processor or CPU (see Figure 10), the wireless access modem (see Figure 11) (or any other modem), or another I/O device (see Figure 12). While these are just a few of the example service processor 115 placement embodiments, these embodiments show that the placement of where the software or hardware for implementing the service processor 115 can reside in the device 100 is very flexible and can be implemented in a myriad of places and ways depending on the device and/or other technical design choices.

[00148] **Figure 13** illustrates another hardware diagram of a device 100 that includes a service processor 115 implemented in external memory of a System On Chip (SOC) 1310 in accordance with some embodiments. As shown in Figure 13, the service processor 115 is

implemented on the external memory 1320 of the device 100. In some embodiments, this implementation can be in part or whole accomplished in software stored, implemented and/or executed on the external memory 1320. In some embodiments, the implementation and/or execution can be in part or whole accomplished in hardware that is on the external memory 1320. In some embodiments, SOC chipset 1310 and external memory 1320 provide a portion or all of the hardware of device 100.

[00149] **Figure 14** illustrates another hardware diagram of a device 100 that includes a service processor 115 implemented in external memory of a System On Chip (SOC) 1310 in accordance with some embodiments. As shown, the service processor 115 is stored in a non volatile memory 910 and a memory 920 of the SOC chipset 1310, as similarly discussed above with respect to Figure 9. In some embodiments, SOC chipset 1310 and external memory 1320 provide a portion or all of the hardware of device 100.

[00150] As similarly discussed above with respect to Figures 9 through 12, various embodiments include product designs including the SOC chipset 1310 in which the service processor 115 resides on internal volatile or non-volatile memory 910 of the SOC chipset 1310 (see Figure 14), the device application processor or CPU 930 and/or sub processor 935, the modems 940, 942, 944, 946, 948, and/or 949 (or any other modem), another I/O device 985, and/or external memory 1320 (see Figure 13) (and/or any combinations thereof). While these are just a few of the example service processor 115 placement embodiments, these embodiments show that the placement of where the software or hardware for implementing the service processor 115 can reside in the SOC chipset 1310 and/or the external memory 1320 of the device 100 is very flexible and can be implemented in a myriad of places and ways depending on the device and/or other technical design choices.

[00151] The above discussion with respect to Figures 9 through 14 illustrating various internal hardware embodiments for device 100 applies equally to this partitioning of device functionality or any other partitioning of how the components in device 100 are configured, whether they are all separate components, some of the components are combined into a single chipset but there are still multiple chipsets, or all of the components are combined into a chipset. For example, Figures 9 through 14 illustrating various internal hardware embodiments for device

100 show several access modem components including the wire line modem 940, wireless wide area network (WWAN) modem 942, USB modem 944, Wi-Fi modem 946, Bluetooth modem 948, and Ethernet modem 949. In some embodiments, wire line modem 940 is a DSL or cable modem such as DOCSIS, or some other modem with a hard connection such as fiber. In some embodiments, as discussed above and below, connection to the wire line or wireless access network is accomplished through an extension of the internal or external communications bus structure 960. For example, such an extension is accomplished using one or the other modems, such as Wi-Fi modem 946 or Ethernet modem 949, connecting to a local area network that in turn connects to the access network via a device that bridges the local area network to the access network. One of ordinary skill in the art will appreciate that when discussing device connection to any access network the connection can be via a direct connection to the network, such as a 3G or 4G WWAN modem 942 connection to a 3G or 4G WWAN network, or can be a connection to the access network through an intermediate connection, such as a Wi-Fi modem 946 connection to a modem or networking device combination that has a Wi-Fi LAN connection and a 3G or 4G network access network connection. Another example of an extended modem connection embodiment includes a Wi-Fi modem 946 device connection to a modem or networking device combination that includes a Wi-Fi LAN connection and a DOCSIS or DSL network access connection. Other examples of such combinations will be readily apparent to one of ordinary skill in the art.

[00152] **Service Processor Configurations for Intermediate Networking Devices**

[00153] **Figures 15A** through **15C** illustrate hardware diagrams of a device 100 that include a service processor 115 and a bus structure extension 1510 using intermediate modem or networking device combinations in accordance with various embodiments . For example, Figures 15A and 15B illustrate various extended modem alternatives for access network connection through an intermediate modem or networking device combination that has a connection (e.g., LAN connection) to one or more devices 100.

[00154] In some embodiments, device 100 includes a 3G and/or 4G network access connection in combination with the Wi-Fi LAN connection to the device 100. For example, the intermediate device or networking device combination can be a device that simply translates the

Wi-Fi data to the WWAN access network without implementing any portion of the service processor 115 as shown in Figure 15B (1). In some embodiments, an intermediate device or networking device combination includes a more sophisticated implementation including a networking stack and some embodiments a processor, as is the case for example if the intermediate networking device or networking device combination includes a router function, in which case the service processor 115 can be implemented in part or entirely on the intermediate modem or networking device combination. The intermediate modem or networking device combination can also be a multi-user device in which more than one user is gaining access to the 3G or 4G access network via the Wi-Fi LAN connection. In the case of such a multi-user network, the access network connection can include several managed service links using multiple instantiations of service processor 115, each instantiation, for example, being implemented in whole or in part on device 100 with the intermediate modem or networking device combination only providing the translation services from the Wi-Fi LAN to the WWAN access network.

[00155] Referring now to Figures 15A and 15B(2)-(4), in some embodiments, the service processors 115 are implemented in part or in whole on the intermediate modem or networking device combination. In the case where the service processor 115 is implemented in part or in whole on the intermediate modem or networking device combination, the service processor 115 can be implemented for each device or each user in the network so that there are multiple managed service provider accounts all gaining access through the same intermediate modem or networking device combination. In some embodiments, the functions of service processor 115 are implemented on an aggregate account that includes the WWAN access network traffic for all of the users or devices connected to the Wi-Fi LAN serviced by the intermediate modem or networking device combination. In some embodiments, the central provider can also provide an aggregated account service plan, such as a family plan, a corporate user group plan and/or an instant hotspot plan. In the case where there is one account for the intermediate modem or networking device combination, the intermediate modem or networking device combination can implement a local division of services to one or more devices 100 or users in which the services are controlled or managed by the intermediate modem or networking device combination or the device 100, but the management is not subject to service provider control and is auxiliary to the service management or service policy implementation performed by service processors 115. In

some embodiments, another service model can also be supported in which there is an aggregate service provider plan associated with one intermediate modem or networking device combination, or a group of intermediate modems or networking device combinations but where each user or device still has its own service plan that is a sub-plan under the aggregate plan so that each user or device has independent service policy implementation with a unique instantiation of service processor 115 rather than aggregate service policy implementation across multiple users in the group with a single instantiation of service processor 115.

[00156] As shown in Figure 15A and 15B(2), in some embodiments, device 100 includes a Wi-Fi modem 946, a Wi-Fi modem 946 combined with a 3G and/or 4G WWAN modem 1530 on intermediate modem or networking device combination 1510, and the intermediate modem or networking device combination forwards WWAN access network traffic to and from device 100 via the Wi-Fi link. For example, the service processor 115 can be implemented in its entirety on device 100 and the service provider account can be associated exclusively with one device. This is an embodiment associated with one or more of Figures 29, 31, 32 or 34 discussed below, in which the modem bus represents the Wi-Fi LAN connection via the Wi-Fi modem 946. Similarly, as shown in Figures 15A and 15B(3), such an implementation can be provided using a different access modem and access network, such as a 2G and/or 3G WWAN, DSL wire line, cable DOCSIS wire line or fiber wire line configuration in place of the 3G and/or 4G access network connection to the intermediate modem or networking device combination 1510. In addition, various other embodiments similarly use DSL as shown in Figures 15A and 15B(4), USB, Ethernet, Bluetooth, or another LAN or point to point connection from device 100 to the intermediate modem or networking device combination 1510.

[00157] In some embodiments, a portion of the service processor 115 is implemented on the device 100, such as the application interface agent 1693 and other supporting agents (see Figure 16), and another portion of the service provider 115 is implemented on the intermediate modem or networking device combination, such as policy implementation agent 1690 or possibly modem firewall 1655 as well as other agents (see Figure 16). This is an embodiment associated with one or more of Figures 30 or 36 discussed below, in which the modem bus in the figure represents the Wi-Fi LAN connection via the Wi-Fi modem 946. In this example, the service provider 115 can still offer individual service plans associated exclusively with one

device, or can offer an aggregate plan in which the portion of the service processor 115 located on the intermediate modem or networking device combination 1510 aggregates service plans into one WWAN connection but each individual device 100 has a unique service interface via the application interface agents and associated agents located on device 100. Similarly, such an implementation can be provided using a different access modem and access network, for example a 2G and/or 3G WWAN, DSL wire line, cable DOCSIS wire line or fiber wire line configuration in place of the 3G and/or 4G access network connection to the intermediate modem or networking device combination 1510. In addition, various other embodiments similarly use USB, Ethernet, Bluetooth, or another LAN or point to point connection from device 100 to the intermediate modem or networking device combination 1510.

[00158] In some embodiments, all of the service processor 115 is implemented on the intermediate modem or networking device combination 1510 and the aggregate device or user traffic demand from the LAN port is serviced through one service provider service plan account. This is an embodiment associated with Figure 35 in which as discussed below the modem bus in the figure represents the Wi-Fi LAN connection via the Wi-Fi modem 946. Similarly, such an implementation can be provided using a different access modem and access network, for example a 2G and/or 3G WWAN, DSL wire line, cable DOCSIS wire line or fiber wire line configuration in place of the 3G and/or 4G access network connection to the intermediate modem or networking device combination 1510. In addition, various other embodiments similarly use USB, Ethernet, Bluetooth, or another LAN or point to point connection from device 100 to the intermediate modem or networking device combination 1510.

[00159] In some embodiments, the device 100 uses the on-board WWAN modem 942 when it is outside of Wi-Fi LAN coverage area for one or more trusted access networks for the device, and when the device comes within range of a Wi-Fi network associated with a intermediate modem or networking device combination connected to a trusted wire line access network, the device can switch to the Wi-Fi link service to connect service processor 115 to the trusted wire line access network. In some embodiments, the decision to switch to the Wi-Fi LAN associated with a trusted wire line access network can be made automatically by the device based on the policy implementation rules settings for the modem selection and control 1811 and/or the policy control agent 1692, can be made by the user, or can be made by the service

controller 122 (see Figure 18). In addition, various other embodiments similarly use USB, Ethernet, Bluetooth, or another LAN or point to point connection from device 100 to the intermediate modem or networking device combination 1510.

[00160] **Figure 15C** illustrates another hardware diagram of a device 100 that includes a service processor 115 and a bus structure extension 1510 using intermediate modem or networking device combinations in accordance with various embodiments . In some embodiments; more than one access network connection is implemented in the intermediate modem or networking device combination 1510. This allows the device 100 to potentially connect through the intermediate modem or networking device combination with a choice of access network services. An example of such an embodiment is illustrated in Figure 15C in which an access network router (e.g., an enterprise router) connected to a LAN with a wire line primary backhaul connection and a back up WWAN connection, for example 3G or 4G, to provide access services when the primary wire line connection fails. As discussed above, the service provider service profile for service processor 115 and the service plan account can be set up as an aggregate account with multiple users connected to the LAN. The service provider can elect to use an embodiment that includes a portion of the service processor 115 on each device 100 so that the account can be managed for each user or each device, or the service provider can elect to implement all of the necessary features in the service processor 115 on the intermediate modem or networking device combination so that there is no visibility to the individual devices 100 or users.

[00161] As described herein, various embodiments provide many service policy implementation options that can enhance the service provider control of the service experience and cost, or enhance the user control of the service experience and cost by providing a verifiable or compromise resistant solutions to manage service policy implementation on the intermediate modem or networking device combination, for one or both of the WWAN or wire line access networks, when the WWAN access network is active, or when the WWAN access network is inactive. The level of service control, user preference feedback and service policy implementation verification or compromise resistance enabled by these embodiments improves the offered back up services and primary wire line services. One of ordinary skill in the art will also now appreciate that any number of wire line and/or wireless network access connections can

be supported by the various embodiments as described herein, with any number of device architectures and architectures for intermediate modem or networking device combinations bridging the device to the access network of choice. Accordingly, various embodiments provide a verifiable managed service architecture, design and implementation for any number of single access and/or multi-access networks in which the service account can be consistent across multiple networks, and the service policies can be changed from network to network as deemed appropriate by the service provider with service notification, service cost control and privacy preference inputs from the user.

[00162] In various embodiments, the verification embodiments discussed herein for service policy implementation verification or service policy implementation compromise protection can be applied. In some embodiments, rather than attaching a service provider service plan account to a single device, it is attached to (e.g., associated with) a user. For example, when the user logs onto an access network with a service controller controlled by a service provider, regardless of what device the user logs onto with the user's service plan profile can be automatically looked up in the central billing system 123 and dynamically loaded (e.g., downloaded) onto the device 100 from the service controller 122 (e.g., a service profile provided on demand based on the user's identity). In some embodiments, in addition to dynamically loading the user's service policy implementation and control settings, one or more of the user's preferences including notification, service control, traffic monitor reporting privacy and Customer Relationship Management (CRM) reporting privacy are also dynamically loaded. For example, this allows the user to have the same service settings, performance and experience regardless of the device the user is logged into and using on the network. In addition, as discussed herein, in the various embodiments that call for roaming from one type of access network to another, the user service plan profile, that includes all of the above in addition to the service plan profile changes that take effect between different types of access network, can be used on any device and on any network, providing the user with a verifiable or compromise resistant, consistent service experience regardless of network or device.

[00163] Many of the embodiments described herein refer to a user using device 100. It is understood that there are also applications for these various embodiments that do not involve user interfaces. Examples of such applications include equipment, apparatus or devices for

automation, telemetry, sensors, security or surveillance, appliance control, remote machine to machine data connections, certain remote access configurations, two way power metering or control, asset tracking, people tracking or other applications in which a human user interface is not required for device 100.

[00164] Various embodiments of the device 100 described above include other I/O devices 985. In some embodiments, these other devices include other modems, other special purpose hardware components, and/or other I/O devices or drivers or modems to connect to other I/O devices. In some embodiments, these other devices include a Subscriber Identity Module (SIM) or Universal Subscriber Identity Module (USIM) device. In some embodiments, it is advantageous to implement some or all of the service processor 115 functions on an embodiment of device 100 that includes a SIM and/or a USIM. In some embodiments, the other I/O devices 985 include a hardware device designed to implement a portion or all of the service processor 115 functions. For example, this is advantageous in cases in which the original device 100 was not manufactured with the service processor 115; in cases in which dedicated hardware is desired to improve one or more aspects of service processor 115 performance; allowing users, for example, to have the same service settings, performance and experience regardless of the device the user is using on the network by using such a SIM and/or USIM (e.g., or implemented as a type of dongle); and/or in cases in which a separate component is desired to assist in compromise protection for one or more aspects of service processor 115.

[00165] As discussed above, some embodiments described herein provide for billing of certain access services. In some embodiments, various applications do not require or involve billing of certain services. For example, applications like enterprise IT (Information Technology) group management of enterprise workforce access policy implementation or access cost control or access security policy, privacy control, parental control, network quality of service control or enhancement, private network services, free access services, publicly funded access services, flat rate no-options service and other services, or other examples that will be apparent to one of ordinary skill in the art do not require billing functionality but benefit from many other aspects of various embodiments.

[00166] **Service Processor and Service Controller for Verifiable Service Monitoring, Notification and Control**

[00167] **Figure 16** is a functional diagram illustrating a device based service processor 115 and a service controller 122 in accordance with some embodiments. For example, this provides 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 previously discussed, it is understood that 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 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, as discussed below in some embodiments, one or more of the policy implementation or service monitoring functions can be placed on one of the access modems located below the modem driver and modem bus in the communication stack as illustrated in certain figures and described herein. As discussed below, some simplified embodiment figures illustrate that not all the functions illustrated in all the figures are necessary for many designs, so a product/service designer can choose to implement those functions believed to be most advantageous or sufficient for the desired purposes and/or environment. The functional elements shown in Figure 16 are described below.

[00168] As shown, 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 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.

[00169] In some embodiments, the service control device link 1691 agent messages are transmitted asynchronously as they are generated by one or more of the service agents. In some embodiments, the service control device link 1691 performs collection or buffering of agent messages between transmissions. In some embodiments, the service control device link 1691 determines when to transmit based potentially on several parameters including, for example, one or more of the following parameters: periodic timer trigger, waiting until a certain amount of service usage or traffic usage has occurred, responding to a service controller message, responding to a service controller request, initiated by one or more agents, initiated by a verification error condition, initiated by some other error or status condition. In some embodiments, once a transmission trigger has occurred, the service control device link 1691 assembles all buffered agent communications and frames the communications.

[00170] In some embodiments, the transmission trigger is controlled by waiting for an amount of service usage, such as waiting until a certain amount of data traffic has passed, which reduces the control plane communication channel traffic usage to a fraction of the data plane traffic. For example, this approach preserves network capacity and reduces service cost even in traffic scenarios in which data traffic is light.

[00171] In some embodiments, the transmission trigger is based on waiting for an amount of service usage, and also including a minimum transmission rate that triggers a transmission according to one or more of the following parameters: a maximum time between transmissions clock to keep the service processor 115 in communication with the service controller 122 when little or no service usage is occurring, a polling request of some kind from the service controller 122, a response to a service controller heartbeat, a transmission generated by a service verification error event, or a transmission generated by some other asynchronous event with time critical service processor 115 (or service controller 122) messaging needs, such as a transaction or service billing event or a user request. For example, service control plane traffic down is reduced to a relatively inexpensive and capacity conserving trickle when device 100 data traffic is not significant. At the same time, this approach also provides an effective flow of real time or near real-time service control plane traffic that is both cost and capacity efficient, because the service control plane traffic is a relatively small percentage of the data plane traffic when data plane traffic usage is heavy. For example, when data plane traffic usage is heavy is generally the time when close monitoring of service policy implementation verification or compromise prevention can be particularly important and by keeping the control plane overhead to a fraction of data plane traffic close monitoring and control of services are maintained at a reasonable cost in terms of percentage of both bandwidth used and network capacity. In some embodiments, the service usage or service activity trigger occurs based on some other measure than traffic usage, such as a number of messages transacted, one or more billing events, number of files downloaded, number of applications run or time that an application has been running, usage of one or more specified applications, GPS coordinate changes, roaming event, an event related to another network connection to the device and/or other service related measures.

[00172] In some embodiments, the service control device link 1691 provides for securing, signing, encrypting or otherwise protecting communications before sending. For example, the service control device link 1691 can send to the transport layer or directly to the link layer for transmission. In some embodiments, the communications are further secured with transport layer encryption, such as TCP TLS (Transport Control Protocol Transport Layer Security) or another secure transport layer protocol. In some embodiments, communications are encrypted at the link layer, such as IPSEC (Internet Protocol Security), various VPN (Virtual Private

Network) services, other forms of IP layer encryption and/or another link layer encryption technique.

[00173] In some embodiments, the service control link 1691 includes the above discussed agent heartbeat function in which the agents provide certain required reports to the service controller 122 for the purpose of service policy implementation verification (e.g., verification related reports on certain aspects of the service processor 115) or for other purposes. For example, such agent heartbeat messages can be in the open/clear (unencrypted) or encrypted, signed and/or otherwise secured. In some embodiments, these messages include one or more of the below described types of messages: an agent information message, an agent check-in message and/or agent cross check message.

[00174] In some embodiments, an agent information message is included in the agent heartbeat service policy implementation verification message, which includes, for example, any information the agent needs to communicate to the service controller 122 as part of the operation of the service policy implementation system. For example, an agent response to a service controller challenge, as described below, can be included in the agent heartbeat service policy implementation verification message.

[00175] In some embodiments, an agent check-in message is included in an agent heartbeat service policy implementation verification message, which includes, for example, a transmission of a unique agent identifier, secure unique identifier, and/or hashed encrypted and signed message beginning with some shared secret or state variable for the hash. For example, an agent self-check can be included in the agent heartbeat service policy implementation verification message, which includes reporting on agent configuration, agent operation, agent code status, agent communication log, agent error flags, and/or other agent associated information potentially hashed, encrypted, signed or otherwise secured in the message (e.g., using a shared secret unique to that agent).

[00176] In some embodiments, an agent cross-check message is included in the agent heartbeat service policy implementation verification message, which includes, for example, reports on the status, configuration, operation observations, communication log or other aspects of another agent. For example, agent environment reports can be included in the agent heartbeat

service policy implementation verification message, which includes, for example, reports on certain aspects of the service processor 115 operating environment, such as software presence (e.g., installation status of certain operating system and/or application software and/or components thereof), observed communication with agents or communication attempts, memory accesses or access attempts, network accesses or access attempts, software downloads or attempted downloads, software removal or download blocking, service policy implementation verification or compromise event error conditions with respect to the operating environment for the service processor 115, and/or other messages regarding the verification or possibility of compromise associated with the service processor 115 operating environment or agents.

[00177] In some embodiments, the agent heartbeat function also provides regular updates for information important to user service notification services. For example, the network based elements can provide regular synchronization updates for the device based service usage or service activity counters in which service usage or service activity measures available from one or more network service history elements is transmitted to the device 100. This allows the service usage counter errors between the device service counter and the counters used for central billing to be minimized. A common service usage or service activity measure is total traffic usage measured to date within a time frame over which a service limit is applicable. Other service usage or service activity measures can also be tracked and reconciled in a similar manner.

[00178] In some embodiments for the heartbeat function, the service controller 122 verifies that the scheduled agent reports are being received and that the reports are within expected parameters. In some embodiments, the access control integrity server 1654 issues signed challenge/response sequences to the policy implementation agent 1690. For example, the challenges can be asynchronous, issued when an event or error condition occurs, issued on a schedule or issued when a certain amount of data has passed. This approach, for example, provides a second layer of service policy implementation verification that strengthens the service usage or service activity measurement verification. For example, a challenge/response can be sent over the heartbeat link for the purpose of verifying device agent integrity. Various challenge/response related verification embodiments are described below.

[00179] In some embodiments, the challenge/response heartbeat message can include sending any kind of command or query, secure or transmitted in the open, receiving a response from the agent and then evaluating the response to determine if the response is within a range of parameters expected for a correctly configured agent, an agent that is operating properly, an agent that is not partially compromised or an agent that is not entirely compromised. In some embodiments, the agent is only required to respond with a simple acknowledgement of the challenge. In some embodiments, the agent is required to respond with a message or piece of information that is known by the agent. In some embodiments, the agent is required to respond with a message or piece of information that is difficult for the agent to respond correctly with if it were to be partially or entirely compromised. In some embodiments, the agent is required to respond back with information regarding the operation or configuration of the agent that is difficult for the agent to respond properly with if the agent is not properly configured, not operating properly, is partially compromised or is entirely compromised. In some embodiments, the first agent is required to respond back with information regarding the operation, configuration, status or behavior of a second agent that is difficult for the first or second agent to respond properly with if the first or second agent is not properly configured, not operating properly, is partially compromised or is entirely compromised. In some embodiments, the agent is required to respond with a response that includes a shared secret. In some embodiments, the agent is required to respond with information regarding the presence, configuration, operating characteristics or other information regarding other programs in the operating environment of the agent. In some embodiments, the agent is required to respond with hashed information to be portions of code or a code sample (e.g., the code portion or code sample can be specified by the service controller 122).

[00180] In some embodiments, the information the agent responds with is a response to a signed or encrypted message from the service controller 122 in which the agent must know how to decode the encrypted controller message in order to respond correctly or it would be difficult for the agent to respond properly if the agent is not configured properly, is not operating within appropriate limits, is partially compromised or is entirely compromised. In some embodiments, the agent signs or encrypts information in such a manner that it is difficult to respond correctly when the message is decoded by the service controller 122 unless the agent is configured properly, is operating within appropriate limits, is not partially compromised and is not entirely

compromised. In some embodiments, the agent is required to respond with a signed or encrypted hash of information that is difficult for the agent to generate unless the agent is configured properly, is operating within appropriate limits, is not partially compromised and is not entirely compromised. For example, the hashed information can be local device configuration information, portions of code or all of the code, and/or the code portion to be used in the response can be specified by the service controller. In another example, the hashed information the agent responds with can include a shared secret, and/or the hashed information can be information regarding the presence, configuration, operating characteristics or other information regarding other programs in the operating environment of the agent.

[00181] Accordingly, as described above, the agent heartbeat function provides an important and efficient system in some embodiments for verifying the service policy implementation or protecting against compromise events. For example, there are many other functions the agent heartbeat service can perform and some are described herein while others will be apparent to one of ordinary skill in the art given the principles, design background and various embodiments provided herein.

[00182] In some embodiments, the service control device link 1691 facilitates another important function, which is the download of new service processor software elements, revisions of service processor software elements, and/or dynamic refreshes of service processor software elements. There are many embodiments for such operations. In some embodiments, the software is received as a single file over the service control device link 1691. For example, the file can have encryption or signed encryption beyond any provided by the communication link protocol itself. In some embodiments, the software files are segmented into smaller packets that are communicated in multiple messages sent over the service control device link 1691. In some embodiments, once the file(s) are received, or the segmented portions of the file(s) are received, they are communicated to a service downloader 1663 for file aggregation and installation, which, in some embodiments, is performed after further measures to verify the service processor software are completed. In some embodiments, the files are sent using other delivery means, such a direct TCP socket connection to the service downloader 1663 or some other software installer, which can also involve secure transport and additional levels of encryption.

[00183] As shown in Figure 16, 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 16, 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 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.

[00184] In some embodiments, as described below, there are multiple layers of security applied to the agent communication bus 1630 communication protocols, such as including one or more of the following: point to point message exchange encryption using one or more keys that are partially shared or shared within the service processor 115 agent group and/or the service controller 122, point to point message exchange that using one or more keys that are private to the two endpoints of the communication, a bus-level message exchange encryption that can be in place of or in addition to other encryption or security, or using one or more keys that are partially shared or shared within the service processor 115 agent group and/or the service controller 122, a set of secure messages that can only be decoded or observed by the agents they are intended for, a set of secure messages that allow communication between certain agents or service processor functions and entities outside of the service processor operating environment. In some embodiments, and as described herein, the service control device link 1691 is assumed to be equivalent to an agent for communication purposes, and, in the case of the service control device link 1691, the communication is not restricted to the agent communication bus 1630 but also extends to the service control communications link 1653. In some embodiments, the system has the capability to replace keys or signatures on occasion or on a regular basis to further secure against monitoring, eavesdropping or compromise of the agent communication system.

[00185] For example, various forms of message encryption and security framework techniques can be applied to encrypt and/or secure the agent communication bus 1630, including

one or more of the following: agent bus encryption using shared key for all agents provided and updated by the secure server; agent bus encryption using point to point keys in which the secure server informs the bus and agents of keys and updates as appropriate; agent level encryption using agent to agent shared keys in which the secure server informs agents of the key and updates the key as appropriate; agent level encryption using agent to agent point to point key in which the secure server informs agent of the point to point keys that are required and updates the keys as appropriate; agent level access authorization, which only allows access to the agents that are on the secure authorization list and in which the list is provided by the secure server and signatures are provided by the secure server; UI messages are only analyzed and passed, in which the UI cannot have access to configuration information and cannot issue challenges; agent level heartbeat encryption, which can be point to point or shared key for that agent; control link level heartbeat encryption; TLS (Transport Layer Security) communication protocols; server level heartbeat encryption, which can be point to point or shared key for that secure server; and/or the access control integrity agent 1694 or heartbeat function can become point to multipoint secure communications hubs.

[00186] In some embodiments of the agent communication bus 1630, the design of the agent communication bus depends on the nature of the design embodiments for the agents and/or other functions. For example, if the agents are implemented largely or entirely in software, then the agent communication bus can be implemented as an inter-process software communication bus. In some embodiments, such an inter-process software communication bus is a variant of D-bus (e.g., a message bus system for inter-process software communication that, for example, helps applications/agents to talk to one another), or another inter-process communication protocol or system, running a session bus in which all communications over the session bus can be secured, signed, encrypted or otherwise protected. For example, the session bus can be further protected by storing all software (e.g., software components, applications and/or agents) in secure memory, storing all software in encrypted form in secure memory, and/or executing all software and communications within a secure execution environment, hardware environment and/or protected memory space. In some embodiments, if the agents and other functions are designed with a mixture of software and hardware, or primarily with hardware, then the implementation of the bus design will vary, and the principles and embodiments described herein

will enable one of ordinary skill in the art to design the specifics of the agent communication bus 1630 to meet a particular set of product and desired functional requirements.

[00187] As shown in Figure 16, an access control integrity agent 1694 collects device information on service policy, service usage or service activity, agent configuration and agent behavior. In some embodiments, the access control integrity agent 1694 also cross checks this information to identify integrity breaches in the service policy implementation and control system. In some embodiments, the access control integrity agent 1694 also initiates action when a service policy violation or a system integrity breach is suspected. In some embodiments, the access control integrity agent 1694 also performs asynchronous or periodic agent checks to verify presence, configuration or proper operation of other agents. In some embodiments, the access control integrity agent 1694 also performs challenge-response sequence verification of other agents.

[00188] In some embodiments, the access control integrity agent 1694 obtains service usage or service activity measures from a service monitor agent 1696 and compares one or more first service usage measurement points against one or more second service usage measurement points to verify service policy implementation. For example, as shown in Figure 21, if the service usage at measurement point IV is inconsistent with measurement point III, which, for example, can indicate, for example, that an unauthorized or unmonitored usage of the access modem (e.g., modems 2122, 2123, 2124, 2125 or 2141) is taking place. As another example, as also shown in Figure 21, if one or more aspects of upstream traffic usage measurement point II, which represents the upstream demand side of policy implementation agent 1690, is inconsistent with upstream traffic measurement point III, which represents delivered traffic from the policy implementation agent 1690, then the policy implementation agent 1690 may not be operating properly. As another example, as also shown in Figure 21, if service measurement point III and IV indicate that firewall agent 1655 is passing traffic to URLs or IP addresses that are in the blocked policy settings, then a verification error condition can be set for the access control policy. As another example, if the policy controller reports traffic usage statistics that are inconsistent with traffic usage policy settings, then a traffic usage policy verification error may have occurred. As another example, if the service usage counter synchronization information received from the service controller 122, the device service history 1618 and/or the central

billing system 1619, is compared to the service usage history reported by the service monitor agent and the two are found to be outside of acceptable tolerance limits for the comparison, then there may be a verification error in the service monitor service usage or service activity accounting. There are numerous additional embodiments of such comparisons as described herein and others as will be readily apparent to one of ordinary skill in the art given the principles, design background and specific examples and various embodiments described herein.

[00189] In some embodiments, device service policy implementations are verified by comparing various service usage measures used at the device against expected service usage or service activity behavior given the policies (e.g., one or more service policy settings, service profile or service profile settings for network based access/services, and/or service plan or service plan for network based access/services). For example, verification is performed based on a measure of total data passed at the device as compared to the service policy for total data usage. For example, verification is performed based on a measure of data passed in a period of time at the device as compared to the service policy for data passed in such a period of time. For example, verification is performed based on a monitoring of communications from the device based on IP addresses as compared to the policy for permissible IP addresses. For example, verification is performed based on a measure of total data passed from the device per IP address as compared to the policy for total data usage per IP address. Other examples include such actual versus policy comparisons based on other measures at/from/to the device, such as location, downloads, email accessed, URLs, and/or any other data, location, application, time or other criteria or any combination of criteria that can be measured for comparing with various policy settings and/or restrictions.

[00190] In some embodiments, the access control integrity agent 1694 monitors agent self-check reports to verify that agents are properly configured. In some embodiments, the access control integrity agent 1694 reports the agent self check reports to the service controller 122. In some embodiments, the access control integrity agent 1694 performs a role in service usage test transmission, reception and/or monitoring, with the usage test being tailored to test monitoring or control aspects for any subset of service activities. In some embodiments, the access control integrity agent 1694 performs a role in billing test event generation and/or monitoring. In some embodiments, the access control integrity agent 1694 checks and reports the result of service

usage monitoring verification tests, service usage billing verification tests and/or transaction billing verification tests.

[00191] In some embodiments, the access control integrity agent 1694 receives agent access attempt reports to determine if unauthorized agent access attempts are occurring. In some embodiments, the access control integrity agent 1694 acts as a central secure communications hub for agent to agent or service controller 122 to agent communication. For example, the access control integrity agent 1694 can be used so that no other software or function can access other agents or so that agents cannot access other agents except through the secure point to multipoint communications hub. In some embodiments, this approach further enhances compromise resistance for the agents. In some embodiments, some or all of the agent communications, including agent to agent or service controller 122 to agent communications, and possibly including unauthorized attempts to communication with agents, are monitored and logged so that a trace log of some or all agent communications can be maintained. For example, the agent communication trace log can be summarized and/or compressed for transmission efficiency or regularly reported, such as through the heartbeat function, or the agent communication trace log can be reported only when the service controller 122 requests the agent communication trace log or when there is a verification error event. As similarly described above, the partitioning of agent functions and server functions is provided herein mainly to aid in disclosing various embodiments but those of ordinary skill in the art will appreciate that other partitioning of agent functions and server functions can be used based on different design choices. For example, the central agent communication hub function is performed in some embodiments by the access control integrity agent 1694, however, in other embodiments that function is performed by the service control device link 1691. For example, when the central agent communication hub function is located in the service control device link 1691, then architecturally the device link can be a single point to multipoint secure communications hub for all agent to agent and service controller 122 to agent communications. In some embodiments, this approach has certain advantages from a service policy implementation verification or compromise protection robustness perspective, or has certain advantages from a communications protocol efficiency perspective, or simply can be more efficient to implement. It should be noted that in other embodiments described herein the agent to agent and agent to service controller 122 communications can be multipoint to multipoint, with each agent having the capability to

communicate with other agents or the service controller, this communication can be secure, signed or otherwise encrypted or protected in some embodiments and in the open/clear in others. Also, as discussed in some embodiments, the agents can maintain their own communications or attempted communications log, which can then be reported to the service controller 122. In some embodiments, the agents implement restrictions on which device components or agents the agents will conduct communications with so that only agents that need to communicate with one another can do so.

[00192] In some embodiments, the service control device link 1691 reviews local billing event history and compares such history to billing event reports to verify that a billing agent 1695 is functioning properly (e.g., has not been tampered with or compromised). In some embodiments, the service control device link 1691cross-checks service usage or service activity against billing event reports from the billing agent 1695 to verify that billing events are properly billing for service usage or service activity. In some embodiments, the service control device link 1691cross-checks transaction billing process or records against transaction billing reports to ensure that transaction billing events are being properly reported by the billing agent 1695. In some embodiments, the service control device link 1691 determines if one or more agents have been compromised, and if so, initiates a dynamic agent download process to replace any such potentially compromised agent.

[00193] In some embodiments, the access control integrity agent 1694 verifies that the service usage counter is reporting service usage or service cost to the user within acceptable limits of accuracy when compared to the service usage reports obtained from the service monitor agent 1696, the service controller 122, the device service history 1618 and/or the central billing system 1619. In some embodiments, the access control integrity agent 1694 checks to verify that user privacy filter preferences are being properly implemented. In some embodiments, the access control integrity agent 1694 checks to verify that the user is properly receiving UI warnings regarding service usage or roaming service usage conditions.

[00194] In some embodiments, the access control integrity agent 1694 checks to verify that the device is not beginning service usage until it has been authenticated, authorized or granted access to the network. In some embodiments, access control integrity agent 1694 checks

with the service controller 122 or the billing system 1619 to verify that the user or device has a valid service standing and should be admitted to access on the network.

[00195] In some embodiments, an Activation Tracking Service (ATS) is provided in which the service monitoring function (e.g., performed by the service monitor agent 1696 and/or some other agent/component or combinations thereof on the device) is used in part to determine which access networks are being connected to and to record and/or report this information. In some embodiments, the ATS is only enabled if the device user approves reporting of access networks connected to by the user device. In some embodiments, the ATS is protected from tampering. For example, the ATS can be hardened, that is, to be more tamper resistant, using a variety of techniques, including any of the following: the ATS can be located (e.g., stored) in secure memory and/or secure hardware; the ATS can be implemented in the system BIOS, the access modem and/or another hard to access portion of the device; a second device agent can confirm the presence of the ATS with a report to a network based server; the second agent or the network server can initiate a reinstall of the ATS if it is missing or is found to be operating improperly; and/or the ATS can be placed in a secure area of the OS so that it cannot be removed or if removed must be replaced for proper device operation to resume. A variety of other tamper resistance techniques can also be used to protect the ATS from tampering as similarly described herein with respect to other device based functions/software components/agents.

[00196] In some embodiments, the access control integrity agent 1694 verifies that ATS software or hardware is present, properly configured or operating properly. In some embodiments, the access control integrity agent 1694 reviews network connection or activity history and compares such to ATS reports to verify activation tracking service reports are occurring properly. In some embodiments, the access control integrity agent 1694 replaces ATS software if it has been removed. In some embodiments, the access control integrity agent 1694 monitors access or compromise of ATS software to determine if it may have been compromised. In some embodiments, the access control integrity agent 1694 reports status of ATS functions.

[00197] In some embodiments, the access control integrity agent 1694 scans the local agent execution environment to determine if there are unauthorized accesses to service processor functions, settings or code. In some embodiments, the access control integrity agent 1694

monitors software loading activity, protected memory access or communication with service processor 115 agents to detect unauthorized changes to service processor software or configuration. For example, the access control integrity agent 1694 can have a local database of potentially malicious elements and compare entries in the database against the elements detected locally. As another example, the access control integrity agent 1694 can communicate a list of some or all of the elements detected locally to the service controller 122 to augment or take the place of the database comparison function that may be performed locally. In some embodiments, the access control integrity agent 1694 detects new software downloads, installs or invocations and immediately issues an error flag report when potentially malicious software is downloaded, installed or invoked. In some embodiments, the access control integrity agent 1694 scans the local software loading and invocation activity along with a log of other software runtime events and regularly reports this trace so that when an error or compromise event occurs the trace preceding the event can be analyzed to determine the offending software or activity trace that took place to cause the compromise or error. Once the software or activity that caused the compromise is known, it can be entered into a refreshed version of the database that the device and other devices use to detect potentially malicious pre-cursor conditions. Examples of such pre-cursor events include software invocations, software downloads, attempts to uninstall certain agent and/or application software/components or OS components, a sequence of memory I/O events, a sequence of software access events, a sequence of network address or URL communications or downloads or a sequence of access modem I/O activity. In various other embodiments of the access control integrity agent 1694, the agent performs or (securely) communicates with other software/hardware device/network components that perform other well known signature, behavior blocking and/or intrusion detection identification/detection and/or blocking techniques based on the presence of potentially unwanted and/or potentially or known malicious software and/or intrusion attempts by unauthorized software and/or unauthorized users, using, for example, real-time, on access, periodic, and/or on demand scanning.

[00198] In some embodiments, the access control integrity agent 1694 detects or blocks potentially compromising behavior of other software programs/users attempting unauthorized behavior in the service processor 115 operating environment. In some embodiments, the access control integrity agent 1694 detects software that is being loaded that has the same or similar name, identification, memory location or function as one or more of the service processor 115

agents. In some embodiments, the access control integrity agent 1694 blocks operation or loading of such software. In some embodiments, the access control integrity agent 1694 detects or blocks unauthorized access of service processor 115 protected memory. In some embodiments, the access control integrity agent 1694 verifies configuration and operation of secure service downloader 1663. In some embodiments, the access control integrity agent 1694 monitors network and I/O activity to detect potentially compromising events, such as a program that is downloaded from known detrimental or potentially suspect IP addresses or URLs or a program that accesses certain IP addresses or URLs. In some embodiments, the access control integrity agent 1694 scans of the service processor operating environment are recorded and kept for a period of time, and if a service policy verification error occurs, then the scans immediately prior to the error are analyzed or reported to the service controller 122 for analysis. In some embodiments, such scans are regularly reported to the service controller 122 without the presence of service policy verification error conditions.

[00199] In some embodiments, the access control integrity agent 1694 requests a dynamic agent download of certain critical service processor functions, including in some cases the access control integrity agent 1694 on a periodic basis, or on a periodic basis when network access activity is not required or minimal.

[00200] In some embodiments, the access control integrity agent 1694 determines if a threshold has been surpassed for a max usage trigger for ambient and/or other services that should not be using significant amounts of data (e.g., based on the type of device and/or service profile settings).

[00201] In some embodiments, the access control integrity agent 1694 determines if verification errors exist in one or more of the verification process embodiments and, in some embodiments, reports errors immediately or in the next agent heartbeat to the service controller 122. In some embodiments, any number of results from the above checks, monitoring activities, reports or tests are reported to the service controller 122.

[00202] In some embodiments, a policy control agent 1692 receives policy instructions from the service controller 122 and/or the user via the billing agent 1695 and adapts device service policy settings (e.g., instantaneous device service policy settings) in one or more of the

following agents/components: a policy implementation agent 1690, the modem firewall 1655 and/or an application interface agent 1693. As shown in Figure 16, the modem firewall 1655 is in communication with a modem driver 1640, which is in communication with the agent communication bus 1630 and access network 1610. As shown with respect to access network 1610, a central billing server 1619, an access network AAA server 1621 and device server history 1618 are also provided. As shown, the Internet 120 is accessible via the access network 1610 and firewall 124, from which device 100 can then access various Internet services 1615.

[00203] In some embodiments, the policy control agent 1692 adapts low level service policy rules/settings to perform one or more of the following objectives: achieve higher level service usage or cost objectives, reduce network control channel capacity drain, reduce network control plane server processing bandwidth, and/or provide a higher level of user privacy or network neutrality while satisfying service usage or service activity objectives. In some embodiments, the policy control agent 1692 performs a policy control function to adapt instantaneous service policies to achieve a service usage objective. In some embodiments, the policy control agent 1692 receives service usage information from the service monitor agent 1696 to evaluate service usage history as compared to service usage goals. In some embodiments, the policy control agent 1692 uses service monitor 1696 service usage or service activity history and various possible algorithm embodiments to create an estimate of the future projected service usage. In some embodiments, the policy control agent 1692 uses a future projection of service usage to determine what service usage or service activity controls need to be changed to maintain service usage goals. In some embodiments, the policy control agent 1692 uses service usage history to perform a service usage or service activity analysis to determine the distribution of service usage across service usage elements within categories, such as usage by application, usage by URL, usage by address, usage by content type, usage by time of day, usage by access network, usage by location, and/or any other categories for classifying service usage. In some embodiments, the policy control agent 1692 uses the service usage distribution analysis to determine which service usage elements or service activities are creating the largest service usage (e.g., if e-mail, social networking, or multimedia/online video application categories are creating the largest service usage).

[00204] In some embodiments, the policy control agent 1692 is instructed, for example, by the user, through billing agent 1695 to perform a service control algorithm, such as traffic shaping or download management, to manage service usage or service activities to assist the user in controlling service costs. As a basic example of such a traffic shaping algorithm, the traffic shaping algorithm can simply reduce traffic speed for all applications and traffic types successively until the service usage projections are within service usage limits for the present service billing period. To illustrate an algorithm that is more sophisticated and provides the advantage of leaving many service usage elements or service activities unaffected while only controlling down usage on the most aggressive service usage elements or service activities, the traffic shaping algorithm can identify the highest traffic usage applications and/or websites and successively reduce traffic speed just for the highest usage applications and/or websites until the service usage projections are within service usage limits for the present service billing period. These examples thereby reduce network traffic for the user in accordance with the user's service usage objectives while maintaining overall satisfactory service usage experience for the user in a manner that satisfies various net neutrality requirements (e.g., the traffic throttling of certain applications/websites based on user input in which categories based on service usage history are selected by the user, for example, a certain application may be using 90% of the aggregate traffic usage). For example, adaptive throttling algorithms can be used to throttle application traffic that the user requests throttling, such as recursively throttling of the specified application traffic (e.g., to denigrate the traffic usage associated with that application and thereby reduce overall service data usage).

[00205] In some embodiments, the policy control agent 1692 adjusts service policy based on time of day. In some embodiments, the policy control agent 1692 obtains a measure of network availability and adjusts traffic shaping policy settings based on available network capacity. In some embodiments, the policy control agent 1692 automatically and dynamically adjusts service policy based on one or more other service policy settings, the service profile and/or the service plan associated with the device and/or user of the device.

[00206] In some embodiments, various lower level service policy implementation embodiments are combined with a higher level set of service policy supervision functions to

provide device assisted verifiable network access control, authentication and authorization services.

[00207] In some embodiments, device based access control services are extended and combined with other policy design techniques to create a simplified device activation process and connected user experience referred to herein as ambient activation. In some embodiments, ambient access generally refers to an initial service access in which such service access is in some manner limited, such as where service options are significantly limited (e.g., low bandwidth network browsing and/or access to a specific transactional service), limited bandwidth, limited duration access before which a service plan must be purchased to maintain service or have service suspended/disabled or throttled or otherwise limited/reduced/downgraded, and/or any other time based, quality based, scope of service limited initial access for the network enabled device. In some embodiments, ambient activation is provided by setting access control to a fixed destination (e.g., providing access to a portal, such as a web page (e.g., for a hotspot) or WAP (Wireless Application Protocol) page, that provides the user with service plan options for obtaining a service plan for the user desired access, such as the service plan options for data usage, service types, time period for access (e.g., a day pass, a week pass or some other duration), and costs of service plan(s)). In some embodiments, service data usage of the ambient activated device is verified using IPDRs (e.g., using the device ID/device number for the device 101 to determine if the device has been used in a manner that is out of plan for the service plan associated with the device 101, such as based on the amount of data usage exceeding the service plan's service data usage limits, out of plan/unauthorized access to certain websites, and/or out of plan/unauthorized transactions). In some embodiments, service data usage of the ambient activated device is verified by setting a maximum data rate in the policy control agent 1692 and if/when it is determined that the device is exceeding a specified data rate/data usage, then the service data usage is throttled accordingly. In some embodiments, various other verification approaches are used for ambient activation purposes.

[00208] In some embodiments, the policy control agent 1692 (and/or another agent/component of the service processor 115 and/or service controller 122) performs a service control algorithm to assist in managing overall network capacity or application QoS (Quality of Service). In some embodiments, the policy control agent 1692 (and/or another agent/component

of the service processor 115) performs an access network selection algorithm to determine which access network to connect to based on connection options and determined strengths of available wireless networks, network preference or security settings, service usage cost based network preferences, and/or any other criteria.

[00209] Accordingly, as described herein with respect to various embodiments, service usage or service activities can be measured by various agents at various different measurement points, which provides for a more robust verification and integrity of device based services communication. For example, it is much less likely and more difficult to compromise and/or spoof multiple agents. As described herein, various verification and integrity checks are performed, including, for example, network based service usage measurement (e.g., using IPDRs); heartbeat monitoring; agent based heartbeat (e.g., challenge/response queries); agent operating environment protection; monitoring agent communications; agent cross-checks; comparing device based and network based measures (e.g., service usage measures); dynamic software/agent download; and/or any combination of these and various other verification/integrity check techniques described herein and/or apparent from the various embodiments described herein.

[00210] In some embodiments, the device 100 is capable of connecting to more than one network and device service policies are potentially changed based on which network the device is connected to at the time. In some embodiments, the network control plane servers detect a network connection change and initiate the service policy implementation established for the second network. In some embodiments, the device based adaptive policy control agent, as described herein (e.g., policy control agent 1692), detects network connection changes and implements the service policies established for the second network.

[00211] In some embodiments, when more than one access network is available, the network is chosen based on which network is most preferred according to a network preference list or according to which network that optimizes a network cost function. For example, the network preference list can be pre-established by the service provide and/or the user and/or later modified/adjusted by either the service provider and/or the user. For example, the cost function can be based on determining a minimum service cost, maximum network performance, whether

or not the user or device has access to the network, maximizing service provider connection benefit, reducing connections to alternative paid service providers, and/or any other cost related criteria for network selection purposes.

[00212] In some embodiments, the device 100 detects when one or more preferred networks are not available, implements a network selection function or intercepts other network selection functions, and offers a connection to the available service network that is highest on a preference list. For example, the preference list can be set by the service provider, the user and/or the service subscriber. In some embodiments, a notification is provided to the device/user when the device is not connected to a network (e.g., indicating in a pop-up/bubble or other UI based display a notification, such as "You are not connected to the network. Click here to learn more, get free trial, use a session, sign-up for service"). In some embodiments, the notification content can be determined based on usage service patterns, locally stored and/or programmable logic on the device and/or a server (e.g., device reports that user is not connected and WWAN is available). Decisions on what bubble to present when may be in pre-stored logic on device.

[00213] In some embodiments, service policies are automatically adapted based on the network to which device 100 is connected. For example, the device can be a cellular communication based device connected to a macrocell, a microcell, a picocell, or a femtocell (e.g., femto cells generally provide a low power, small area cellular network used, for example, in homes or offices, which, for example, can be used as an alternative to Wi-Fi access). In some embodiments, service monitoring agent 1696 and/or billing agent 1695 modify service usage counting and/or billing based on whether the device is connected to a macrocell, microcell, picocell or femtocell. In some embodiments, the device recognizes which type of network it is currently connecting to (e.g., looking up in a local or network table for the current base station connected to, and/or the information is broadcast to the device upon the connection with the base station), that is, whether it is a macrocell, microcell, picocell or femtocell. In other embodiments, the device does not recognize which type of network it is currently connected to, but reports its current base station, and the network uses a network lookup function to determine which type of network it is connected to. In some embodiments, the device adjusts the billing based on the type of network it is connected to, or in other embodiments, the device calculates an offset to such billing based on the type of network it is connected to, and/or in other

embodiments, the device records such service usage associated with the type of network it is connected to and the network billing can adjust the billing accordingly. For example, the billing can be lower for service data usage over a femtocell versus a macrocell. In some embodiments, service policies are adjusted based on the type of network that the device is connected, such as billing, user notification, data usage/bandwidth, throttling, time of day, who owns the cellular network connection (e.g., user's home femtocell, or user's work femtocell, or a commercial business's femtocell like a coffee shop or any other common area like an airport) and/or any other service policy can be different for a femtocell connection (or for any other type of connection, such as a macrocell, microcell, or picocell). In some embodiments, the local service usage counter is adjusted based on the type of network (and/or based on the time of day of such service activity) that the device is connected, such as billing, user notification, data usage/bandwidth, and/or any other service policy can be different for a femtocell connection (or for any other type of connection, such as a macrocell, microcell, or picocell). In some embodiments, the service policies and/or billing policies are adjusted based on network congestion.

[00214] In some embodiments, if adaptive service policy control is not required, then the policy control agent 1692 can simply pass instantaneous service policy settings directly to the agents responsible for implementing instantaneous service policies.

[00215] In some embodiments, a policy implementation agent 1690 implements traffic shaping and QoS policy rules for the device 100. In some embodiments, the policy implementation agent 1690 provides a firewall function. In some embodiments, the policy implementation agent 1690 performs traffic inspection and characterization. In some embodiments, packet inspection is aided by literal or virtual application layer tagging while in other embodiments packet inspection is performed entirely in/by the policy implementation agent 1690. In some embodiments, the policy implementation agent 1690 accepts service policy implementation settings from the policy control agent 1692 or directly from the service controller 122. More detail on specific embodiments for the policy implementation agent 1690 is provided below with respect to the figures associated with communication stack and communication protocol flow.

[00216] In some embodiments, the burst size, buffer delay, acknowledgement delay and drop rate used in upstream and downstream traffic shaping are optimized with the goal of reducing access network traffic overhead, and excess capacity usage that can result from mismatches in traffic transmission parameters with the access network MAC and PHY or from excess network level packet delivery protocol re-transmissions. In some embodiments, the application interface agent 1693 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. As shown in Figure 16, the application interface agent 1693 is in communication with various applications, including a TCP application 1604, an IP application 1605, and a voice application 1602.

[00217] In some embodiments, downstream literal or virtual application tagging are delayed until a traffic flow passes through the service policy implementation functions and to the application interface function where the service flow is then identified and associated with the underlying traffic and application parameters, and the literal or virtual tag is then communicated to the first policy implementation function or service monitoring function in the downstream traffic processing stack. In some embodiments, prior to being associated with a literal or virtual tag, the traffic flow is allowed to pass with no traffic shaping, and once the traffic flow is identified and tagged, the appropriate traffic shaping is applied. In some embodiments, a set of traffic shaping policy parameters are applied to the unidentified traffic flow before the flow is identified, and then the traffic shaping policy for the flow is updated when the flow is tagged. In some embodiments, the traffic flow can be blocked at the application interface agent even before the tag is passed to the policy implementation functions if it is found to be associated with traffic parameters that are blocked by policy once packet processing, framing and encryption are removed.

[00218] In some embodiments, a service monitor agent 1696 records and reports device service usage or service activities of device 100. In some embodiments, service usage history is verified by a number of techniques including verifying against network based service usage history (e.g., device service history 1618) and the various service policy implementation techniques as described herein.

[00219] In some embodiments, the service monitor agent 1696 includes the capability to filter service usage history reporting with the decision on which aspects of service history to report being determined by policies including possibly privacy policies defined by the device user or control plane servers in the network. In some embodiments, the service monitor agent 1696 monitors and possibly records or reports Customer Resource Management (CRM) information such as websites visited, time spent per website, interest indications based on website viewing, advertisements served to the device, advertisements opened by the user, location of the user, searches conducted by the user, application usage profile, device user interface usage history, electronic commerce transactions, music or video files played, applications on device, and/or when the user is actively working or playing or inactive. In some embodiments, to protect the privacy of this user CRM information, the user is provided with options on how much of the information to share and the user's response to the options are recorded and used to determine the filtering policy for how much of the CRM data to report (e.g., CRM filter level options selected by the user via the device UI and/or via various service plan or service profile or service policy options) and how much to suppress or to not even monitor/record/store in the first place. In some embodiments, to protect the privacy of this user's GPS/location tracking related information, the user is provided with options on how much of the information to share and the user's response to the options are recorded and used to determine the filtering policy for how much of the GPS/location tracking related data to report (e.g., GPS/location tracking filter level options) and how much to suppress or to not even monitor/record/store in the first place. In some embodiments, the service processor 115 allows the user to provide feedback on the user's preferences, such as for privacy/CRM data to report. In some embodiments, the user can also specify their preference(s) for notification (e.g., related to service usage/cost, traffic reporting and other service usage/monitored information) and/or service controls. In some embodiments, the service monitor agent 1696 observes and possibly records or reports service usage categorized by network possibly including roaming networks, paid service networks or free service networks. In some embodiments, the service monitor agent 1696 observes and possibly records or reports service usage categorized by sub-accounts for various types of traffic or various types of network.

[00220] For example, service monitor reports can be provided to the service controller 122. Service is monitored through various embodiments that can involve service usage logging

or traffic inspection and usage logging at the application level, various levels in the networking communication stack or the access modem. Some embodiments involve multiple levels of service or traffic measurement at various levels in the communications stack as described further below.

[00221] In some embodiments, service or traffic monitoring includes monitoring one or more of the following: traffic associated with one or more users; traffic downstream and/or upstream data rate; total traffic received and/or transmitted over a period of time; traffic transmitted and/or received by IP addresses, domain names, URLs or other network address identifiers; traffic transmitted and/or received by email downloads or uploads; traffic transmitted and/or received by an application; traffic transmitted and/or received by network file transfers; traffic transmitted and/or received by file download or upload content types; traffic transmitted and/or received by mobile commerce transactions; traffic transmitted and/or received by one or more time periods; traffic transmitted and/or received by differing levels of network activity and network capacity availability; traffic transmitted and/or received by one or more delivered levels of quality of service; traffic transmitted and/or received by software downloads; traffic transmitted and/or received by application downloads; traffic transmitted and/or received by one or more activities associated with the service control plane link or other network related functions, or traffic that may not directly result in service usage or service activity that the user values or desires; traffic transmitted and/or received to support one or more service provider third party service partner offerings; software usage history; application usage history; device discovery history for UI components, applications, settings, tutorials; ads served history; ads visited history; and/or device location history.

[00222] In some embodiments, some or all of the service usage monitoring occurs at the application layer. In some embodiments, the service monitor agent 1696 implements traffic inspection points between the applications and the networking stack application interface, such as the sockets API. In other embodiments, the application interface agent 1693 performs traffic inspection and reports the results to the service monitor agent 1696. Traffic inspection can be accomplished in several ways, including, for example, implementing a T-buffer at each socket connection and feeding the side traffic into a traffic flow analyzer, which in combination with a mapping of application to socket provides much of the information listed above. In cases in

which it is necessary to obtain traffic information from the application itself, some embodiments call for the application to be adapted to provide the information to either the application interface agent 1693 or the service monitor agent 1696. As an example, the application interface agent 1693 or the service monitor agent 1696 can monitor and decode advertisements downloaded via HTTP, but if the browser and HTTP server employ security above the sockets protocol stack layer then the application interface agent can communicate with the browser via a java applet or some other inter-process communication method. In some embodiments, the service monitor agent 1696, the billing agent 1695 and/or the policy control agent 1692 (or some other software or hardware function on the device) can monitor and/or control (e.g., allow, block and/or replace) advertisement traffic flow into the device. In some embodiments, the monitoring and control of advertisement traffic flow into the device is also used for bill by account purposes (e.g., charges, such as service charges, billed to the advertiser, sponsor, and/or service or transactional service provider).

[00223] In some embodiments, some or all of the service usage monitoring occurs below the application interface for the networking stack. In this case, some portion of the information listed above may not always be available due to encryption applied at the higher layers and/or the computational costs associated with performing deep packet inspection on mobile devices.

[00224] In some embodiments, the service monitor agent 1696 is also monitors the operating software install or loading systems, and/or otherwise monitors software installs or loads and/or software uninstalls/deinstallations.

[00225] Some of the information above may be considered by some users, advocacy groups or agencies as customer sensitive personal information. Simply sending the above information to the network for unspecified purposes may not, therefore, be acceptable for some service providers. However, if the user provides specific approval (e.g., informed consent) for the device, network or service provider to use some or all of the information that may be sensitive for specified purposes, then the user can control the level of information that is used and the purpose the information is used for. Accordingly, various embodiments described herein provide the user with control of what information is used and the purposes it is used for thereby allowing the user adequate control of any such sensitive information. In some embodiments,

information that is thought to perhaps be sensitive and is reported to the network must first receive user approval for the reporting. Some basic information is generally not considered sensitive and is necessary for certain basic service provider needs. For example, total data transmitted and/or received, traffic downstream and/or upstream speed, overall traffic usage by time of day are generally not considered private from the service provider's perspective and are necessary in many basic service policy implementations. As additional examples, perhaps other service usage history, such as total traffic email downloads and uploads but not the type of files or any specifics about the email traffic, the total web browsing traffic but nothing specific about the sites visited or content viewed, total file transfer traffic but not the type of files transferred or the addresses involved in the transfer, and other examples may not be viewed as private and, in some embodiments, provide valuable information for the service provider to manage services. Conversely, information such as websites visited, content viewed, mobile commerce transactions completed, advertisements visited, GPS location history and other service usage history the service monitor is capable of recording may be sensitive or private for some users and would thereby benefit from the various embodiments that provide enhanced user control of the reporting of such potentially sensitive or private data. It should also be appreciated that there is an inherent advantage to implementing traffic monitoring, traffic, service monitoring or service control on a device, because it is not necessary to report sensitive information to the network to accomplish many of these service policy implementation objectives.

[00226] In some embodiments, the service monitor agent 1696 assists in virtual application tagging of traffic flows through the networking stack policy implementation by tracking the virtually tagged packets through the stack processing and communicating the flow tags to the service policy implementation agent(s) 1690. In some embodiments, the service monitor agent 1696 maintains a history and provides reports or summary reports of which networks in addition to the networks controlled by the service controller 122 to which the device has connected. In some embodiments, this network activity summary includes a summary of the networks accessed, activity versus time per connection, and/or traffic versus time per connection. In some embodiments, the traffic reports that go to the network, possibly to service controller 122, billing system 1619 and/or device service history 1618, are first filtered according to rules defined by user preference selection at the time of service activation (e.g., service plan/service plan option selection), time of first device use, at a time the user selected the option on the

service UI or at a time the user chose to change the option on the service UI or some other time/mechanism allowing for user preference selection.

[00227] In some embodiments, the service monitor agent 1696 monitors application usage (e.g., which application the user executes on the device 101, such as e-mail applications, web browsing applications and/or media content streaming applications). In some embodiments, the service monitor agent 1696 monitors multimedia file usage (e.g., based on multimedia file type and/or based on specific multimedia files, such as specific movies and/or songs). In some embodiments, the service monitor agent 1696 monitors the device user interface, application, and content discovery history (e.g., monitoring which applications/content the user accesses from the device, including monitoring the pattern by which the user accesses such applications/content, such as how the user navigates the user interface on the device to access such applications/content and maintaining such patterns and history, such as which icons the user access on a home page, secondary or other portion/mechanism on the device for accessing various applications/content). In some embodiments, the service monitor agent 1696 monitors advertisements provided to the user on the device 101. In some embodiments, the service monitor agent 1696 monitors advertisements viewed (e.g., accessed, such as by clicking on a web advertisement) by the user on the device 101. In some embodiments, the service monitor agent 1696 monitors GPS/location information for the device 101. As will be appreciated by those of ordinary skill in the art, the service monitor agent 1696 can monitor a wide variety of activities performed by the device/user of the device and/or based on other information related to the device 101 such as GPS/location information. As described herein, in some embodiments, the user of the device 101 can also specify which activities that the user authorizes for such monitoring (e.g., the user may prefer to not allow for such GPS/location monitoring).

[00228] In some embodiments, the application interface agent 1693 provides an interface for device application programs. In some embodiments, the application interface agent 1693 identifies application level traffic, reports virtual service identification tags or appends literal service identification tags to assist service policy implementation, such as access control, traffic shaping QoS control, service type dependent billing or other service control or implementation functions. In some embodiments, the application interface agent 1693 assists with application layer service usage monitoring by, for example, passively inspecting and logging traffic or

service characteristics at a point in the software stack between the applications and the standard networking stack application interface, such as the sockets API. In some embodiments, the application interface agent 1693 intercepts traffic between the applications and the standard network stack interface API in order to more deeply inspect the traffic, modify the traffic or shape the traffic (e.g., thereby not requiring any modification of the device networking/communication stack of the device OS). In some embodiments, the application interface agent 1693 implements certain aspects of service policies, such as application level access control, application associated billing, application layer service monitoring or reporting, application layer based traffic shaping, service type dependent billing, or other service control or implementation functions.

[00229] In some embodiments, application layer based traffic monitoring and shaping can be performed as described below. The traffic from each application can be divided into one or more traffic flows that each flow through a traffic queue, with each queue being associated with one or more additional classifications for that application (e.g., the application can be a browser that is associated with multiple queues representing different destinations or groups of destinations it is connected to, with each destination or group of destinations having potentially different access control or traffic control policies, or the application can be associated with different content types or groups of content types with each content type having different queues, the application might be an email program with email text traffic going to one queue and downloads going to another with different policies for each). In some embodiments, queues are formed for all applications or groups of applications that are associated with one or more traffic parameters such as destination, content type, time of day or groups of applications can be similarly assigned to different queues. The functions performed by the application layer queues can be similar to the functions described for the policy implementation agent, such as pass, block, buffer, delay, burst in order to control the traffic or network access associated with the queue. The drop function can also be implemented, such as for application layer protocols that include reliable transmission methods, but if the application layer protocol does not involve reliable retransmission of lost information this can result in lost data or unreliable communication which may be acceptable in some cases. The manner in which the queues are controlled can be constructed to result in a similar approach for controlling services or implementing service activity control similar to the other embodiments described herein,

including, for example, the policy control agent 1692 implementing an higher layer of service control to achieve a higher level objective as discussed herein.

[00230] In some embodiments, the application interface agent 1693 interacts with application programs to arrange application settings to aid in implementing application level service policy implementation or billing, such as email file transfer options, peer to peer networking file transfer options, media content resolution or compression settings and/or inserting or modifying browser headers. In some embodiments, the application interface agent 1693 intercepts certain application traffic to modify traffic application layer parameters, such as email file transfer options or browser headers. In some embodiments, the application interface agent 1693 transmits or receives a service usage test element to aid in verifying service policy implementation, service monitoring or service billing. In some embodiments, the application interface agent 1693 performs a transaction billing intercept function to aid the billing agent 1695 in transaction billing. In some embodiments, the application interface agent 1693 transmits or receives a billing test element to aid in verifying transaction billing or service billing.

[00231] In some embodiments, a modem firewall 1655 blocks or passes traffic based on service policies and traffic attributes. In some embodiments, the modem firewall 1655 assists in virtual or literal upstream traffic flow tagging. Although not shown in Figure 16, in some embodiments, the modem firewall 1655 is located on either side of the modem bus and in some embodiments it is advantageous to locate it on the modem itself.

[00232] In some embodiments, the billing agent 1695 detects and reports service billing events. In some embodiments, the billing agent 1695 plays a key role in transaction billing. In some embodiments, the billing agent 1695 performs one or more of the following functions: provides the user with service plan options, accepts service plan selections, provides options on service usage notification policies, accepts user preference specifications on service usage notification policies, provides notification on service usage levels, provides alerts when service usage threatens to go over plan limits or to generate excess cost, provides options on service usage control policy, accepts choices on service usage control policy, informs policy control agent 1692 of user preference on service usage control policy, provides billing transaction options and/or accepts billing transaction choices. In some embodiments, the billing agent 1695

interacts with transaction servers (e.g., open content transaction partner sites 134) to conduct ecommerce transactions with central billing 1619.

[00233] In some embodiments, service processor 115 includes one or more service usage or service activity counters. For example, the service monitor agent 1696, billing agent 1695 or a combination of these agents and/or other agents/components of service processor 115 can include such a local service usage counter(s) for the device 101. In some embodiments, a service usage counter monitors service usage including data usage to/from the device 101 with the access network 1610. In some embodiments, the service usage counter periodically, in response to a user request, in response to a service processor 115 agent's request (e.g., the billing agent 1695, the policy control agent 1692, or another agent of service processor 115), in response to the service controller 122, and/or in response to the central billing 1619 (e.g., for billing purposes and/or for storing in the device service history 1618), provides a service usage report, including monitored service usage for the device 101. In some embodiments, the service usage counter periodically, or in response to a request, synchronizes the service usage counter on the device 101 with a network (and/or billing) service usage counter, such as that maintained potentially at central billing 1619. In some embodiments, service processor 115 utilizes the service usage counter to provide a service usage projection. In some embodiments, service processor 115 utilizes the service usage counter to provide a service usage cost estimate. In some embodiments, service usage projections from policy control agent 1692 are used to estimate the projected future service usage if user service usage behavior remains consistent. In some embodiments, service processor 115 utilizes the service usage counter to provide a cost of service usage, and the service processor 115 then periodically, or in response to a request, synchronizes the cost of service usage with, for example, the central billing 1619. In some embodiments, the service processor 115 utilizes the service usage counter to determine whether the user is exceeding and/or is projected to exceed their current service plan for data usage, and then various actions can be performed as similarly described herein to allow the user to modify their service plan and/or modify (e.g., throttle) their network data usage. In some embodiments, the service usage counter can support providing to the user the following service usage related data/reports: service usage, known usage and estimated usage, projected usage, present costs, projected costs, cost to roam, cost to roam options, and/or projected roaming costs. For example, including a local service data usage counter on the device 101 allows the service processor 115

to more accurately monitor service data usage, because, for example, network (and/or billing) service usage counters may not accurately also include, for example, control plane data traffic sent to/from the device 101 in their monitored service data usage count.

[00234] In some embodiments, verifiable device based service billing solutions are provided. For example, as described herein, various device based service billing solutions can include a wide range of verification techniques to ensure that the device is properly reporting service billing events (e.g., to verify/ensure that the service billing is not malfunctioning and/or has not been tampered with/compromised such that it is not accurately or timely providing service billing information). As described herein, service billing generally refers the billing for one or more services for a device, such as device 101 (e.g., email service billing for data usage associated with received/sent email related data over the access network 1610, web browsing service billing for data usage associated with received/sent web browsing related data over the access network 1610 and/or any other network based service, and/or any transactional based services, such as for multimedia content purchases or other transactions).

[00235] In some embodiments, verifiable device based service billing is provided by sending dummy(/test) billing events, such as having an access control integrity server 1654 of the service controller 122 instruct the access control integrity agent 1694 to send a dummy(/test) billing event to the billing agent 1695. If the billing agent does not then send the expected report, which should reflect the dummy(/test) (or fails to timely send any report), then the system can verify whether the billing process is working properly. In addition, a dummy (/test) transaction can be used to verify transaction based billing through a variety of approaches (e.g., the access control integrity agent 1694 can similarly send a dummy(/test) transactional billing event to the billing agent 1695 as a test to determine whether the billing agent 1695 then provides the expected report reflecting that dummy(/test) transaction). For example, the test billing events can be trapped by a device assisted billing mediation server and removed from the user account billing.

[00236] In some embodiments, verifiable device based service billing is provided by sending one or more data bursts to the device to confirm that data was received and to confirm that the service monitor agent 1696 properly logged the data burst(s) in the local service usage or

service activity counter. In some embodiments, data bursts can be used to verify data throttling (e.g., if the device has exceeded service data usage limits and/or is approaching such limits such that service data usage should be throttled, then sending data bursts can be used to verify whether the expected throttling is properly being performed on the device). In some embodiments, verifiable device based service billing is provided by submitting requests to connect to an unauthorized service/website to verify if that unauthorized service usage is properly blocked. In some embodiments, verifiable device based service billing is provided by submitting requests to perform an unauthorized transaction to verify if that unauthorized transaction is properly blocked.

[00237] In some embodiments, verifiable device based service billing is provided by verifying device service activities relative to IPDRs for the device. In some embodiments, the IPDRs for the device (possibly in a modified format) are periodically and/or upon request sent to the device, as described herein. For example, IPDRs for the device can be compared to the device's local service data usage counter and/or to the service plan for the device to determine if the overall service data usage limit has been exceeded, whether out of plan/unauthorized/unrecorded websites/other services have been performed by the device, whether service plan/profile bandwidth limits have been exceeded, whether out of plan/unauthorized/unrecorded transactions have been performed (e.g., verifying IPDR transaction logs, assuming such are included in the IPDRs, with the local transaction logs of the device to determine, for example, whether the local device records indicate that fewer than the network recorded number of content downloads, such as downloaded songs, were purchased), and/or whether any other activities verifiable based on a comparison of IPDRs indicate that the device has been used in any manner that is out of or exceeds the service plan/profile for the device.

[00238] In some embodiments, device based service billing includes recording billing option response history. For example, this approach can be particularly important for service plan overage conditions (e.g., when the use of the device is exceeding the service plan associated with the device in some manner, such as service data usage, bandwidth, service or transaction access and/or in some other manner). In some embodiments, in a service plan overage condition, the user is requested to confirm that user has acknowledged notification of service plan overage,

such as via the user interface 1697. In some embodiments, such service plan overage acknowledgements require that the user enter a unique identification to validate authorization by the user identity associated with the device (e.g., another type of verification mechanism, in the event a device is stolen or being used by someone other than the authorized user of the device, then that unauthorized user would not be able to confirm the service plan overage acknowledgement, and appropriate actions can then be taken, such as throttling, quarantining or (temporarily) suspending service/network access). In some embodiments, if the device is compromised/hacked (e.g., by the user of the device), and the device is used in a manner that results in a service usage overage (e.g., determined based on device assisted service usage monitoring, and/or network based service usage monitoring using IPDRs/CDRs), then the billing system determines billing for such service usage overage costs. This overage billing can be initiated by the device 100 (e.g., service processor 115), the service controller 122, the billing system 123, the AAA 121, or some other network function. In some embodiments, if the device is compromised/hacked (e.g., by a user of the device), and the device is used in a manner that results in a service usage overage, one or more of the following actions is taken: the user is notified, the user is required to acknowledge the notification, the device traffic is sent to SPAN (or similar traffic sampling and analysis function), and/or the device is flagged for further analysis.

[00239] In some embodiments, device based service billing includes an option to bill by account, such as to bill different service activities and/or transactions to a specified account (e.g., other than the user's account associated with the general service plan for the device). For example, bill by account can provide for billing according to application, content type, website, transaction, network chatter (e.g., heartbeat communications and/or other network traffic that is used by, for example, the central/service provider to generally maintain network access for the device), and/or transaction partner sponsored activities and then report such bill by account information for billing mediation/reconciliation. For example, a bill by account report can be sent by billing agent 1695 from the device to central billing 1619 (e.g., as a billing event); or alternatively, sent to an intermediate server/aggregator, which can then reformat and send the reformatted report to central billing 1619 (e.g., providing the billing report in a format required by central billing 1619); or alternatively, sent to a mediation server, which can re-compute the billing based on the bill by account report (e.g., offset the bill based on network chatter,

transaction based billing, transaction partner sponsored activities, content providers, website providers and/or advertising providers) and then send the recomputed (and potentially reformatted) report to central billing 1619.

[00240] In some embodiments, one or more of the mediation/reconciliation functions for device assisted billing, device generated billing events, device generated bill by account events and device generated open transaction billing events can be implemented in the service controller 122 (e.g., the billing event server 1662) or in another function located in the billing system 123 or elsewhere. This billing mediation server function accepts the device based billing events discussed immediately above, reformats the billing events into a format accepted and recognized by the billing system, mediates the billing event information to remove service usage billing from the user account and place it in other bill by account categories as appropriate according to the bill by account mediation rules, adds other billing events for service usage or transactions to the user account as appropriate according to the device based billing rules, and then applies the information to the billing information the user account to correct or update the account.

[00241] For example, a bill by account can allow for a website provider, such as Google or Yahoo, to pay for or offset certain account usage for web browsing, web based searching, web based email, or any other web based or other service usage activities, which may also be based (in whole or in part) on the activities performed by the user on such transactional services (e.g., based on advertisement viewing/accessing or click-through activities by the user, by which an advertisement business model used by such website providers directly or indirectly supports such service account subsidies). As another example, a bill by account can allow for an advertiser to pay for or offset certain account usage for viewing and/or accessing (e.g., clicking through) a web placed advertisement or other advertisement sent via the network to the device. As yet another example, various network chatter (e.g., heartbeat related network and other network chatter related service data usage) can be assigned to a dummy account and such can be used to offset the bill and/or used for tracking the data usage for such activities for the device. In another example, service data usage for access to a transactional service, such as a multimedia content download service (e.g., music, eBook, music/video streaming, and/or movie or other multimedia content download service), or an online shopping site (e.g., Amazon, eBay or another online shopping site), can be billed to a transactional service account assigned to a transactional

service partner that sponsors access to that sponsor's transactional service, thereby allowing that transactional service partner to pays for or offset (e.g., subsidize) the account usage for such activities, which may also be based (in whole or in part) on the transactions actually performed by the user on such transactional services (e.g., based on the volume/cost of the multimedia service download purchases by the user and/or online activities).

[00242] In some embodiments, device based service billing includes recording billing events on the device and then reporting such billing to the network (e.g., central billing 1619). In some embodiments, device based service billing includes reporting service usage events and/or applying cost look-up and logging/reporting service billing updates. For example, this allows for reporting not only service usage but also cost of such service usage to the user via the user interface of device 101. Also, for example, the cost of such service usage can also be reported to the billing server. In some embodiments, device based service billing includes reporting service usage to the network, and the network determines the cost for such service usage.

[00243] In some embodiments, billing information for roaming partners is provided. For example, a roaming server can include a roaming service cost data table for roaming service partners. In this example, when the device (e.g., device 101) connects to a roaming network provided by a roaming service partner, then the device can also receive the roaming service data rate based on the roaming service cost data table provided by the roaming server. Alternatively, the roaming server can send the roaming service cost data table (or a modified format of the same) to the device thereby allowing the device to determine the costs for such roaming network service usage or service activity. As described herein, the device can also automatically use a roaming service profile when connecting to the roaming network service and/or the user can be notified of the roaming service profile options based on the roaming service data costs and then select the desired roaming service profile accordingly.

[00244] In some embodiments, the user is provided with a list of service costs based on locally stored roaming table and a search of available roaming partners that the device 100 detects and can connect to. In some embodiments, the user is provided with a projected cost per day for one or more roaming service provider options based on typical service usage history and the cost for each service provider. In some embodiments, the user is provided with a set of

options for service usage notification, controlling or throttling service usage and/or cost while roaming (e.g., using the service notification and cost control techniques as similarly discussed herein but applied to the roaming network). In some embodiments, these controls are set by a VSP (or, e.g., an IT manager using VSP functions). In some embodiments, roaming tables are updated periodically in the background while on a home network (or other low cost network) and cached. In some embodiments, cache updates occur based on fixed time period (e.g., late at night when updates are less expensive due to network inactivity). In some embodiments, the roaming partner cost table cache updates are done whenever connected to a desirable network that is not as expensive or bandwidth constrained (e.g., at home, work, or off the WWAN). In some embodiments, updates occur at time of day that network is not busy. In some embodiments, updates occur based on network push when roaming table is changed (e.g., one or more of the roaming partners changes the rate). In some embodiments, the service cost to update the roaming service cost table is charged to bill by account and possibly not charged to end user. In some embodiments, the roaming service center is provided as a service that is paid for (e.g., potentially bill by account tracks all related costs). For example, this type of roaming cost control can be provided as a service through central provider, MVNO, roaming partner provider, VSP or as a third party application not associated with any service provider (e.g., IT manager). For example, the controls for how to update cache, set service control policies, and other controls can be defined by any number of VSP entities including the user through a website service.

[00245] In some embodiments, a roaming service center is provided as a service in which, for example, the user is provided with a list of service costs based on a locally stored (or remotely accessed) roaming table. In some embodiments, the roaming service center provides the user with a projected cost per day for one or more roaming service provider options based on typical service usage history and the cost for each service provider. In some embodiments, the roaming service center provides the user with a set of options for controlling/throttling usage and/or cost while roaming. In some embodiments, these controls are set by a VSP (e.g., an IT manager using VSP functions). For example, roaming tables can be updated periodically in the background while on a home network and cached. In some embodiments, cache updates occur based on a fixed time period. In some embodiments, the roaming partner cost table cache updates are done whenever the device is connected to a desirable network that is not as

expensive or bandwidth constrained (e.g., at home, work and/or off the WWAN). In some embodiments, updates occur at time of day that network is not busy. In some embodiments, updates occur based on a network push when a roaming table is changed (e.g., one or more of the roaming partners changes the rate). In some embodiments, the service cost to update the roaming service cost table is charged to bill by account and possibly not charged to the user. In some embodiments, the roaming service center is provided as a service that is paid for by the user and/or part of a service plan. In some embodiments, a bill by account function tracks all related costs. For example, the roaming service center can be provided as a service through central provider, MVNO, roaming partner provider, VSP or as a third party application not associated with any service provider (e.g., IT manager).

[00246] In some embodiments, a synchronized local service usage counter based on time stamped central billing information is provided. For example, the local service usage counter, as similarly described above, can also be synchronized to past service usage records (e.g., time stamped central billing records of service usage for the device) and use local estimates for current/present service usage estimates for the device. In this example, the central billing system (e.g., central billing 1619) can push the time stamped central billing information to the device (e.g., device 101), the device can pull the time stamped central billing information, and/or an intermediate server can provide a mediated push or pull process. In some embodiments, synchronization is performing periodically based on service usage levels with free-running estimates between synchronizations.

[00247] In some embodiments, service usage is projected based on calculated estimates of service usage based on synchronized service usage and local service usage count information. For example, projected service usage can be calculated on the device or calculated on a server (e.g., a billing server or an intermediate billing server), which provides the calculated projected service usage information to the device, such as using various adaptive algorithms for service usage projections. For example, an adaptive algorithm can use historical/past synchronized network service usage information (e.g., synchronized with local service usage data based on time stamps associated with IPDRs) to assist in service usage projections, based on, for example, total service usage count, service usage count by certain service related criteria (e.g., application, content, service type, website and/or time of day). In another example, an adaptive algorithm

synchronizes to past service usage data (e.g., the local estimate of past service usage data is updated to be synchronized up through the point in time associated with the latest IPDR time stamp that has been received) and current local estimates of service usage collected since the latest time stamp are then added to the time stamped IPDR service usage counter to minimize the service usage counter offset so that it is no greater than the difference between the network service usage measure and the local service usage measure since the latest IPDR time stamp. In some embodiments, these adaptive algorithm techniques are performed on the device and/or performed on the network (e.g., on a network server) for processing. In some embodiments, if there is an offset in the local device based service usage count between IPDR synchronization events and the IPDR service usage count between IPDR synchronization events, then an algorithm can be employed to estimate any systematic sources for the offset and correct the local service usage count to minimize the offsets. As an example, if the IPDR service usage count is typically off by a fixed percentage, either high or low, then an algorithm can be employed to estimate a multiplier that is applied to the local service usage count to minimize the offset between IPDR service usage synchronization events. In another example, there can be a consistent constant offset and a multiplier offset, both of which can be estimated and corrected for. Those of ordinary skill in the art will appreciate that more sophisticated algorithms can be employed to estimate the nature of any systematic offsets, including, for example, offsets that occur due to specific service usage activities or network chatter to manage the device, and such offsets can then be minimized between IPDR service synchronization events. In some embodiments, synchronized service usage data is used to create an improved analysis of the statistical patterns of service usage to provide more accurate service usage projections. Those of ordinary skill in the art will also appreciate that a variety of additional adaptive algorithm techniques can be used including those that provide for various statistical analysis techniques and/or other techniques.

[00248] In some embodiments, service usage is projected for the end of a billing/service period for a service plan versus the service usage allowed under the service plan for that billing/service period. A display of excess charges is also provided for the projected rate of service usage based on the monitored service usage behavior through the end of the billing/service period (e.g., this can be zero if the service usage is projected to be less than that allowed under the service plan and a positive cost number if it is projected to be more than the

service plan). For example, this can be implemented in numerous ways, such as on a server in the network, on a gateway/router/switch in the network, and/or on the device, as discussed below and generally described herein with respect to other service/cost usage monitoring and notification embodiments. If implemented in the network server or gateway/router/switch, then the service/cost usage projections and related information can be pushed to the device, or the device can be notified that such information is available to pull and/or periodically pushed/pulled. The service usage information/estimates can be collected from the device, the network or both (e.g., reconciled and/or synchronized) as similarly described herein. The service usage information/estimates are then analyzed to determine service usage/cost projects as similarly described herein and compared to the service plan for the device to determine the projected service/cost usage overage (if any). In some embodiments, one or more of the following are determined by, reported to and/or displayed on the device: service usage value, projected service usage value, service usage plan limit, projected service usage overage, projected service cost overage, service plan period time duration, service plan time remaining before end of period and/or other pertinent information.

[00249] In some embodiments, the device also determines service costs based on the synchronized service usage count thereby allowing the device to also report the service cost information to the user. For example, the device can locally store a service cost look-up table(s), locally store different service cost look-up tables for different networks and/or for roaming networks, and/or request such information from a billing or intermediate billing server (and/or a roaming server) on the network. As another example, the device can obtain the calculated service costs based on the synchronized local service usage count and/or network service usage count from an intermediate server (e.g., a billing or intermediate billing server) thereby offloading the computational costs associated with calculated these projections and the data storage for service cost lookup tables onto the intermediate server on the network using the network service usage counter with or, alternatively, without the synchronized local service usage counter.

[00250] In some embodiments, service usage count categorization by network (e.g., a home network (such as a Wi-Fi, WAN, femtocell or other home network) versus a roaming network) is provided. Similarly, the synchronized local service usage counter can be

synchronized by network. Also, a synchronized local service usage count for networks controlled by a central provider, for networks controlled by other providers (e.g., MVNO), and/or free networks can similarly be provided.

[00251] In some embodiments, a service notification and billing interface is provided. For example, service usage and projected service usage, such as described herein, can be displayed to the user of the device (e.g., via user interface 1697). Similarly, expected/projected service or cost overrun/overage, such as described herein, can also be displayed to the user. As another example, a most cost effective plan can be determined/projected based on historical and/or projected service usage, and this determined/projected most cost effective plan can be displayed to the user. In yet another example, a list of available networks accessible by the device can be displayed to the user. In this example, one or more undesired available networks can also be blocked from display thereby only displaying to the user desired and/or preferred available networks. In this example, service usage plans and/or service usage plan option comparison for one or more alternative networks or roaming networks can also be displayed to the user. Similarly, service cost plans and/or service/cost plan option comparison for one or more alternative networks or roaming networks can also be displayed to the user. In addition, roaming service usage, projected roaming service usage, estimated roaming service cost, and/or projected estimated roaming service cost can also be displayed to the user. These roaming service usage/costs can also be displayed to the user so that the user can utilize this information for selecting various roaming service billing options. In another example, alternative and/or least cost networks are determined and displayed to the user. In another example, alternative warnings are displayed to the user for any or specified roaming networks.

[00252] In some embodiments, the service notification and billing interface notifies the user of expected network coverage (e.g., based on the device's current geography/location and the accessible networks for the device from that current geography/location) and displays options to the user based on the expected network coverage information. In some embodiments, the service notification and billing interface notifies the user of their current service usage at specified service usage points and displays various options to the user (e.g., service usage options and/or billing options). For example, the user's responses to the presented options are recorded (e.g., stored locally on the device at least temporarily for reporting purposes or

permanently in a local configuration data store until such configuration settings are otherwise modified or reset) and reported, such as to the billing server (e.g., central billing 1619). For example, user input, such as selected options and/or corresponding policy settings, can be stored locally on the device via a cache system. As another example, the service notification and billing interface displays options to the user for how the user wants to be notified and how the user wants to control service usage costs, the user's input on such notification options is recorded, and the cost control options (e.g., and the billing agent 1695 and policy control agent 1692) are configured accordingly. Similarly, the user's input on service plan options/changes can be recorded, and the service plan options/changes (e.g., and the billing agent 1695 and policy control agent 1692) are configured/updated accordingly. In another example, the service notification and billing interface provides various traffic control profiles, such as for where the user requests assistance in controlling service usage costs (e.g., service data usage and/or transactional usage related activities/costs). Similarly, the service notification and billing interface can provide various notification options, such as for where the user wants advance warning on service coverage. In another example, the service notification and billing interface provides options for automatic pre-buy at a set point in service usage. In another example, the service notification and billing interface provides the option to choose different notification and cost control options for alternative networks or roaming networks.

[00253] In some embodiments, an online portal or web server is provided for allowing the user to select and/or update policy settings. For example, user input provided via the online portal/web server can be recorded and reported to the billing server (e.g., central billing 1619). In another example, the online portal/web server can display transaction billing information and/or accept input for a transaction billing request, which can then be reported to the billing server accordingly.

[00254] As shown in Figure 16, the service processor 115 includes a service interface or user interface 1697. In some embodiments, the user interface 1697 provides the user with information and accepts user choices or preferences on one or more of the following: user service information, user billing information, service activation, service plan selection or change, service usage or service activity counters, remaining service status, service usage projections, service usage overage possibility warnings, service cost status, service cost projections, service

usage control policy options, privacy/CRM/GPS related options, and/or other service related information, settings, and/or options. For example, the user interface 1697 can collect service usage information from service monitor agent 1696 to update the local service usage counter (and/or, alternatively, the service usage information is obtained from the service controller 122) to update user interface service usage or service cost information for display to the user. As another example, service billing records obtained from central billing system 1619 can be used to synchronize local service usage counters and service monitor agent 1696 information to perform real-time updating of local service usage counters between billing system 1619 synchronizations. As another example, the user interface 1697 can display options and accept user preference feedback, such as similarly discussed above with respect to user privacy/CRM/GPS filtering, traffic monitoring and service controls. For example, the user interface 1697 can allow the user of the device to modify their privacy settings, provide user feedback on service preferences and/or service experiences, modify their service profiles (e.g., preferences, settings, configurations, and/or network settings and options), to review service usage data (e.g., based on local service usage counters and/or other data monitored by the service processor 115), to receive various events or triggers (e.g., based on projected service usage/costs), and/or the user interface 1697 can provide/support various other user input/output for service control and service usage.

[00255] In some embodiments, by providing the service policy implementation and the control of service policy implementation to the preferences of the user, and/or by providing the user with the option of specifying or influencing how the various service notification and control policies or control algorithms are implemented, the user is provided with options for how to control the service experience, the service cost, the capabilities of the service, the manner in which the user is notified regarding service usage or service cost, the level of sensitive user information that is shared with the network or service provider entity, and the manner in which certain service usage activities may or may not be throttled, accelerated, blocked, enabled and/or otherwise controlled. Accordingly, some embodiments provide the service control to beneficially optimize user cost versus service capabilities or capacities in a manner that facilitates an optimized user experience and does not violate network neutrality goals, regulations and/or requirements. For example, by offering the user with a set of choices, ranging from simple choices between two or more pre-packaged service control settings options to advanced user screens where more detailed level of user specification and control is made

available, some embodiments allow the service provider, device manufacturer, device distributor, MVNO, VSP, service provider partner, and/or other "entity" to implement valuable or necessary service controls while allowing the user to decide or influence the decision on which service usage activities are controlled, such as how they are controlled or throttled and which service usage activities may not be throttled or controlled in some manner. These various embodiments allow the service provider, device manufacturer, device distributor, MVNO, VSP, service provider partner, or other "entity" to assist the user in managing services in a manner that is network neutral with respect to their implementation and service control policies, because the user is making or influencing the decisions, for example, on cost versus service capabilities or quality. By further providing user control or influence on the filtering settings for the service usage reporting or CRM reporting, various levels of service usage and other user information associated with device usage can be transmitted to the network, service provider, device manufacturer, device distributor, MVNO, VSP, service provider partner, and/or other "entity" in a manner specified or influenced by the user to maintain the user's desired level of information privacy.

[00256] As shown in Figure 16, the service processor 115 includes the service downloader 1663. In some embodiments, the service downloader 1663 provides a download function to install or update service software elements on the device. In some embodiments, the service downloader 1663 requires a secure signed version of software before a download is accepted. For example, the download can require a unique key for a particular service downloader 1663. As another example, the service downloader 1663 can be stored or execute in secure memory or execute a secure memory partition in the CPU memory space. Those of ordinary skill in the art will appreciate that there are a variety of other security techniques that can be used to ensure the integrity of the service downloader 1663.

[00257] As shown in Figure 16, the service processor 115 includes a modem driver 1640. In some embodiments, the modem driver 1640 converts data traffic into modem bus (not shown) traffic for one or more modems via the modem firewall 1655. As shown in Figure 18, in some embodiments, modem selection and control 1811 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. As shown in Figure 21, in some embodiments, modems 2141, 2125, 2124, 2123, 2122, which are in communication with the modem bus 2120, connect the device to one or more networks. In some embodiments, 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 (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 (e.g., as described herein with respect to Figure 49) 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 (potentially for higher service payments) than other users). As another example, ambient services (as similarly described herein) can be provided for the hotspot for verified service processors.

[00258] 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 form 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 (or in some embodiments 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.

[00259] As shown in Figure 16, 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 16, 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. As discussed below, various embodiments described herein for the service control server link 1638 provide an efficient and secure mechanism for transmitting and receiving service policy implementation, control, monitoring and verification information between the device agents (e.g., service processor agents/components) and other network elements (e.g., service controller agents/components).

[00260] In some embodiments, the service control server link 1638 can employ the counterpart service control plane secure transmission methods discussed above with respect to the service control device link 1691. For example, one or more layers of security can be used to secure the communications link, including, for example, basic IP layer security, TCP layer security, service control link layer security, and/or security specific from service controller servers to service processor agents.

[00261] In some embodiments, the service control server link 1638 reduces network chatter by efficiently transmitting service control related communications over the link. For example, the service control server link 1638 can transmit server messages asynchronously as they arrive. As another example, the service control server link 1638 can perform collection or buffering of server messages between transmissions. As another example, the service control server link 1638 can determine when to transmit based potentially on several parameters, such as one or more of: periodic timer trigger, waiting until a certain amount of service usage or traffic usage has occurred, responding to a service agent message, responding to a service agent request, initiated by one or more servers, initiated by a verification error condition, and/or initiated by some other error condition. For example, once a transmission trigger has occurred, the service control server link 1638 can take all buffered agent communications and frame the communications. In addition, the service control server link 1638 can provide for an efficient

communication link based on various embodiments related to the timing of transmissions over the service control link, as similarly discussed above with respect to the service control device link 1691 description. For example, the timing functions, such as asynchronous messages or polling for messages, constant frequency transmission, transmission based on how much service usage or data traffic usage has taken place, transmission in response to device side control link message, service verification error events, other error events, and/or other message transmission trigger criteria can be determined, controlled and/or initiated by either the device side or the network side depending on the embodiment.

[00262] 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.

[00263] In some embodiments, the service control server link 1638 includes the agent heartbeat function in which the agents provide certain required reports to the service processor for the purpose of service policy implementation verification or for other purposes. For example, the heartbeat function can also be used to issue queries or challenges, messages, service settings, service control objectives, information requests or polling, error checks and/or other communications to the agents. As another example, agent heartbeat messages can be in the open or encrypted, signed and/or otherwise secured. Additional heartbeat function and the content of heartbeat messages can be provided as similarly described herein, such as described above with respect to the service control device link 1691 and the access control integrity agent 1694 and other sections. In some embodiments, the service controller 122 and/or agents of the service controller 122 are programmed to periodically provide reports, such as upon a heartbeat response (e.g., an agent can repeatedly send necessary reports each heartbeat), and appropriate actions can then be taken based upon such received reports. Accordingly, the heartbeat function

provides an important and efficient system in various embodiments described herein for verifying the service policy implementation and/or protecting against compromise events. There are many other functions the agent heartbeat service can perform many of which are discussed herein, while many others will be apparent to one of ordinary skill in the art given the principles, design background and various embodiments provided herein.

[00264] In some embodiments, the service control server link 1638 also provides a service control software download function for various embodiments, which, for example, can include a download of new service software elements, revisions of service software elements, and/or dynamic refreshes of service software elements of the service processor 115 on the device. In some embodiments, this function is performed by the service control server link 1638 transmitting the service control software as a single file over the service control link. For example, the file can have encryption or signed encryption beyond any provided by the communication link protocol itself for service control link 1653. In another example, the service control software files can be segmented/divided into smaller packets that are transmitted in multiple messages sent over the service control link 1653. In yet another example, the service control software files can be transmitted using other delivery mechanism, such as a direct TCP socket connection from a service download control server 1660, which can also involve secure transport and additional levels of encryption. In some embodiments, the service control server link 1638 and/or service download control server 1660 use(s) an agent serial number and/or a security key look up when agents are updated and/or when a dynamic agent download occurs.

[00265] As shown in Figure 16, the service controller 122 includes an access control integrity server 1654. 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 or a system integrity breach is suspected.

[00266] In some embodiments, the access control integrity server 1654 (and/or some other agent of service controller 122) acts on access control integrity 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.

[00267] 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, and/or local service usage monitoring information) against expected service usage behavior given the policies that are intended to be in place. For example, device service policy implementations can include measuring total data passed, 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.

[00268] In some embodiments, the access control integrity server 1654 (and/or some other agent of service controller 122) verifies device service policy, and the verification error conditions that can indicate a mismatch in service measure and 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 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.

[00269] In some embodiments, the access control integrity server 1654 (and/or some other agent of service controller 122) verifies device service policy based at least in part on, for example, various error conditions that indicate a mismatch in service measure and service policy. For example, various verification error conditions that can indicate a mismatch in service measure and service policy include one or more of the following: mismatch in one service

measure and another service measure; agent failure to report in; agent failure to respond to queries (e.g., challenge-response sequence and/or expected periodic agent reporting); agent failure to respond correctly to challenge/response sequence; agent improperly configured; agent failure in self checks; agent failure in cross-checks; unauthorized agent communication or attempted unauthorized communication; failure in service policy implementation test; failure in service usage reporting test; failure in service usage billing test; failure in transaction billing test; failure in download sequence; environment compromise event, such as unauthorized software load or execution (or attempt), unauthorized memory access (or attempt), unauthorized agent access (or attempt), known harmful software, and/or known harmful communications signature; and/or failure to respond to various messages, such as send message and suspend and/or send message and quarantine. In some embodiments, the access control integrity server 1654 (and/or some other agent of service controller 122) verifies device service policy by performing automated queries and analysis, which are then reported (e.g., anomalous/suspicious report results can be reported for further analysis by a person responsible for determining whether such activities indicate out of policy activities or to provide information to the user to inform the user of such anomalous/suspicious report results that may indicate out of policy activities). For example, the user can review the report to authorize whether such activities were performed by the user (e.g., website access requests, specific transactions, and/or phone calls) and/or indicate that such activities were not authorized by the user (e.g., indicate a potential compromise of the device, such as by malware or other unauthorized software/user use of the device). In another example, the user can also be connected to communicate with service support of the service provider regarding such reported activities (e.g., by text/chat, voice/phone, and/or video conference to a service support). 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.

[00270] In some embodiments, upon detection of one or more service verification errors, such as the various service verification errors discussed above, the device is directed to a quarantine network status in which the device can, for example, only access network control plane functions, billing functions, and other functions generally controlled by the access network

service provider or the central service provider. For example, quarantine network access restrictions and routing can be accomplished with the access network AAA and routing system (e.g., access network AAA server 1621 and one or more of the gateways 410, 420, 508, 512, 520, 608, 612, 620, 708, 712, 720) or can be accomplished with device based access control or traffic control policy implementation. Quarantine network equipment or servers can, for example, be located within the access network or within another network with access to the access network. Communication with the quarantine network infrastructure can be accomplished, for example, with a secure link with one or more encryption levels or a dedicated private link. In some embodiments, quarantining a device includes, for example, a two step process for routing quarantine network device traffic, first, to a quarantine traffic handling router or server and, second, from there to the actual quarantine network infrastructure, with the route being determined by device parameters, user parameters, access service provider parameters or other parameters associated with the quarantine network routing. In some embodiments, the device is completely suspended from the network in which, for example, the device can first issue a user interface message to the user or issuing another form of a message to the user or service subscriber, such as via email, hard copy message and/or voice message. In some embodiments, the device network access, service capabilities and/or traffic shaping are limited, partially restricted or completely restricted, service capabilities. For example, these limitations and/or restrictions can be implemented in the device and/or in the network. For example, implementing a device quarantine (e.g., using a RADIUS server to quarantine the device) can involve assigning the device to a different billing profile.

[00271] In some embodiments, upon detection of one or more service verification errors, such as the various service verification errors discussed above, switch based port analysis is performed to further monitor the device (e.g., referred to as Switched Port Analyzer (SPAN) on Cisco switches, and various other vendors have different names for it, such as Roving Analysis Port (RAP) on 3Com switches). In some embodiments, the device service policy implementation behavior is monitored at a deeper level in the network by copying device traffic in the switch so that it goes to both an intended data path destination and to a specified port for switch based port analysis (e.g., the traffic content can be analyzed and recorded using deep packet inspection (DPI) techniques, which can provide a finer level of detail than the typical IPDR). For example, an advantage of performing a switch based port analysis function is that

the traffic need not be analyzed in real time, and a sample subset of the devices on the network can be selected for such analysis based on, for example, either identifying devices that have suspect service policy implementation behavior and/or a regular sampling algorithm that eventually samples all devices, or some other selection approaches. As another example, a scheduled switch based port analysis sampling can be applied that eventually rotates through all devices and designates a higher priority in the sampling queue for devices that are suspect.

[00272] In some embodiments, switch based port analysis allows for off-line sampled or non-real-time DPI, as described above, as a verification measure for the device based service control measures that are implemented. In some embodiments, sophisticated DPI techniques are used to enhance the content of the IPDRs so that they provide detailed information that can be made available in the network. For example, some of the DPI packet analysis may be redundant between the device and the network, but this approach provides for a much finer grain validation for the device based service and less reliance on the device for some of the service traffic analysis that service providers need. In some embodiments, the device control server functions and the service control policy verification functions are implemented in an integrated hardware/software system (e.g., a gateway, server, router, switch, base station, base station aggregator, AAA server cluster or any other hardware or hardware/software system) located in the network that the network level traffic inspection is accomplished in, or in one or more servers integrated to operate in a coordinated manner with the DPI boxes. In some embodiments, the device control server functions and the service control policy verification functions are implemented in an integrated hardware/software system (e.g., a gateway, server, router, switch, base station, base station aggregator, AAA server cluster or any other hardware or hardware/software system) located in the network that provides deep service control capability (e.g., using DPI techniques) for devices that have some or all of the service processor functions installed and, in some embodiments, also providing coarser network control of the basics for devices that do not have a service processor installed in the device (e.g., such coarser network control functions include max data rate and/or max total data).

[00273] In some embodiments, the SPAN function is used in a revolving periodic manner as well to augment CDR data with deeper packet information for the purpose of spot-checking device based service usage measures. Examples of where this can be beneficial include spot