UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 8,548,428 B2
APPLICATION NO. : 12/694451
DATED : October 1, 2013
INVENTOR(S) : Raleigh

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the Title Page

In Related U.S. Application Data, item (60) should read:
Provisional application No. 61/206,354, filed on Jan. 28, 2009, provisional application No. 61/206,944, filed on Feb. 4, 2009, provisional application No. 61/207,393, filed on Feb. 10, 2009, provisional application No. 61/207,739, filed on Feb. 13, 2009, provisional application No. 61/270,353, filed on Jul. 6, 2009, provisional application No. 61/252,153, filed on Oct. 15, 2009.

Signed and Sealed this
Nineteenth Day of February, 2019



Andrei Iancu
Director of the United States Patent and Trademark Office

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Raleigh	Patent No.: 8,548,428
Serial No.: 12/694,451	Issue Date: October 1, 2013
Filing Date: January 27, 2010	Conf. No.: 6041
Title: Device Group Partitions and Settlement Platform	

Commissioner for Patents
Office of Patent Publication
ATTN: Certificate of Correction Branch
P.O. Box 1450
Alexandria, VA 22313-1450

MISCELLANEOUS COMMUNICATION REGARDING CERTIFICATE OF CORRECTION

Applicant/Patentee (hereinafter, "Applicant") respectfully requests that the Office issue a Certificate of Correction for U.S. Patent No. 8,548,428 to correct a typographical error in the "Related U.S. Application Data (60)" section of the patent. The error being corrected is the Office's error.

In the published patent, section (60) recites:

> Provisional application No. 61/206,354, filed on Jan. 28, 2009, provisional application No. 61/206,944, filed on Feb. 4, 2009, provisional application No. 61/207,393, filed on Feb. 10, 2009, provisional application No. **61/209,739**, filed on Feb. 13, 2009, provisional application No. 61/270,353, filed on Jul. 6, 2009, provisional application No. 61/252,153, filed on Oct. 15, 2009.

The provisional application listed as 61/209,739 should be **61/207,739**, as listed in the Jan. 27, 2010 Application Data Sheet.

CONCLUSION

Applicant respectfully requests issuance of the Certificate of Correction to correct the error in the priority claim. The Office is authorized to charge any fee deficiency or credit any overpayment to Deposit Account 50-5876.

Respectfully submitted,

Date: January 11, 2019 By: /James E. Harris/

James E. Harris
Reg. No. 40,013
Patent Counsel
Headwater Research LLC
1011 Pruitt Place
Tyler, TX 75703
(903) 201-6212

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being filed electronically via EFS-Web addressed to the Commissioner for Patents on:

Date: January 11, 2019 By: /Jennifer Smith/
Jennifer Smith

PTO/SB/44 (09-07)
Approved for use through 08/31/2013. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 8,548,428

APPLICATION NO.: 12/694,451

ISSUE DATE : October 1, 2013

INVENTOR(S) : Raleigh

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In Related U.S. Application Data, section (60) should state:

Provisional application No. 61/206,354, filed on Jan. 28, 2009, provisional application No. 61/206,944, filed on Feb. 4, 2009, provisional application No. 61/207,393, filed on Feb. 10, 2009, provisional application No. 61/207,739, filed on Feb. 13, 2009, provisional application No. 61/270,353, filed on Jul. 6, 2009, provisional application No. 61/252,153, filed on Oct. 15, 2009.

MAILING ADDRESS OF SENDER (Please do not use customer number below):

Headwater Research LLC
1011 Pruitt Place
Tyler, TX 75703

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The **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:

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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:	34831434
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	James E. Harris/Jennifer Smith
Filer Authorized By:	James E. Harris
Attorney Docket Number:	RALEP026 [26WV-160503]
Receipt Date:	11-JAN-2019
Filing Date:	27-JAN-2010
Time Stamp:	14:01:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Certificate of Correction	P026_ReqforCoC_RTF.pdf	204315 53ad5d718b4563a242f22b808a421900715 8f108	no	4

Warnings:

Information:	
Total Files Size (in bytes):	204315

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

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/694,451	10/01/2013	8548428	RALEP026 [26WV-160503]	6041

107265 7590 09/11/2013

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

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 171 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;

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Issue Classification	Application/Control No.	Applicant(s)/Patent under Reexamination	
	12/694,451	RALEIGH, GREGORY G.	
	Examiner	Art Unit	
	ANDREW JOSEPH RUDY	3687	

ISSUE CLASSIFICATION

ORIGINAL					CROSS REFERENCE(S)						
CLASS			SUBCLASS		CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)						
455			408		455	411	414.1					
INTERNATIONAL CLASSIFICATION					705	34						
H	0	4	M	11/00	709	223						
G	0	6	F	15/173								
				/								
				/								
				/								

XXXXXXXXXXXXXXXXXXXX (Assistant Examiner) (Date)		Total Claims Allowed: 25
(Legal Instruments Examiner) (Date)	/Andrew Joseph Rudy/ 10/19/2012 (Primary Examiner) (Date)	O.G. Print Claim(s): 1 / O.G. Print Fig.: 2

☐ 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
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	29		59		89		119		149		179		209
	30		60		90		120		150		180		210

Change(s) applied to document, /L.K.H./ 11/8/2012

Substitute for form 1449/PTO				Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*				Application No.:	12/694,451
				Filing Date	January 27, 2010
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Not Assigned
Sheet	3	of	4	Atty Docket No.	RALEP026

	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.	
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	OOOO.	US 2005/0250508	11-10-2005	GUO et al.	
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	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.	
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	UUUU.	US 2007/0226225	09-27-2007	YIU et al.	
	VVVV.	US 2007/0130315	06-07-2007	FRIEND et al.	
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	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.	
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	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.	
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	LLLLL.	US 2008/0160958 07/04	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.	
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	SSSSS.	US 2005/0021995	01-27-2005	LAL et al.	
	TTTTT.	US 2008/0162704 07/04	04-03-2008	POPLETT et al.	

Change(s) applied to document,
/N.A./
6/4/2013

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.:	12/694,451
				Filing Date	January 27, 2010
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Not Assigned
Sheet	2	of	4	Atty Docket No.	RALEP026

	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.	
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	DDD.	US 2008/0064367	03-13-2008	NATH et al.	
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	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~~ Merriam et al.	
	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	
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	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, /N.A./ 6/4/2013

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.:	12/694,451
				Filing Date	January 27, 2010
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Not Assigned
Sheet	1	of	4	Atty Docket No.	RALEP026

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 07	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.	
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Change(s) applied to document, /N.A./ 6/4/2013

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/694,451	01/27/2010	Gregory G. Raleigh	RALEP026 [26WV-160503]	6041

107265 7590 09/05/2013

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

EXAMINER	
RUDY, ANDREW J	

ART UNIT	PAPER NUMBER
3687	

NOTIFICATION DATE	DELIVERY MODE
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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
12/694,451	27 January, 2010	RALEIGH, GREGORY G.	RALEP026 [26WV-160503]

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

EXAMINER	
ANDREW JOSEPH RUDY	
ART UNIT	PAPER
3687	20130828

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Commissioner for Patents

Applicant's Information Disclosure Statement (IDS) submitted August 26, 2013 has been reviewed. Note the attached IDS.

/ANDREW JOSEPH RUDY/
Primary Examiner
Art Unit: 3687

PTO-90C (Rev.04-03)

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

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	12694451
Filing Date	2010-01-27
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J RUDY
Attorney Docket Number	RALEP026 [26WV-160503]

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
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	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP026 [26WV-160503]

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	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP026 [26WV-160503]

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	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP026 [26WV-160503]

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	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP026 [26WV-160503]

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	Art Unit	3687
	Examiner Name	Andrew J RUDY
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	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP026 [26WV-160503]

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP026 [26WV-160503]

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	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP026 [26WV-160503]

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	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP026 [26WV-160503]

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FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	1998058505	WO		1998-12-23	Sonera Oy		☐
	2	2007097786	WO		2007-08-30	Sony Ericsson Mobile Communications AB		☐
	3	2005008995	WO		2005-01-27	Starhub Ltd.		☐

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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	Accuris Networks, "The Business Value of Mobile Data Offload – a White Paper", 2010	☐
	2	ANTON, B. et al., "Best Current Practices for Wireless Internet Service Provider (WISP) Roaming"; Release Date February 2003, Version 1.0; Wi-Fi Alliance – Wireless ISP Roaming (WISPr)	☐
	3	Ruckus Wireless – White Paper; "Smarter Wi-Fi for Mobile Operator Infrastructures" 2010	☐

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP026 [26WV-160503]

	4	Wireless Broadband Alliance, "WISPr 2.0, 08 April, 2010"; Doc. Ref. No.: WBA/RM/WISPr, Version 01.00	☐

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Examiner Signature	/Andrew Joseph Rudy/	Date Considered	08/28/2013

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/694,451	01/27/2010	Gregory G. Raleigh	RALEP026 [26WV-160503]	6041

TITLE OF INVENTION: DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$5	$0	$885	$5	09/03/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
RUDY, ANDREW J	3687	455-408000

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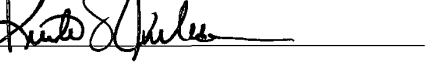
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Application Number:	12694451
Filing Date:	27-Jan-2010
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP026 [26WV-160503]
Filed as Small Entity	

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Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
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International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	107265
Filer:	Krista Susan Jacobsen/Ann Taylor
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Attorney Docket Number:	RALEP026 [26WV-160503]
Receipt Date:	28-AUG-2013
Filing Date:	27-JAN-2010
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Application Type:	Utility under 35 USC 111(a)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	P026IssueFeeTrans.pdf	498956 03b4ade49c8ede8b5b80d57906e53661071e701c	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30730 abfbf222cfa0a66012c0ded958ce20b2b3927805	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	529686		

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<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.

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

Application Number	12694451
Filing Date	2010-01-27
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J RUDY
Attorney Docket Number	RALEP026 [26WV-160503]

U.S.PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5630159		1997-05-13	Zancho, William F.	
	2	5633484		1997-05-27	Zancho, William F. et al.	
	3	5814798		1998-09-29	Zancho, William F.	
	4	5915008		1999-06-22	Dulman, Scott	
	5	7039713		2006-05-02	Van Gunter, David et al.	
	6	7102620		2006-09-05	Harries, Andrew Stanely Guy et al.	
	7	7139569		2006-11-21	Kato, Akira	
	8	7286848		2007-10-23	Vireday, Richard P. et al.	

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	Attorney Docket Number	RALEP026 [26WV-160503]

	9	7313237		2007-12-25	Bahl, Paramvir et al.	
	10	7444669		2008-10-28	Bahl, Paramvir et al.	
	11	7478420		2009-01-13	Wright, Michael et al.	
	12	7493659		2009-02-17	Wu, Handong et al.	
	13	7502672		2009-03-10	Kolls, H. Brock	
	14	7529204		2009-05-05	Bourlas, Yair et al.	
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	18	7756757		2010-07-13	Oakes III, Charles Lee	
	19	7801985		2010-09-21	Pitkow, Jim et al.	

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	20	7881697		2011-02-01	Baker, Matthew Donald et al.	
	21	7899438		2011-03-01	Baker, Matthew Donald et al.	
	22	6934249		2005-08-23	Bertin, Olivier et al.	
	23	7930446		2011-04-19	Kesselman, Alex et al.	
	24	7945238		2011-05-17	Baker, Matthew Donald et al.	
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	26	7969950		2011-06-28	Iyer, Pradeep J. et al.	
	27	8000276		2011-08-16	Scherzer, Shimon et al.	
	28	8019886		2011-09-13	Harrang, Jeffrey Paul et al.	
	29	8027339		2011-09-27	Short, Joel E. et al.	
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	Attorney Docket Number	RALEP026 [26WV-160503]

	31	8045973		2011-10-25	Chambers, Michael D.	
	32	8068829		2011-11-29	Lemond, Eric et al.	
	33	8078140		2011-12-13	Baker, Matthew Donald et al.	
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	Art Unit	3687
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	Attorney Docket Number	RALEP026 [26WV-160503]

	42	8242959		2012-08-14	Mia, Rashidus S. et al.	
	43	8270972		2012-09-18	Otting, Marcia J. et al.	
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	46	8307067		2012-11-06	Ryan, Nicholas M.	
	47	8315999		2012-11-20	Chatley, Scott P. et al.	
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	50	8351898		2013-01-08	Raleigh, Gregory G.	
	51	8356336		2013-01-15	Johnston, Keith et al.	
	52	8358638		2013-01-22	Scherzer, Tamir et al.	

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	Attorney Docket Number	RALEP026 [26WV-160503]

	53	8369274		2013-02-05	Sawai, Ryo	
	54	8477778		2013-07-02	Lehmann Jr., L. Curtis et al.	
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	56	7039403		2006-05-02	Wong, Gregory A.	
	57	7583964		2009-09-01	Wong, Gregory A.	
	58	8135657		2012-03-13	Kapoor, Harsh et al.	
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	60	8468337		2013-06-18	Gaur, Santosh P. et al.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20010048738		2001-12-06	Baniak, Paul G. et al.	
	2	20020049074		2002-04-25	Eisinger, Bernd et al.	
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	5	20030233332		2003-12-18	Keeler, James D. et al.	
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	11	20070280453		2007-12-06	Kelley, Sean S. et al.	
	12	20080022354		2008-01-24	Grewal, Karanvir et al.	
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	15	20090005000		2009-01-01	Baker, Matthew et al.	
	16	20090006116		2009-01-01	Baker, Matthew et al.	
	17	20090006200		2009-01-01	Baker, Matthew et al.	
	18	20110013569		2011-01-20	Scherzer, Shimon et al.	
	19	20110081881		2011-04-07	Baker, Matthew Donald et al.	
	20	20110082790		2011-04-07	Baker, Matthew Donald et al.	
	21	20110159818		2011-06-30	Scherzer, Shimon et al.	

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	Attorney Docket Number	RALEP026 [26WV-160503]

	22	20120020296		2012-01-26	Scherzer, Shimon et al.	
	23	20120196644		2012-08-02	Scherzer, Shimon et al.	
	24	20120238287		2012-09-20	Scherzer, Shimon	
	25	20130029653		2013-01-31	Baker, Matthew Donald et al.	
	26	20130058274		2013-03-07	Scherzer, Shimon et al.	
	27	20130065555		2013-03-14	Baker, Matthew Donald et al.	
	28	20130084835		2013-04-04	Scherzer, Shimon et al.	
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	32	20090157792		2009-06-18	Fiatal, Trevor	

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	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP026 [26WV-160503]

	33	20100241544		2010-09-23	Benson, Dan et al.	

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FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	1998058505	WO		1998-12-23	Sonera Oy		☐
	2	2007097786	WO		2007-08-30	Sony Ericsson Mobile Communications AB		☐
	3	2005008995	WO		2005-01-27	Starhub Ltd.		☐

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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	Accuris Networks, "The Business Value of Mobile Data Offload – a White Paper", 2010	☐
	2	ANTON, B. et al., "Best Current Practices for Wireless Internet Service Provider (WISP) Roaming"; Release Date February 2003, Version 1.0; Wi-Fi Alliance – Wireless ISP Roaming (WISPr)	☐
	3	Ruckus Wireless – White Paper; "Smarter Wi-Fi for Mobile Operator Infrastructures" 2010	☐

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	Attorney Docket Number	RALEP026 [26WV-160503]

	4	Wireless Broadband Alliance, "WISPr 2.0, 08 April, 2010"; Doc. Ref. No.: WBA/RM/WISPr, Version 01.00	☐

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2010-01-27
	First Named Inventor	Gregory G. Raleigh
	Art Unit	3687
	Examiner Name	Andrew J RUDY
	Attorney Docket Number	RALEP026 [26WV-160503]

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☒ 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).

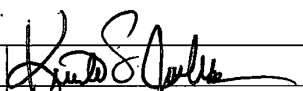
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Electronic Patent Application Fee Transmittal	
Application Number:	12694451
Filing Date:	27-Jan-2010
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP026 [26WV-160503]
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
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Petition:				
Patent-Appeals-and-Interference:				
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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:	16690833
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
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Attorney Docket Number:	RALEP026 [26WV-160503]
Receipt Date:	26-AUG-2013
Filing Date:	27-JAN-2010
Time Stamp:	19:31:08
Application Type:	Utility under 35 USC 111(a)

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RAM confirmation Number	7204
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	P026IDS.pdf	2207890 d5c6943705444b4b5a825c2038b8266707 64fe10	no	12
Warnings:					
Information:					
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2	Foreign Reference	2034.pdf	656227 34c62e843998321805c9a9e280b3233bc8a 53e75	no	22
Warnings:					
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3	Foreign Reference	2035.pdf	1449270 83f568206d53812bd422a23bc97d8efdc21 2af6a	no	36
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4	Foreign Reference	2036.pdf	831108 a6a0c393147acb9517804ca2ded34f2a1d3 6d44c	no	22
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5	Non Patent Literature	3025.PDF	608012 129dd45630f651b9102a169bcfd96b3eb36 41016	no	37
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6	Non Patent Literature	3026.PDF	928924 8115313ba3be83f3712b9ae0005c09db2e9 9bdd5	no	7
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7	Non Patent Literature	3027.PDF	1747360 ac5f8cd0c2e2bf88ebf182a1527d6143ca94 b961	no	23
Warnings:					
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8	Non Patent Literature	3028.PDF	506452 25813a856d3ae61a06ff94ed223802f7babc3ecf	no	58
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Information:					
9	Fee Worksheet (SB06)	fee-info.pdf	30576 4d90ecdd712ce5ba56030fd8f9d31cf5410f9edc	no	2
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/694,451	01/27/2010	Gregory G. Raleigh	RALEP026 [26WV-160503]	6041

107265 7590 07/29/2013

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

EXAMINER	
RUDY, ANDREW J	

ART UNIT	PAPER NUMBER
3687	

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
12/694,451	27 January, 2010	RALEIGH, GREGORY G.	RALEP026 [26WV-160503]

Headwater Partners I LLC - Outside Firm 1
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Applicant's Information Disclosure Statement (IDS) submitted July 10, 2013 has been reviewed. Note the attached IDS.

/ANDREW JOSEPH RUDY/
Primary Examiner
Art Unit: 3687

PTO-90C (Rev.04-03)

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

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	12694451
Filing Date	2010-01-27
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP026

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	8447980		2013-05-21	Godfrey, James A. et al.	
	2	8429403		2013-04-23	Moret, Eric et al.	
	3	8411587		2013-04-02	Curtis, William et al.	
	4	8396929		2013-03-12	Helfman, Nadav et al.	
	5	8363658		2013-01-29	Delker, Jason R. et al.	
	6	8265004		2012-09-11	Toutonghi, Michael J.	
	7	8233895		2012-07-31	Tysowski, Piotr Konrad	
	8	7685254		2010-03-23	Pandya, Ashish A.	

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

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	Attorney Docket Number	RALEP026

	9	7181017		2007-02-20	Nagel, Robert H. et al.	
	10	6965872		2005-11-15	Grdina, Jerome M.	
	11	8406427		2013-03-26	Chand, Naresh et al.	

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							☐

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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		☐

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

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	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

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EXAMINER SIGNATURE			
Examiner Signature	/Andrew Joseph Rudy/	Date Considered	07/24/2013

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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

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United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/694,451	01/27/2010	Gregory G. Raleigh	RALEP026 [26WV-160503]	6041

107265 7590 07/12/2013

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

EXAMINER	
RUDY, ANDREW J	

ART UNIT	PAPER NUMBER
3687	

NOTIFICATION DATE	DELIVERY MODE
07/12/2013	ELECTRONIC

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

The time period for reply, if any, is set in the attached communication.

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patent@headwaterllc.com

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Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
12/694,451	27 January, 2010	RALEIGH, GREGORY G.	RALEP026 [26WV-160503]

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

EXAMINER	
ANDREW JOSEPH RUDY	
ART UNIT	PAPER
3687	20130702

DATE MAILED:

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Commissioner for Patents

The Information Disclosure Statement (IDS) submitted June 27, 2013 has been reviewed. Note the attached IDS.

/ANDREW JOSEPH RUDY/
Primary Examiner
Art Unit: 3687

PTO-90C (Rev.04-03)

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

PTO/SB/08a (01-10)
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Application Number	12694451
Filing Date	2010-01-27
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP026

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	7457265		2008-11-25	Julka, Vibhor et al.	
	2	7729326		2010-06-01	Sekhar, Ramesh	
	3	7929973		2011-04-19	Zavalkovsky, Arthur et al.	
	4	7945945		2011-05-17	Graham, Richard et al.	
	5	8059530		2011-11-15	Cole, Terry L.	
	6	8266681		2012-09-11	Deshpande, Sumit B. et al.	
	7	8280354		2012-10-02	Smith, Christopher et al.	
	8	8331293		2012-12-11	Sood, Kapil	

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	9	8019820		2011-09-13	Son, Giyeong et al.	
	10	8155155		2012-04-10	Chow, Albert T. et al.	
	11	8191116		2012-05-29	Gazzard, Daryl	
	12	6292828		2001-09-18	Williams, David L.	
	13	7043226		2006-05-09	Yamauchi, Toshiaki	
	14	7472189		2008-12-30	Mallya, Arvind R. et al.	
	15	7944948		2011-05-17	Chow, Albert T. et al.	
	16	7802724		2010-09-28	Nohr, Steven Paul	
	17	8005009		2011-08-23	McKee, Neil et al.	
	18	7760861		2010-07-20	Croak, Marian et al.	
	19	8060463		2011-11-15	Spiegel, Joel R.	

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	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	20	8224773		2012-07-17	Spiegel, Joel R.	
	21	8352980		2013-01-08	Howcroft, Jerald Robert	
	22	8386386		2013-02-26	Zhu, Kevin	
	23	8340718		2012-12-25	Colonna, Massimo et al.	
	24	8385896		2013-02-26	Proctor, Jr., James A. et al.	
	25	8320949		2012-11-27	Matta, Sudheer Poorna Chandra	
	26	8279864		2012-10-02	Wood, Daniel M.	
	27	8271045		2012-09-18	Parolkar, Satish et al.	
	28	8233883		2012-07-31	De Froment, Eric	
	29	8224382		2012-07-17	Bultman, Michael J.	
	30	8184590		2012-05-22	Rosenblatt, Ariel	

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	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	31	8174970		2012-05-08	Adamczyk, Maria et al.	
	32	8165576		2012-04-24	Raju, Vishwanath et al.	
	33	8073721		2011-12-06	Lewis, Lundy	
	34	8032899		2011-10-04	Archer, Charles J. et al.	
	35	7974624		2011-07-05	Gallagher, Michael D. et al.	
	36	7907970		2011-03-15	Park, Vincent D. et al.	
	37	7778176		2010-08-17	Morford, Michael Robert|	
	38	7725570		2010-05-25	Lewis, Lundy	
	39	7634388		2009-12-15	Archer, Charles J. et al.	
	40	7633438		2009-12-15	Tysowski, Piotr Konrad	
	41	7593417		2009-09-22	Wang, James et al.	

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	Attorney Docket Number	RALEP026

	42	7551922		2009-06-23	Roskowski, Steve et al.	
	43	7545782		2009-06-09	Rayment, Stephen G. et al.	
	44	7039037		2006-05-02	Wang, Jiwei R. et al.	
	45	6928280		2005-08-09	Xanthos, James et al.	
	46	6765925		2004-07-20	Sawyer, Wilson et al.	
	47	5889477		1999-03-30	Fastenrath, Ulrich	
	48	8347362		2013-01-01	Cai, Yigang et al.	
	49	8315718		2012-11-20	Caffrey, Paul Oliver et al.	
	50	8447324		2013-05-21	Shuman, Mohammed Ataur et al.	

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear

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	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	1	20080120668		2008-05-22	Yau, Frank Chuen-Foo	
	2	20030171112		2003-09-11	Lupper, Alfred 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	1889777A	CN		2006-07-19	Huawei Tech. Co. Ltd.		☐
	2	101155343A	CN		2006-09-29	Huawei Tech. Co. Ltd.		☐
	3	101035308A	CN		2006-03-09	Huawei Tech. Co. Ltd.		☐
	4	2007124279	WO		2007-11-01	Cisco Technology, Inc.		☐

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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

EXAMINER SIGNATURE			
Examiner Signature	/Andrew Joseph Rudy/	Date Considered	07/02/2013

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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	6	8265004		2012-09-11	Toutonghi, Michael J.	
	7	8233895		2012-07-31	Tysowski, Piotr Konrad	
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	10	6965872		2005-11-15	Grdina, Jerome M.	
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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
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	1		☐

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	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

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EXAMINER SIGNATURE			
Examiner Signature		Date Considered	

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

CERTIFICATION STATEMENT

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

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

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

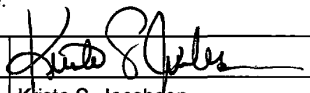
☐ See attached certification statement.

☒ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

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

Signature		Date (YYYY-MM-DD)	2013-06-10
Name/Print	Krista S. Jacobsen	Registration Number	59374

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Gregory G. Raleigh	Rudy, Andrew J.
Serial No. 12/694,451	Art Unit: 3687
Filed: January 27, 2010	Conf. No.: 6041

Title: Device Group Partitions and Settlement Platform

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

SUBMISSION OF INFORMATION DISCLOSURE STATEMENT AFTER RECEIPT OF NOTICE OF ALLOWANCE BUT PRIOR TO PAYMENT OF ISSUE FEE

Madam:

In accordance with the duty of disclosure under 37 CFR §1.56 and pursuant to 37 CFR §§ 1.97-1.98, Applicant hereby submits the references listed on the enclosed Form PTO-SB/08A.

The present Information Disclosure Statement is being filed after Applicant received the Notice of Allowance in the above-captioned application, but before Applicant has paid the Issue Fee. Accordingly, pursuant to 37 C.F.R. § 1.97(d), Applicant is submitting both the fee set forth in 37 C.F.R. § 1.17(p) and the certification statement set forth in 37 C.F.R. § 1.97(e).

Applicant respectfully requests consideration of the listed references.

CONCLUSION

Applicant respectfully requests that the Examiner consider the references listed in the IDS submitted herewith. In accordance with 37 C.F.R. § 1.97(d)-(e), the IDS is being filed prior to payment of the issue fee, with both the certification statement and fee specified in 37 C.F.R. § 1.97(d)-(e).

The Commissioner is authorized to charge any fee deficiency or credit any overpayment to Deposit Account 50-5876.

Respectfully submitted,

Date: July 10, 2013

By: _____

Krista S. Jacobsen
Reg. No. 59,374
Head Counsel
Headwater Partners I LLC
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065
(650) 517-2798

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being filed electronically via EFS-Web addressed to the Commissioner for Patents on:

Date: July 10, 2013 By: _____
Ann Taylor

Electronic Patent Application Fee Transmittal	
Application Number:	12694451
Filing Date:	27-Jan-2010
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP026 [26WV-160503]
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

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

Electronic Acknowledgement Receipt	
EFS ID:	16282820
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026 [26WV-160503]
Receipt Date:	10-JUL-2013
Filing Date:	27-JAN-2010
Time Stamp:	20:54:59
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	7603
Deposit Account	505876
Authorized User	

File Listing:

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

1	Information Disclosure Statement (IDS) Form (SB08)	P026IDS.pdf	833378 daf3dd2c3a119f09ac977d49b5d09ffebe89628f	no	4
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Transmittal Letter	P026Ltr.pdf	336003 78e25caaf3c2b34f059fcdb18b5ccdd58624f6c5	no	2
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30576 fce961e83de12e401e96a00a145d335e18fea2ee	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1199957		

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

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

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

PTO/SB/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	12694451
Filing Date	2010-01-27
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP026

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	7457265		2008-11-25	Julka, Vibhor et al.	
	2	7729326		2010-06-01	Sekhar, Ramesh	
	3	7929973		2011-04-19	Zavalkovsky, Arthur et al.	
	4	7945945		2011-05-17	Graham, Richard et al.	
	5	8059530		2011-11-15	Cole, Terry L.	
	6	8266681		2012-09-11	Deshpande, Sumit B. et al.	
	7	8280354		2012-10-02	Smith, Christopher et al.	
	8	8331293		2012-12-11	Sood, Kapil	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	9	8019820		2011-09-13	Son, Giyeong et al.	
	10	8155155		2012-04-10	Chow, Albert T. et al.	
	11	8191116		2012-05-29	Gazzard, Daryl	
	12	6292828		2001-09-18	Williams, David L.	
	13	7043226		2006-05-09	Yamauchi, Toshiaki	
	14	7472189		2008-12-30	Mallya, Arvind R. et al.	
	15	7944948		2011-05-17	Chow, Albert T. et al.	
	16	7802724		2010-09-28	Nohr, Steven Paul	
	17	8005009		2011-08-23	McKee, Neil et al.	
	18	7760861		2010-07-20	Croak, Marian et al.	
	19	8060463		2011-11-15	Spiegel, Joel R.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	20	8224773		2012-07-17	Spiegel, Joel R.	
	21	8352980		2013-01-08	Howcroft, Jerald Robert	
	22	8386386		2013-02-26	Zhu, Kevin	
	23	8340718		2012-12-25	Colonna, Massimo et al.	
	24	8385896		2013-02-26	Proctor, Jr., James A. et al.	
	25	8320949		2012-11-27	Matta, Sudheer Poorna Chandra	
	26	8279864		2012-10-02	Wood, Daniel M.	
	27	8271045		2012-09-18	Parolkar, Satish et al.	
	28	8233883		2012-07-31	De Froment, Eric	
	29	8224382		2012-07-17	Bultman, Michael J.	
	30	8184590		2012-05-22	Rosenblatt, Ariel	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	31	8174970		2012-05-08	Adamczyk, Maria et al.	
	32	8165576		2012-04-24	Raju, Vishwanath et al.	
	33	8073721		2011-12-06	Lewis, Lundy	
	34	8032899		2011-10-04	Archer, Charles J. et al.	
	35	7974624		2011-07-05	Gallagher, Michael D. et al.	
	36	7907970		2011-03-15	Park, Vincent D. et al.	
	37	7778176		2010-08-17	Morford, Michael Robert|	
	38	7725570		2010-05-25	Lewis, Lundy	
	39	7634388		2009-12-15	Archer, Charles J. et al.	
	40	7633438		2009-12-15	Tysowski, Piotr Konrad	
	41	7593417		2009-09-22	Wang, James et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	42	7551922		2009-06-23	Roskowski, Steve et al.	
	43	7545782		2009-06-09	Rayment, Stephen G. et al.	
	44	7039037		2006-05-02	Wang, Jiwei R. et al.	
	45	6928280		2005-08-09	Xanthos, James et al.	
	46	6765925		2004-07-20	Sawyer, Wilson et al.	
	47	5889477		1999-03-30	Fastenrath, Ulrich	
	48	8347362		2013-01-01	Cai, Yigang et al.	
	49	8315718		2012-11-20	Caffrey, Paul Oliver et al.	
	50	8447324		2013-05-21	Shuman, Mohammed Ataur 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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	1	20080120668		2008-05-22	Yau, Frank Chuen-Foo	
	2	20030171112		2003-09-11	Lupper, Alfred 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	1889777A	CN		2006-07-19	Huawei Tech. Co. Ltd.		☐
	2	101155343A	CN		2006-09-29	Huawei Tech. Co. Ltd.		☐
	3	101035308A	CN		2006-03-09	Huawei Tech. Co. Ltd.		☐
	4	2007124279	WO		2007-11-01	Cisco Technology, Inc.		☐

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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		☐

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

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	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

CERTIFICATION STATEMENT

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

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

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

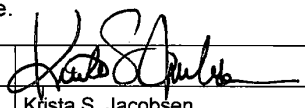
☐ See attached certification statement.

☒ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

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

Signature		Date (YYYY-MM-DD)	2013-06-27
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:	12694451
Filing Date:	27-Jan-2010
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP026 [26WV-160503]
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

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

Electronic Acknowledgement Receipt	
EFS ID:	16179454
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026 [26WV-160503]
Receipt Date:	27-JUN-2013
Filing Date:	27-JAN-2010
Time Stamp:	18:47:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$180
RAM confirmation Number	6721
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	P026Ltr.pdf	334271 4fe745da7c62b0994fce00a244bab19ec8a6b647	no	2
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	P026IDS.pdf	1450602 3360760efb8fb454793f1587a9654dd04a0e4a5d	no	8
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Foreign Reference	Huawei1.pdf	928344 9a22716535cc0ec62b3db71f323c7634d266e61a	no	19
Warnings:					
Information:					
4	Foreign Reference	Huawei2.pdf	2070647 cc7a6c8344a80e179d9f2601a49cb9a37f359e87	no	28
Warnings:					
Information:					
5	Foreign Reference	Huawei3.pdf	1231903 bb1b6fa1721a042823731a8283b8d37b6b313b35	no	28
Warnings:					
Information:					
6	Foreign Reference	Cisco.pdf	1398028 a85c7e6d6f08a1f6747fb7d21a9fb93427e3c5e3	no	69
Warnings:					
Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	30576 54e4b5cdf7ec287b8f5eeedffa2da50e7b9741a4	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	7444371		

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New Applications Under 35 U.S.C. 111
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National Stage of an International Application under 35 U.S.C. 371
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New International Application Filed with the USPTO as a Receiving Office
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Gregory G. Raleigh	Andrew J. Rudy
Serial No. 12/694,451	Art Unit: 3687
Filed: January 27, 2010	Conf. No.: 6041

Title: Device Group Partitions and Settlement Platform

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

SUBMISSION OF INFORMATION DISCLOSURE STATEMENT AFTER RECEIPT OF NOTICE OF ALLOWANCE BUT PRIOR TO PAYMENT OF ISSUE FEE

Madam:

In accordance with the duty of disclosure under 37 CFR §1.56 and pursuant to 37 CFR §§ 1.97-1.98, Applicant hereby submits the references listed on the enclosed Form PTO-SB/08A.

The present Information Disclosure Statement is being filed after Applicant received the Notice of Allowance in the above-captioned application, but before Applicant has paid the Issue Fee. Accordingly, pursuant to 37 C.F.R. § 1.97(d), Applicant is submitting both the fee set forth in 37 C.F.R. § 1.17(p) and the certification statement set forth in 37 C.F.R. § 1.97(e).

Applicant respectfully requests consideration of the listed references.

CONCLUSION

Applicant respectfully requests that the Examiner consider the references listed in the IDS submitted herewith. In accordance with 37 C.F.R. § 1.97(d)-(e), the IDS is being filed prior to payment of the issue fee, with both the certification statement and fee specified in 37 C.F.R. § 1.97(d)-(e).

The Commissioner is authorized to charge any fee deficiency or credit any overpayment to Deposit Account 50-5876.

Respectfully submitted,

Date: June 27, 2013

By: _____

Krista S. Jacobsen
Reg. No. 59,374
Head Counsel
Headwater Partners I LLC
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065
(650) 517-2798

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being filed electronically via EFS-Web addressed to the Commissioner for Patents on:

Date: June 27, 2013 By: _____
Ann Taylor

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
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NOTICE OF ALLOWANCE AND FEE(S) DUE

107265 7590 06/03/2013
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

EXAMINER	
RUDY, ANDREW J	
ART UNIT	PAPER NUMBER
3687	

DATE MAILED: 06/03/2013

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/694,451	01/27/2010	Gregory G. Raleigh	RALEP026 [26WV-160503]	6041

TITLE OF INVENTION: DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$5	$0	$885	$5	09/03/2013

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

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

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

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

PART B - FEE(S) TRANSMITTAL

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

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

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

107265 7590 06/03/2013
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

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

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/694,451	01/27/2010	Gregory G. Raleigh	RALEP026 [26WV-160503]	6041

TITLE OF INVENTION: DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$5	$0	$885	$5	09/03/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
RUDY, ANDREW J	3687	455-408000

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)

❑ Applicant certifying micro entity status. See 37 CFR 1.29	NOTE: Absent a valid certification of Micro Entity Status (see form PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
❑ Applicant asserting small entity status. See 37 CFR 1.27	NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
❑ Applicant changing to regular undiscounted fee status.	NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

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

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/694,451	01/27/2010	Gregory G. Raleigh	RALEP026 [26WV-160503]	6041

107265 7590 06/03/2013

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

EXAMINER	
RUDY, ANDREW J	

ART UNIT	PAPER NUMBER
3687	

DATE MAILED: 06/03/2013

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

The Patent Term Adjustment to date is 198 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 198 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. 12/694,451	Applicant(s) RALEIGH, GREGORY G.	
	Examiner ANDREW JOSEPH RUDY	Art Unit 3687	AIA (First Inventor to File) Status No

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

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

1. ☒ This communication is responsive to *the 15 January 2013 RCE*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1,2 and 4-26*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

   Interim copies:

   a) ☐ All b) ☐ Some c) ☐ None of the: Interim copies of the priority documents have been received.

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

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

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

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

DETAILED ACTION

1. The previous Notice of Allowance is withdrawn pursuant to Applicant's January 15, 2013 Request for Continued Examination (RCE).

EXAMINER'S AMENDMENT

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

Authorization for this examiner's amendment was given in a telephone interview with Krista Jacobsen on October 19, 2012.

The application claims have been amended as follows:

1. (Currently amended) A system, comprising:

one or more[[a]] processors of [[a]] one or more network ~~device~~ elements ~~in communication with a wireless network~~, wherein the one or more processors are [[is]] configured to:

collect device generated service usage information for one or more devices in wireless communication with the system over [[the]] a wireless network; [[and]]

aggregate the device generated service usage information ~~for a settlement platform~~ for the one or more devices in wireless communication with the system over the wireless network; and

translate the device generated service usage information into a syntax and a communication protocol that can be used to augment or replace network generated service usage information for the one or more devices in wireless communication with the system over the wireless network; and

[[a]] memory coupled to the one or more processors and configured to provide the one or more processors with instructions.

2. (Currently amended) The system recited in claim 1, wherein the one or more devices are assigned to a device group partition, and wherein the one or more network elements include a settlement platform configured to determine[[s]] accounting and settlement information for one or more services for the one or more devices assigned to the device group partition and distribute[[s]] the accounting and settlement information to one or more of the following associated with the device group partition: a carrier, a distribution partner, a mobile virtual network operator (MVNO), and a wholesale partner.

3. (Canceled)

7. (Currently amended) The system recited in claim 1, ~~wherein the device generated service usage information is translated into a syntax and a communication~~

~~protocol that can be used by other network devices to augment or replace network generated service usage information for the one or more devices in wireless communication with the system over the wireless network,~~ wherein the syntax is a charging data record (CDR), and wherein the device generated service usage information includes micro-charging data records (micro-CDRs).

8. (Currently amended) The system recited in claim 1, wherein the one or more network ~~device~~ elements include[[s]] a service usage data store.

9. (Currently amended) The system recited in claim 1, wherein the one or more network elements ~~device~~ include[[s]] a service usage data store that aggregates and mediates micro-charging data records (micro-CDRs) and network generated charging data records (CDRs) for the one or more devices in wireless communication with the system over the wireless network.

10. (Currently amended) The system recited in claim 1, wherein the one or more network ~~device~~ elements include[[s]] a service usage data store and a rules engine for aggregating and mediating the collected device generated service usage information.

11. (Currently amended) The system recited in claim 1, wherein the one or more processors are [[is]] further configured to:

collect network generated service usage information for the one or more devices in wireless communication with the system over the wireless network.

12. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are [[is]] further configured to:

aggregate micro-CDRs for the one or more devices in wireless communication with the system over the wireless network; and

apply a set of rules to the aggregated micro-CDRs using a rules engine to provide aggregated and mediated micro-CDRs to [[the]] a settlement platform, wherein the settlement platform implements a service billing allocation or a revenue share among one or more partners, and wherein the revenue share includes a service based revenue share or a transactional based revenue share.

13. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), wherein the one or more network elements ~~device~~ include[[s]] a CDR storage, aggregation, and mediation feed, and wherein the one or more processors are [[is]] further configured to:

aggregate micro-CDRs for the one or more devices in wireless communication with the system over the wireless network;

apply a set of settlement platform rules to the aggregated micro-CDRs using a rules engine to generate a new set of CDRs for the one or more devices in wireless communication with the system over the wireless network; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over the wireless network to a billing interface or a billing system.

14. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are [[is]] further configured to:

aggregate micro-CDRs for the one or more devices in wireless communication with the system over the wireless network;

verify at least a subset of the micro-CDRs;

apply a set of settlement platform rules to the aggregated and verified micro-CDRs using a rules engine to generate a new set of CDRs for the one or more devices in wireless communication with the system over the wireless network; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over the wireless network to a billing interface or a billing system.

15. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are [[is]] further configured to:

aggregate micro-CDRs for the one or more devices in wireless communication on the wireless network;

verify the micro-CDRs by comparing at least a subset of the micro-CDRs to a set of one or more network generated CDRs for the one or more devices in wireless communication with the system over the wireless network;

apply a set of settlement platform rules to the aggregated and verified micro-CDRs using a rules engine to generate a new set of CDRs for the one or more devices in wireless communication with the system over the wireless network; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over the wireless network to a billing interface or a billing system.

16. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are [[is]] further configured to:

aggregate the micro-CDRs for the one or more devices in wireless communication with the system over the wireless network;

apply a set of rules to the aggregated micro-CDRs using a rules engine to generate a new set of CDRs, wherein the set of rules includes a bill by account rule; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over the wireless network to a billing interface or a billing system.

17. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are [[is]] further configured to:

aggregate the micro-CDRs for the one or more devices in wireless communication with the system over the wireless network;

apply a set of rules to the aggregated micro-CDRs using a rules engine to generate a new set of CDRs, wherein the set of rules includes a bill by account rule; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over the wireless network to a billing interface or a billing system, wherein at least one CDR in the new set of CDRs includes a billing offset.

18. (Currently amended) The system recited in claim 1, wherein the one or more devices are assigned to a device group partition, [[and]] wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are is further configured to:

communicate a new set of CDRs based at least in part on aggregated micro-CDRs for the one or more devices in wireless communication with the system over the wireless network to [[the]] a settlement platform, wherein the settlement platform determines accounting and settlement information for one or more services for the one or more devices assigned to the device group partition and distributes the accounting and settlement information to one or more of the following associated with the device group partition: a carrier, a distribution partner, a mobile virtual network operator (MVNO), and a wholesale partner.

19. (Currently amended) The system recited in claim 1, wherein the one or more processors are [[is]] further configured to:

store the aggregated device generated service usage information; and

implement a settlement platform to mediate the device generated service usage information.

20. (Currently amended) The system recited in claim 1, wherein the one or more processors are [[is]] further configured to:

store the aggregated device generated service usage information; and

apply a set of settlement platform rules to mediate the device generated service usage information, wherein the set of settlement platform rules is selected based at least in part on a device group partition determination for each of the one or more devices.

21. (Currently amended) The system recited in claim 1, wherein the one or more processors are [[is]] further configured to:

store the aggregated device generated service usage information;

apply a set of settlement platform rules to mediate the device generated service usage information, wherein the set of settlement platform rules is selected based at least in part on a device group partition determination for each of the one or more devices; and

communicate a [[new]] set of charging data records (CDRs) to a billing interface based at least in part on the mediated device generated service usage information.

22. (Currently amended) The system recited in claim 1, wherein the one or more processors are [[is]] further configured to:

communicate the device generated service usage information to a billing interface, wherein the billing interface includes a settlement platform.

23. (Currently amended) The system recited in claim 1, wherein the one or more processors are [[is]] further configured to:

collect the device generated service usage information for the one or more devices in wireless communication with the system over the wireless network from an intermediate networking device~~, wherein the device generated service usage information includes a transaction code for associating a user of a first device, the first device, or the intermediate networking device with the device generated service usage information, wherein the one or more devices include the first device~~.

24. (Currently amended) A method, comprising:

collecting device generated service usage information for one or more devices in wireless communication with a network system over a wireless network; [[and]]

aggregating the device generated service usage information ~~for a settlement platform~~ for the one or more devices in wireless communication with the network system over the wireless network; and

translating the device generated service usage information into a syntax and a communication protocol that can be used to augment or replace network generated service usage information for the one or more devices in wireless communication on the wireless network.

25. (Currently amended) A computer program product, the computer program product being embodied in a non-transitory computer readable storage medium and comprising computer instructions for:

collecting device generated service usage information for one or more devices in wireless communication with a network system over a wireless network; [[and]]

aggregating the device generated service usage information ~~for a settlement platform~~ for the one or more devices in wireless communication with the network system over the wireless network; and

translating the device generated service usage information into a syntax and a communication protocol that can be used to augment or replace network generated service usage information for the one or more devices in wireless communication on the wireless network.

26. (New) The system recited in claim 23, wherein the device generated service usage information includes a transaction code for associating a user of a first device, the first device, or the intermediate networking device with the device generated service usage information, wherein the one or more devices include the first device.

3. A further pertinent reference of interest is noted on the attached PTO-892. It is noted that this reference corresponds to reference "TTTT" from one of the Information Disclosure Statements (IDS's) submitted February 16, 2012.

4. Applicant's IDS's submitted May 20, 2013 and May 24, 2013 have been reviewed. Note the attached IDS's.

5. 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

Notice of References Cited	Application/Control No. 12/694,451	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-2008/0183812	07-2008	Paul et al.	709/203
	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.

Issue Classification	Application/Control No.	Applicant(s)/Patent under Reexamination	
	12/694,451	RALEIGH, GREGORY G.	
	Examiner	Art Unit	
	ANDREW JOSEPH RUDY	3687	

ISSUE CLASSIFICATION

ORIGINAL						CROSS REFERENCE(S)								
CLASS				SUBCLASS		CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)							
455				408		455	411	414.1						
INTERNATIONAL CLASSIFICATION						705	34							
H	0	4	M	11/00		709	223							
G	0	6	F	15/173										
				/										
				/										
				/										

XXXXXXXXXXXXXXXXXXXXXXXXX (Assistant Examiner) (Date)	/Andrew Joseph Rudy/ 5/25/2013 (Primary Examiner) (Date)	Total Claims Allowed: 25
(Legal Instruments Examiner) (Date)		O.G. Print Claim(s): 1 / O.G. Print Fig.: 2

☐ 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	1		31		61		91		121		151		181
2	2		32		62		92		122		152		182
	3		33		63		93		123		153		183
4	4		34		64		94		124		154		184
5	5		35		65		95		125		155		185
6	6		36		66		96		126		156		186
7	7		37		67		97		127		157		187
8	8		38		68		98		128		158		188
9	9		39		69		99		129		159		189
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3	26		56		86		116		146		176		206
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	29		59		89		119		149		179		209
	30		60		90		120		150		180		210

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	12/694,451	RALEIGH, GREGORY G.	
	Examiner	Art Unit	
	ANDREW JOSEPH RUDY	3687	

SEARCHED			
Class	Subclass	Date	Examiner
705	28,30,34	5/25/2013	AJR
709	203,17	5/25/2013	AJR
709	223,224	5/25/2013	AJR
709	229	5/25/2013	AJR
455	405,406	5/25/2013	AJR
455	407,408	5/25/2013	AJR
455	411,414.1	5/25/2013	AJR
455	456.3	5/25/2013	AJR
455	461	5/25/2013	AJR
379	114.03	5/25/2013	AJR
379	201.01	5/25/2013	AJR

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner
455	**405-411**	**5/25/2013**	**AJR**
709	203,217	5/25/2013	AJR
705	34	5/25/2013	AJR

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Continuity data reviewed.	5/25/2013	AJR
Inventor name search conducted.	5/25/2013	AJR
Bibliographic data reviewed.	5/25/2013	AJR

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

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	12694451
Filing Date	2010-01-27
First Named Inventor	Raleigh, Gregory G.
Art Unit	2687
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP026

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	6035281		2000-03-07	Crosskey, James P. et al.	
	2	6996393		2006-02-07	Pyhalammi, Seppo et al.	
	3	7760711		2010-07-20	Kung, Fen-Chung et al.	
	4	8000318		2011-08-16	Wiley, William L. et al.	
	5	8098579		2012-01-17	Ray, Amar N. et al.	
	6	8155670		2012-04-10	Fullam, Scott et al.	
	7	8374090		2013-02-12	Morrill, Robert J. et al.	

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Examiner Signature	/Andrew Joseph Rudy/	Date Considered	05/25/2013

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	6	8005988		2011-08-23	Maes, Stephane H.	
	7	7978627		2011-07-12	Taylor, William Scott et al.	
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	11	6064878		2000-05-16	Denker, John Stewart et al.	
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	13	8364089		2013-01-29	Phillips, Derek	
	14	8024397		2011-09-20	Erickson, Richard R. et al.	
	15	8156206		2012-04-10	Kiley, Kevin J. et al.	
	16	8126722		2012-02-28	Robb, Terence Alan et al.	
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	28	8306518		2012-11-06	GAILLOUX, Michael A.	

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	1	2006120558A1	WO		2006-11-16	Nokia Corp.		☐

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	3	7760711		2010-07-20	Kung, Fen-Chung et al.	
	4	8000318		2011-08-16	Wiley, William L. et al.	
	5	8098579		2012-01-17	Ray, Amar N. et al.	
	6	8155670		2012-04-10	Fullam, Scott et al.	
	7	8374090		2013-02-12	Morrill, Robert J. et al.	

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	Art Unit	2687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

CERTIFICATION STATEMENT

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

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

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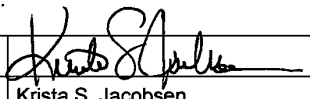
☐ See attached certification statement.

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

☒ None

SIGNATURE

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

Signature		Date (YYYY-MM-DD)	2013-05-23
Name/Print	Krista S. Jacobsen	Registration Number	59374

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EFS ID:	15860951
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026 [26WV-160503]
Receipt Date:	23-MAY-2013
Filing Date:	27-JAN-2010
Time Stamp:	21:40:02
Application Type:	Utility under 35 USC 111(a)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

CERTIFICATION STATEMENT

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

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

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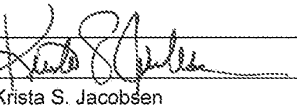
☐ See attached certification statement.

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

☒ None

SIGNATURE

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

Signature		Date (YYYY-MM-DD)	2013-05-20
Name/Print	Krista S. Jacobsen	Registration Number	59374

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EFS ID:	15824850
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026 [26WV-160503]
Receipt Date:	20-MAY-2013
Filing Date:	27-JAN-2010
Time Stamp:	20:03:48
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	P026IDS.pdf	2811656 96d6efe0b370bac43615509f253004369bab72fa	no	6
Warnings:					
Information:					

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2	Foreign Reference	WO2006120558A1Nokia.pdf	829615 8b7d3998166eaadb50492ebf5e693219d9e238ca	no	34
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/694,451	01/27/2010	Gregory G. Raleigh	RALEP026 [26WV-160503]	6041

107265 7590 02/07/2013

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

EXAMINER	
RUDY, ANDREW J	

ART UNIT	PAPER NUMBER
3687	

NOTIFICATION DATE	DELIVERY MODE
02/07/2013	ELECTRONIC

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
12/694,451	27 January, 2010	RALEIGH, GREGORY G.	RALEP026 [26WV-160503]

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

EXAMINER	
ANDREW JOSEPH RUDY	
ART UNIT	PAPER
3687	20130130

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The Information Disclosure Statements (IDS's) submitted January 15; 22; 24 & 29, 2013 have been reviewed and entered into the prosecution history. Note the attached IDS's.

/ANDREW JOSEPH RUDY/
Primary Examiner
Art Unit: 3687

PTO-90C (Rev.04-03)

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

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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	8353001		2013-01-08	Herrod, Allan	
	2	8350700		2013-01-08	Fast, Raymond D. et al.	
	3	7236780		2007-06-26	Benco, David S. et al.	
	4	7039403		2006-05-02	Wong, Gregory A.	
	5	7865182		2011-01-04	Macaluso, Anthony G.	
	6	8204190		2012-06-19	Bang, Jung-Hee et al.	
	7	8195093		2012-06-05	Garrett, Darrin et al.	
	8	8036600		2011-10-11	Garrett, Darrin et al.	

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	Attorney Docket Number	RALEP026

	9	7962622		2011-06-14	Friend, John et al.	
	10	7583964		2009-09-01	Wong, Gregory A.	
	11	7565141		2009-07-21	Macaluso, Anthony G.	
	12	7373179		2008-05-13	Stine, Ted et al.	

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Examiner Signature	/Andrew Joseph Rudy/	Date Considered	01/30/2013

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

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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	8335161		2012-12-18	Foottit, Tom et al.	
	2	8315594		2012-11-20	Mauser, Edward Ronald et al.	
	3	8135388		2012-03-13	Gailloux, Michael A. et al.	
	4	6947723		2005-09-20	Gurnani, Roger et al.	

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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	8255689		2012-08-28	Kim, Eun Ah et al.	
	2	7746854		2010-06-29	Ambe, Shekhar et al.	
	3	7068600		2006-06-27	Cain, Joseph Bibb	
	4	6876653		2005-04-05	Ambe, Shekhar et al.	
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	6	7599288		2009-10-06	Cole, Raymond E. et al.	
	7	7546629		2009-06-09	Albert, Anthony et al.	
	8	7747730		2010-06-29	Harlow, James D.	

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	Attorney Docket Number	RALEP026

	9	7609650		2009-10-27	Roskowski, Steve et al.	
	10	6581092		2003-06-17	Motoyama, Tetsuro et al.	
	11	7283963		2007-10-16	Fitzpatrick, John E. et al.	
	12	8271049		2012-09-18	Silver, Andrew et al.	
	13	7644151		2010-01-05	Jerrim, John et al.	
	14	8291238		2012-10-16	Ginter, Karl L. et al.	
	15	8068824		2011-11-29	Shan, Xueshan et al.	
	16	7228354		2007-06-05	Chambliss, David Darden et al.	
	17	5283904		1994-02-01	Carson, David G. et al.	
	18	8208919		2012-06-26	Kotecha, Lalit Ratilal	
	19	8185152		2012-05-22	Goldner, Alla	

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	20	7844728		2010-11-30	Anderson, Thomas W. et al.	
	21	7873344		2011-01-18	Bowser, Robert et al.	
	22	7856226		2010-12-21	Wong, Ellis L. et al.	
	23	7948952		2011-05-24	Hurtta, Tuija et al.	
	24	7957020		2011-06-07	Mine, Ryuta et al.	
	25	7346410		2008-03-18	Uchiyama, Kenji	
	26	7167078		2007-01-23	Pourchot, Shawn C.	

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	1	20100103820		2010-04-29	Fuller, Randy et al.	
	2	20080005285		2008-01-03	Robinson, James David et al.	

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	3	20090046723		2009-02-19	Rahman, Reshad A. et al.	
	4	20080219268		2008-09-11	Dennison, Larry R.	
	5	20090315735		2009-12-24	Bhavani, Neeraj S. et al.	
	6	20090219170		2009-09-03	Clark, Ryan C. et al.	
	7	20090067372		2009-03-12	Shah, Keyur C. et al.	
	8	20080262798		2008-10-23	KIM, Eun Ah et al.	
	9	20100153781		2010-06-17	HANNA, Stephen R.	
	10	20090307746		2009-12-10	DI, Jinwen et al.	
	11	20050009499		2005-01-13	Koster, Karl	
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	1	8102814		2012-01-24	Rahman, Shahriar I. et al.	
	2	7970350		2011-06-28	Sheynman, Arnold et al.	
	3	8094551		2012-01-10	Huber, Kurt Donald et al.	

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	1	20100041364		2010-02-18	Lott, Robert Wayne et al.	
	2	20100027469		2010-02-04	Gurajala, Ravindra Babu et al.	

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	1		☐

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EXAMINER SIGNATURE

Examiner Signature	/Andrew Joseph Rudy/	Date Considered	01/30/2013

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

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

EFS Web 2.1.17

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

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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/694,451	01/27/2010	Gregory G. Raleigh	RALEP026 [26WV-160503]	6041

107265 7590 02/07/2013

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

EXAMINER	
RUDY, ANDREW J	

ART UNIT	PAPER NUMBER
3687	

NOTIFICATION DATE	DELIVERY MODE
02/07/2013	ELECTRONIC

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

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patent@headwaterllc.com

Response to Rule 312 Communication	Application No. 12/694,451	Applicant(s)
	Examiner	Art Unit

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

1. ☒ The amendment filed on *05 November 2012* under 37 CFR 1.312 has been considered, and has been:

a) ☒ entered.

b) ☐ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☐ disapproved. See explanation below.

e) ☐ entered in part. See explanation below.

/ A. Marty Willis /

A. Marty Willis

Publishing Division

Office of Data Management

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	12694451
Filing Date	2010-01-27
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP026

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	8353001		2013-01-08	Herrod, Allan	
	2	8350700		2013-01-08	Fast, Raymond D. et al.	
	3	7236780		2007-06-26	Benco, David S. et al.	
	4	7039403		2006-05-02	Wong, Gregory A.	
	5	7865182		2011-01-04	Macaluso, Anthony G.	
	6	8204190		2012-06-19	Bang, Jung-Hee et al.	
	7	8195093		2012-06-05	Garrett, Darrin et al.	
	8	8036600		2011-10-11	Garrett, Darrin et al.	

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	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	9	7962622		2011-06-14	Friend, John et al.	
	10	7583964		2009-09-01	Wong, Gregory A.	
	11	7565141		2009-07-21	Macaluso, Anthony G.	
	12	7373179		2008-05-13	Stine, Ted et al.	

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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If you wish to add additional U.S. Published Application citation information please click the Add button.

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
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	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

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	Attorney Docket Number	RALEP026

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OR

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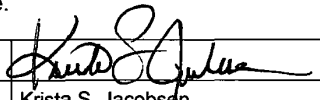
☐ See attached certification statement.

☒ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

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

Signature		Date (YYYY-MM-DD)	2013-01-29
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:	12694451
Filing Date:	27-Jan-2010
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP026 [26WV-160503]
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:	14823232
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026 [26WV-160503]
Receipt Date:	29-JAN-2013
Filing Date:	27-JAN-2010
Time Stamp:	17:13:07
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	4445
Deposit Account	505876
Authorized User	

File Listing:

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

1	Information Disclosure Statement (IDS) Form (SB08)	P026IDS.pdf	841028 fd6ed00a11c745344edf36f12099f3aea51ec5db	no	4
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Fee Worksheet (SB06)	fee-info.pdf	30573 d49104aac2ec19acf2ff2ec262eaeca67a8ff201	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	871601		

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

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

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

Application Number	12694451
Filing Date	2010-01-27
First Named Inventor	Raleigh, Gregory G.
Art Unit	3587
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP026

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	8335161		2012-12-18	Foottit, Tom et al.	
	2	8315594		2012-11-20	Mauser, Edward Ronald et al.	
	3	8135388		2012-03-13	Gailloux, Michael A. et al.	
	4	6947723		2005-09-20	Gurnani, Roger et al.	

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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	Art Unit	3587
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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Examiner Signature		Date Considered	

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	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3587
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

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☐ See attached certification statement.

☒ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

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

Signature		Date (YYYY-MM-DD)	2013-01-24
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:	12694451
Filing Date:	27-Jan-2010
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP026 [26WV-160503]
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

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

Electronic Acknowledgement Receipt	
EFS ID:	14786748
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026 [26WV-160503]
Receipt Date:	24-JAN-2013
Filing Date:	27-JAN-2010
Time Stamp:	18:29:42
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	5997
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)	
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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	Information Disclosure Statement (IDS) Form (SB08)	P026IDS.pdf	711620 7622146bfad2537ef1d650dd22f4eb7444c28e9f	no	3
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Fee Worksheet (SB06)	fee-info.pdf	30573 3cd1258ef98a85b90ca41876d7bf6441a1f42aa1	no	2
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		Total Files Size (in bytes):	742193		

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	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

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	8102814		2012-01-24	Rahman, Shahriar I. et al.	
	2	7970350		2011-06-28	Sheynman, Arnold et al.	
	3	8094551		2012-01-10	Huber, Kurt Donald et al.	

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20100041364		2010-02-18	Lott, Robert Wayne et al.	
	2	20100027469		2010-02-04	Gurajala, Ravindra Babu et al.	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]¡	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]

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	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	1							☐

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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		☐

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Examiner Signature		Date Considered	

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	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

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

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☒ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

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

Signature		Date (YYYY-MM-DD)	2013-01-22
Name/Print	Krista S. Jacobsen	Registration Number	59374

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

EFS Web 2.1.17

Electronic Patent Application Fee Transmittal	
Application Number:	12694451
Filing Date:	27-Jan-2010
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP026 [26WV-160503]
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

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

Electronic Acknowledgement Receipt	
EFS ID:	14764084
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026 [26WV-160503]
Receipt Date:	22-JAN-2013
Filing Date:	27-JAN-2010
Time Stamp:	21:20:09
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	8050
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	Information Disclosure Statement (IDS) Form (SB08)	P026IDS.pdf	721753 c321e62d90ec1df7ef1f98ce473ccb159f57b12c	no	3
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Fee Worksheet (SB06)	fee-info.pdf	30564 3ffb921e0b013c381bb591c3f6f0323521e35998	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	752317		

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/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	12694451	Filing Date	2010-01-27	Docket Number (if applicable)	RALEP026	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)	2013-01-15
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	12694451
Filing Date	2010-01-27
First Named Inventor	Raleigh, Gregory G.
Art Unit	3587
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP026

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	8255689		2012-08-28	Kim, Eun Ah et al.	
	2	7746854		2010-06-29	Ambe, Shekhar et al.	
	3	7068600		2006-06-27	Cain, Joseph Bibb	
	4	6876653		2005-04-05	Ambe, Shekhar et al.	
	5	6631122		2003-10-07	Arunachalam, Vaidhyanathan et al.	
	6	7599288		2009-10-06	Cole, Raymond E. et al.	
	7	7546629		2009-06-09	Albert, Anthony et al.	
	8	7747730		2010-06-29	Harlow, James D.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3587
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	9	7609650		2009-10-27	Roskowski, Steve et al.	
	10	6581092		2003-06-17	Motoyama, Tetsuro et al.	
	11	7283963		2007-10-16	Fitzpatrick, John E. et al.	
	12	8271049		2012-09-18	Silver, Andrew et al.	
	13	7644151		2010-01-05	Jerrim, John et al.	
	14	8291238		2012-10-16	Ginter, Karl L. et al.	
	15	8068824		2011-11-29	Shan, Xueshan et al.	
	16	7228354		2007-06-05	Chambliss, David Darden et al.	
	17	5283904		1994-02-01	Carson, David G. et al.	
	18	8208919		2012-06-26	Kotecha, Lalit Ratilal	
	19	8185152		2012-05-22	Goldner, Alla	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3587
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	20	7844728		2010-11-30	Anderson, Thomas W. et al.	
	21	7873344		2011-01-18	Bowser, Robert et al.	
	22	7856226		2010-12-21	Wong, Ellis L. et al.	
	23	7948952		2011-05-24	Hurtta, Tuija et al.	
	24	7957020		2011-06-07	Mine, Ryuta et al.	
	25	7346410		2008-03-18	Uchiyama, Kenji	
	26	7167078		2007-01-23	Pourchot, Shawn C.	

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	20100103820		2010-04-29	Fuller, Randy et al.	
	2	20080005285		2008-01-03	Robinson, James David et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3587
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	3	20090046723		2009-02-19	Rahman, Reshad A. et al.	
	4	20080219268		2008-09-11	Dennison, Larry R.	
	5	20090315735		2009-12-24	Bhavani, Neeraj S. et al.	
	6	20090219170		2009-09-03	Clark, Ryan C. et al.	
	7	20090067372		2009-03-12	Shah, Keyur C. et al.	
	8	20080262798		2008-10-23	KIM, Eun Ah et al.	
	9	20100153781		2010-06-17	HANNA, Stephen R.	
	10	20090307746		2009-12-10	DI, Jinwen et al.	
	11	20050009499		2005-01-13	Koster, Karl	
	12	20010053694		2001-12-20	Igarashi, Yoichiro et al.	

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

FOREIGN PATENT DOCUMENTS Remove

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3587
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							☐

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	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3587
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

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)	2013-01-15
Name/Print	Krista S. Jacobsen	Registration Number	59374

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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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.

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

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

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

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:	12694451
Filing Date:	27-Jan-2010
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP026 [26WV-160503]

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 : January 15, 2013

In re Application of :

Gregory Raleigh

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

Application No : 12694451

Filed : 27-Jan-2010

Attorney Docket No : RALEP026 [26WV-160503]

This is an electronic decision on the petition under 37 CFR 1.313(c)(2), filed January 15, 2013 , 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:	14709388
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026 [26WV-160503]
Receipt Date:	15-JAN-2013
Filing Date:	27-JAN-2010
Time Stamp:	22:31:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$595
RAM confirmation Number	7421
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	31959 ff2133ce90661edcbdfb0f4730207f8e9a3dc5a6	no	2
Warnings:					
Information:					
2	Transmittal Letter	P026Trans.pdf	308996 05e7cc0c1c2b81dc28e15435fea287354c813209	no	1
Warnings:					
Information:					
3	Request for Continued Examination (RCE)	P026CondRCE.pdf	697976 600b943707501f4187d549f987b042300015ce74	no	3
Warnings:					
Information:					
4	Quick Path Information Disclosure Statement	P026QPIDSCert.pdf	349609 493c8b7916badf2a1995b5604aeacda67f56190f	no	1
Warnings:					
Information:					
5	Information Disclosure Statement (IDS) Form (SB08)	P026IDS.pdf	613258 85b5ac4a8ad8189bc87a5c80b9dbe63296f5f04c	no	7
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	32356 f1477c16272f008ea5dbd26693f0709fba70efe4	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	2034154		

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	12694451
Filing Date	27-Jan-2010
First Named Inventor	Gregory Raleigh
Art Unit	3687
Examiner Name	ANDREW RUDY
Attorney Docket Number	RALEP026 [26WV-160503]
Title	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM

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

Application Number	12/694451
Filing Date	January 27, 2010
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	RALEP026

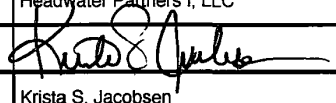
ENCLOSURES *(Check all that apply)*

- [✓] 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

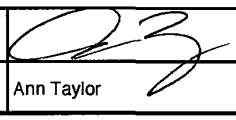
You are hereby authorized to charge any additional fee required or credit any overpayment to Deposit Account No. 50-5876.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Headwater Partners I, LLC		
Signature			
Printed name	Krista S. Jacobsen		
Date	January 15, 2013	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	January 15, 2013

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:	12694451
Filing Date:	27-Jan-2010
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP026 [26WV-160503]
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

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

Electronic Acknowledgement Receipt	
EFS ID:	14709403
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026 [26WV-160503]
Receipt Date:	15-JAN-2013
Filing Date:	27-JAN-2010
Time Stamp:	22:33:40
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	7427
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	30573 e9849f3107a808dd8921dd87a9bb69ea91919a68	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	30573		

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

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

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/694,451	01/27/2010	Gregory G. Raleigh	RALEP026 [26WV-160503]	6041

107265 7590 11/15/2012

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
11/15/2012	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.
12/694,451	27 January, 2010	RALEIGH, GREGORY G.	RALEP026 [26WV-160503]

		EXAMINER	
Headwater Partners I LLC - Outside Firm 1 350 Marine Parkway, Suite 300 Redwood Shores, CA 94065		ANDREW JOSEPH RUDY	
		ART UNIT	PAPER
		3687	20121108

DATE MAILED:

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

Commissioner for Patents

Applicant's November 2, Information Disclosure Statement (IDS) has been received. The IDS has been reviewed. Note the attached IDS. Also, Applicant's November 2, 2012 Amendment after Allowance has been received. Pursuant to Applicant's associated REMARKS, the 11/2/12 Amendment has been entered.

/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	12694451
Filing Date	2010-01-27
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy, Andrew J
Attorney Docket Number	RALEP026

U.S.PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7609700		2009-10-27	Ying, Wen-Ping et al.	
	2	8255515		2012-08-28	Melman, David et al.	
	3	7945240		2011-05-17	Klock, Jacqueline et al.	
	4	7912056		2011-03-22	Brassem, Wayne	
	5	7920529		2011-04-05	Mahler, Roger et al.	
	6	8184530		2012-05-22	Swan, Tim L. et al.	
	7	8213363		2012-07-03	Ying, Wen-Ping et al.	
	8	8214536		2012-07-03	Zhao, Wen	

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

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	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP026

U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20080085707		2008-04-10	FADELL, Tony	

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

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							☐

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		☐

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	11/08/2012

*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.

EFS Web 2.1.17

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

PART B - FEE(S) TRANSMITTAL

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

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

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

107265 7590 11/02/2012
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

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

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

Ann Taylor	(Depositor's name)
	(Signature)
November 6, 2012	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/694,451	01/27/2010	Gregory G. Raleigh	RALEP026 [26WV-160503]	6041

TITLE OF INVENTION: DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1770	$300	$0	$2070	02/04/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
RUDY, ANDREW J	3687	455-408000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

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

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

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

(A) NAME OF ASSIGNEE: Headwater Partners I, LLC
(B) RESIDENCE: (CITY and STATE OR COUNTRY): Redwood Shores, CA

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

4a. The following fee(s) are submitted:
☒ Issue Fee
☒ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 505876 (enclose an extra copy of this form).

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 November 6, 2012

Typed or printed name Krista S. Jacobsen Registration No. 59374

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

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Gregory G. Raleigh	Andrew J. Rudy
Serial No. 12/694,451	Art Unit: 3687
Filed: January 27, 2010	Conf. No.: 6041

Title: Device Group Partitions and Settlement Platform

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 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 owned, please charge Deposit Account No. **50-5876** for the same.

Respectfully submitted,

Date: November 6, 2012

By: _____

Krista S. Jacobsen, Reg. No. 59,374
Headwater Partners I, LLC
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065
Telephone: (650) 517-2798

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being filed electronically via EFS-Web addressed to the Commissioner for Patents on:

Date: November 6, 2012 By: _____
Ann Taylor

Electronic Patent Application Fee Transmittal	
Application Number:	12694451
Filing Date:	27-Jan-2010
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP026 [26WV-160503]
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	885	885
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1185**

Electronic Acknowledgement Receipt	
EFS ID:	14164472
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026 [26WV-160503]
Receipt Date:	06-NOV-2012
Filing Date:	27-JAN-2010
Time Stamp:	17:45:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$1185
RAM confirmation Number	16601
Deposit Account	505876
Authorized User	
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	xP026IFT.pdf	437765 c737ba5b5bac35d3731c425dc267ea67e96df7cf	no	1
Warnings:					
Information:					
2	Transmittal Letter	xP026Ltr.pdf	206948 7056ee8dd27dd35f75419cddc59af2cf31e9621f	no	1
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32156 f414f7674572ed2a2019d65216151cdd6c566564	no	2
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National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Raleigh	Examiner:	Rudy, Andrew J.
Serial No.:	12/694,451	Art Unit:	3687
Filed:	January 27, 2010	Conf. No.:	6041
Title:	Device Group Partitions and Settlement Platform		

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

AMENDMENT AFTER NOTICE OF ALLOWANCE

Sir:

Applicant received a Notice of Allowance including an Examiner's Amendment in the above-identified application on November 2, 2012. Pursuant to 37 C.F.R. § 1.312, please amend the above-identified application as follows:

Listing of Claims begins on page 2.

Remarks begin on page 9.

LISTING OF CLAIMS

Without prejudice and without surrender of any subject matter, please amend the claims as follows:

1. (Previously presented) A system, comprising:

one or more processors of one or more network elements, wherein the one or more processors are configured to:

collect device generated service usage information for one or more devices in wireless communication with the system over a wireless network;

aggregate the device generated service usage information for the one or more devices in wireless communication with the system over the wireless network; and

translate the device generated service usage information into a syntax and a communication protocol that can be used to augment or replace network generated service usage information for the one or more devices in wireless communication with the system over the wireless network; and

memory coupled to the one or more processors and configured to provide the one or more processors with instructions.

2. (Previously presented) The system recited in claim 1, wherein the one or more devices are assigned to a device group partition, and wherein the one or more network elements include a settlement platform configured to determine accounting and settlement information for one or more services for the one or more devices assigned to the device group partition and distribute the accounting and settlement information to one or more of the following associated with the device group partition: a carrier, a distribution partner, a mobile virtual network operator (MVNO), and a wholesale partner.

3. (Canceled)

4. (Previously presented) The system recited in claim 1, wherein the device generated service usage information includes micro-charging data records (micro-CDRs).

5. (Previously presented) The system recited in claim 1, wherein the device generated service usage information includes micro-charging data records (micro-CDRs) collected by a service controller from a service processor executed on each of the one or more devices in wireless communication with the system over the wireless network.

6. (Previously presented) The system recited in claim 1, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein at least one of the micro-CDRs includes a transaction code for associating a monitored service usage with a service usage activity.

7. (Previously presented) The system recited in claim 1, wherein the syntax is a charging data record (CDR), and wherein the device generated service usage information includes micro-charging data records (micro-CDRs).

8. (Previously presented) The system recited in claim 1, wherein the one or more network elements include a service usage data store.

9. (Previously presented) The system recited in claim 1, wherein the one or more network elements include a service usage data store that aggregates and mediates micro-charging data records (micro-CDRs) and network generated charging data records (CDRs) for the one or more devices in wireless communication with the system over the wireless network.

10. (Previously presented) The system recited in claim 1, wherein the one or more network elements include a service usage data store and a rules engine for aggregating and mediating the collected device generated service usage information.

11. (Previously presented) The system recited in claim 1, wherein the one or more processors are further configured to:

collect network generated service usage information for the one or more devices in wireless communication with the system over the wireless network.

12. (Previously presented) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are further configured to:

aggregate micro-CDRs for the one or more devices in wireless communication with the system over the wireless network; and

apply a set of rules to the aggregated micro-CDRs using a rules engine to provide aggregated and mediated micro-CDRs to a settlement platform, wherein the settlement platform implements a service billing allocation or a revenue share among one or more partners, and wherein the revenue share includes a service based revenue share or a transactional based revenue share.

13. (Previously presented) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), wherein the one or more network elements include a CDR storage, aggregation, and mediation feed, and wherein the one or more processors are further configured to:

aggregate micro-CDRs for the one or more devices in wireless communication with the system over the wireless network;

apply a set of settlement platform rules to the aggregated micro-CDRs using a rules engine to generate a new set of CDRs for the one or more devices in wireless communication with the system over the wireless network; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over the wireless network to a billing interface or a billing system.

14. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is ~~received~~ in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are further configured to:

aggregate micro-CDRs for the one or more devices in wireless communication with the system over the wireless network;

verify at least a subset of the micro-CDRs;

apply a set of settlement platform rules to the aggregated and verified micro-CDRs using a rules engine to generate a new set of CDRs for the one or more devices in wireless communication with the system over the wireless network; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over the wireless network to a billing interface or a billing system.

15. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is ~~received~~ in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are further configured to:

aggregate micro-CDRs for the one or more devices in wireless communication on the wireless network;

verify the micro-CDRs by comparing at least a subset of the micro-CDRs to a set of one or more network generated CDRs for the one or more devices in wireless communication with the system over the wireless network;

apply a set of settlement platform rules to the aggregated and verified micro-CDRs using a rules engine to generate a new set of CDRs for the one or more devices in wireless communication with the system over the wireless network; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over the wireless network to a billing interface or a billing system.

16. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is ~~received~~ in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are further configured to:

aggregate the micro-CDRs for the one or more devices in wireless communication with the system over the wireless network;

apply a set of rules to the aggregated micro-CDRs using a rules engine to generate a new set of CDRs, wherein the set of rules includes a bill by account rule; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over the wireless network to a billing interface or a billing system.

17. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is ~~received~~ in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are further configured to:

aggregate the micro-CDRs for the one or more devices in wireless communication with the system over the wireless network;

apply a set of rules to the aggregated micro-CDRs using a rules engine to generate a new set of CDRs, wherein the set of rules includes a bill by account rule; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over the wireless network to a billing interface or a billing system, wherein at least one CDR in the new set of CDRs includes a billing offset.

18. (Currently amended) The system recited in claim 1, wherein the one or more devices are assigned to a device group partition, wherein the device generated service usage information is ~~received~~ in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are **[[is]]** further configured to:

communicate a new set of CDRs based at least in part on aggregated micro-CDRs for the one or more devices in wireless communication with the system over the wireless network to a settlement platform, wherein the settlement platform determines accounting and settlement information for one or more services for the one or more devices assigned to the device group partition and distributes the accounting and settlement information to one or more of the

following associated with the device group partition: a carrier, a distribution partner, a mobile virtual network operator (MVNO), and a wholesale partner.

19. (Previously presented) The system recited in claim 1, wherein the one or more processors are further configured to:

store the aggregated device generated service usage information; and

implement a settlement platform to mediate the device generated service usage information.

20. (Previously presented) The system recited in claim 1, wherein the one or more processors are further configured to:

store the aggregated device generated service usage information; and

apply a set of settlement platform rules to mediate the device generated service usage information, wherein the set of settlement platform rules is selected based at least in part on a device group partition determination for each of the one or more devices.

21. (Previously presented) The system recited in claim 1, wherein the one or more processors are further configured to:

store the aggregated device generated service usage information;

apply a set of settlement platform rules to mediate the device generated service usage information, wherein the set of settlement platform rules is selected based at least in part on a device group partition determination for each of the one or more devices; and

communicate a set of charging data records (CDRs) to a billing interface based at least in part on the mediated device generated service usage information.

22. (Previously presented) The system recited in claim 1, wherein the one or more processors are further configured to:

communicate the device generated service usage information to a billing interface, wherein the billing interface includes a settlement platform.

23. (Previously presented) The system recited in claim 1, wherein the one or more processors are further configured to:

collect the device generated service usage information for the one or more devices in wireless communication with the system over the wireless network from an intermediate networking device.

24. (Previously presented) A method, comprising:

collecting device generated service usage information for one or more devices in wireless communication with a network system over a wireless network;

aggregating the device generated service usage information for the one or more devices in wireless communication with the network system over the wireless network; and

translating the device generated service usage information into a syntax and a communication protocol that can be used to augment or replace network generated service usage information for the one or more devices in wireless communication on the wireless network.

25. (Previously presented) A computer program product, the computer program product being embodied in a non-transitory computer readable storage medium and comprising computer instructions for:

collecting device generated service usage information for one or more devices in wireless communication with a network system over a wireless network;

aggregating the device generated service usage information for the one or more devices in wireless communication with the network system over the wireless network; and

translating the device generated service usage information into a syntax and a communication protocol that can be used to augment or replace network generated service usage information for the one or more devices in wireless communication on the wireless network.

26. (Previously presented) The system recited in claim 23, wherein the device generated service usage information includes a transaction code for associating a user of a first device, the first device, or the intermediate networking device with the device generated service usage information, wherein the one or more devices include the first device.

REMARKS

Claims 1-26 were allowed with an Examiner's Amendment in the Notice of Allowance mailed on October 30, 2012.

Applicant thanks the Examiner for the Examiner's Amendment and for allowing the claims as modified by the Examiner's Amendment.

Claims 14-18 are being amended herein. No new matter is being added. Applicant respectfully requests entry of these amendments.

Applicant respectfully notes that a few additions in the Examiner's Amendment to claims 1 (the last "s" in "processors" in line 2 and line 15), 2 ("to" in line 3), 12 ("a" in line 9), and 18 ("a" in line 9) were not underlined in Applicant's copy of the Examiner's Amendment, but that all of these additions are satisfactory to Applicant.

CONCLUSION

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

The Commissioner is authorized to charge any fee deficiency or credit any overpayment to Deposit Account 50-5876.

Respectfully submitted,

Date: Nov. 5, 2012 By: _____

Krista S. Jacobsen
Reg. No. 59,374
Head Counsel
Headwater Partners I LLC
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Redwood Shores, CA 94065
(650) 517-2798

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being filed electronically via EFS-Web addressed to the Commissioner for Patents on:

Date: Nov. 5, 2012 By: _____
Ann Taylor

Electronic Acknowledgement Receipt

EFS ID:	14155222
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026 [26WV-160503]
Receipt Date:	05-NOV-2012
Filing Date:	27-JAN-2010
Time Stamp:	20:57:11
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	P026Trans.pdf	301561 1d4f83bbbd7b3e6b72dda665349f648fba4d9b1b	no	1

Warnings:	
Information:	

2		P026Amend.pdf	2249025 3b6e75d515c6133d4a0c7b037e7a0fa11ed40285	yes	10

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Amendment after Notice of Allowance (Rule 312)	1	1
Claims	2	8
Applicant Arguments/Remarks Made in an Amendment	9	10

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New International Application Filed with the USPTO as a Receiving Office
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Doc Code: TRAN.LET

Document Description: Transmittal Letter

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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	11

Application Number	12/694451
Filing Date	January 27, 2010
First Named Inventor	Gregory G. Raleigh
Art Unit	3687 Conf. 6041
Examiner Name	Andrew J. Rudy
Attorney Docket Number	RALEP026

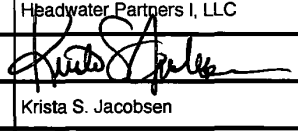
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- ☑ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
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- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to 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
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- ☐ Status Letter
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Remarks

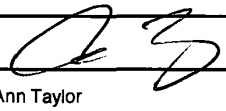
You are hereby authorized to charge any additional fee required or credit any overpayment to Deposit Account No. 50-5876.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Headwater Partners I, LLC		
Signature			
Printed name	Krista S. Jacobsen		
Date	November 5, 2012	Reg. No.	59374

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Signature			
Typed or printed name	Ann Taylor	Date	November 5, 2012

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NOTICE OF ALLOWANCE AND FEE(S) DUE

107265 7590 11/02/2012
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	

DATE MAILED: 11/02/2012

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/694,451	01/27/2010	Gregory G. Raleigh	RALEP026 [26WV-160503]	6041

TITLE OF INVENTION: DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1770	$300	$0	$2070	02/04/2013

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

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

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If the SMALL ENTITY is shown as NO:

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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.

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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.

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107265 7590 11/02/2012
Headwater Partners I LLC - Outside Firm 1
350 Marine Parkway, Suite 300
Redwood Shores, CA 94065

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(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/694,451	01/27/2010	Gregory G. Raleigh	RALEP026 [26WV-160503]	6041

TITLE OF INVENTION: DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1770	$300	$0	$2070	02/04/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
RUDY, ANDREW J	3687	455-408000

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

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

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

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

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

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

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

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

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

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

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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

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

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

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

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/694,451	01/27/2010	Gregory G. Raleigh	RALEP026 [26WV-160503]	6041

107265 7590 11/02/2012

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	

DATE MAILED: 11/02/2012

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 179 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 179 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)	
	12/694,451	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 16 August 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 *1,2 and 4-26*.
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 _____.

DETAILED ACTION

1. The previous Office Action is withdrawn pursuant to Applicant's September 25, 2012 REMARKS.

EXAMINER'S AMENDMENT

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

Authorization for this examiner's amendment was given in a telephone interview with Krista Jacobsen on October 19, 2012.

The application claims have been amended as follows:

1. (Currently amended) A system, comprising:

one or more[[a]] processors of [[a]] one or more network ~~device~~ elements ~~in communication with a wireless network~~, wherein the one or more processors are [[is]] configured to:

collect device generated service usage information for one or more devices in wireless communication with the system over [[the]] a wireless network; [[and]]

aggregate the device generated service usage information ~~for a settlement platform~~ for the one or more devices in wireless communication with the system over the wireless network; and

translate the device generated service usage information into a syntax and a communication protocol that can be used to augment or replace network generated service usage information for the one or more devices in wireless communication with the system over the wireless network; and

[[a]] memory coupled to the one or more processors and configured to provide the one or more processors with instructions.

2. (Currently amended) The system recited in claim 1, wherein the one or more devices are assigned to a device group partition, and wherein the one or more network elements include a settlement platform configured to determine[[s]] accounting and settlement information for one or more services for the one or more devices assigned to the device group partition and distribute[[s]] the accounting and settlement information to one or more of the following associated with the device group partition: a carrier, a distribution partner, a mobile virtual network operator (MVNO), and a wholesale partner.

3. (Canceled)

7. (Currently amended) The system recited in claim 1, ~~wherein the device generated service usage information is translated into a syntax and a communication~~

~~protocol that can be used by other network devices to augment or replace network generated service usage information for the one or more devices in wireless communication with the system over the wireless network,~~ wherein the syntax is a charging data record (CDR), and wherein the device generated service usage information includes micro-charging data records (micro-CDRs).

8. (Currently amended) The system recited in claim 1, wherein the one or more network ~~device~~ elements include[[s]] a service usage data store.

9. (Currently amended) The system recited in claim 1, wherein the one or more network elements ~~device~~ include[[s]] a service usage data store that aggregates and mediates micro-charging data records (micro-CDRs) and network generated charging data records (CDRs) for the one or more devices in wireless communication with the system over the wireless network.

10. (Currently amended) The system recited in claim 1, wherein the one or more network ~~device~~ elements include[[s]] a service usage data store and a rules engine for aggregating and mediating the collected device generated service usage information.

11. (Currently amended) The system recited in claim 1, wherein the one or more processors are [[is]] further configured to:

collect network generated service usage information for the one or more devices in wireless communication with the system over the wireless network.

12. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are [[is]] further configured to:

aggregate micro-CDRs for the one or more devices in wireless communication with the system over the wireless network; and

apply a set of rules to the aggregated micro-CDRs using a rules engine to provide aggregated and mediated micro-CDRs to [[the]] a settlement platform, wherein the settlement platform implements a service billing allocation or a revenue share among one or more partners, and wherein the revenue share includes a service based revenue share or a transactional based revenue share.

13. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), wherein the one or more network elements ~~device~~ include[[s]] a CDR storage, aggregation, and mediation feed, and wherein the one or more processors are [[is]] further configured to:

aggregate micro-CDRs for the one or more devices in wireless communication with the system over the wireless network;

apply a set of settlement platform rules to the aggregated micro-CDRs using a rules engine to generate a new set of CDRs for the one or more devices in wireless communication with the system over the wireless network; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over the wireless network to a billing interface or a billing system.

14. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are [[is]] further configured to:

aggregate micro-CDRs for the one or more devices in wireless communication with the system over the wireless network;

verify at least a subset of the micro-CDRs;

apply a set of settlement platform rules to the aggregated and verified micro-CDRs using a rules engine to generate a new set of CDRs for the one or more devices in wireless communication with the system over the wireless network; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over the wireless network to a billing interface or a billing system.

15. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are [[is]] further configured to:

aggregate micro-CDRs for the one or more devices in wireless communication on the wireless network;

verify the micro-CDRs by comparing at least a subset of the micro-CDRs to a set of one or more network generated CDRs for the one or more devices in wireless communication with the system over the wireless network;

apply a set of settlement platform rules to the aggregated and verified micro-CDRs using a rules engine to generate a new set of CDRs for the one or more devices in wireless communication with the system over the wireless network; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over the wireless network to a billing interface or a billing system.

16. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are [[is]] further configured to:

aggregate the micro-CDRs for the one or more devices in wireless communication with the system over the wireless network;

apply a set of rules to the aggregated micro-CDRs using a rules engine to generate a new set of CDRs, wherein the set of rules includes a bill by account rule; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over the wireless network to a billing interface or a billing system.

17. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are [[is]] further configured to:

aggregate the micro-CDRs for the one or more devices in wireless communication with the system over the wireless network;

apply a set of rules to the aggregated micro-CDRs using a rules engine to generate a new set of CDRs, wherein the set of rules includes a bill by account rule; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over the wireless network to a billing interface or a billing system, wherein at least one CDR in the new set of CDRs includes a billing offset.

18. (Currently amended) The system recited in claim 1, wherein the one or more devices are assigned to a device group partition, [[and]] wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the one or more processors are is further configured to:

communicate a new set of CDRs based at least in part on aggregated micro-CDRs for the one or more devices in wireless communication with the system over the wireless network to [[the]] a settlement platform, wherein the settlement platform determines accounting and settlement information for one or more services for the one or more devices assigned to the device group partition and distributes the accounting and settlement information to one or more of the following associated with the device group partition: a carrier, a distribution partner, a mobile virtual network operator (MVNO), and a wholesale partner.

19. (Currently amended) The system recited in claim 1, wherein the one or more processors are [[is]] further configured to:

store the aggregated device generated service usage information; and

implement a settlement platform to mediate the device generated service usage information.

20. (Currently amended) The system recited in claim 1, wherein the one or more processors are [[is]] further configured to:

store the aggregated device generated service usage information; and

apply a set of settlement platform rules to mediate the device generated service usage information, wherein the set of settlement platform rules is selected based at least in part on a device group partition determination for each of the one or more devices.

21. (Currently amended) The system recited in claim 1, wherein the one or more processors are [[is]] further configured to:

store the aggregated device generated service usage information;

apply a set of settlement platform rules to mediate the device generated service usage information, wherein the set of settlement platform rules is selected based at least in part on a device group partition determination for each of the one or more devices; and

communicate a [[new]] set of charging data records (CDRs) to a billing interface based at least in part on the mediated device generated service usage information.

22. (Currently amended) The system recited in claim 1, wherein the one or more processors are [[is]] further configured to:

communicate the device generated service usage information to a billing interface, wherein the billing interface includes a settlement platform.

23. (Currently amended) The system recited in claim 1, wherein the one or more processors are [[is]] further configured to:

collect the device generated service usage information for the one or more devices in wireless communication with the system over the wireless network from an intermediate networking device~~, wherein the device generated service usage information includes a transaction code for associating a user of a first device, the first device, or the intermediate networking device with the device generated service usage information, wherein the one or more devices include the first device~~.

24. (Currently amended) A method, comprising:

collecting device generated service usage information for one or more devices in wireless communication with a network system over a wireless network; [[and]]

aggregating the device generated service usage information ~~for a settlement platform~~ for the one or more devices in wireless communication with the network system over the wireless network; and

translating the device generated service usage information into a syntax and a communication protocol that can be used to augment or replace network generated service usage information for the one or more devices in wireless communication on the wireless network.

25. (Currently amended) A computer program product, the computer program product being embodied in a non-transitory computer readable storage medium and comprising computer instructions for:

collecting device generated service usage information for one or more devices in wireless communication with a network system over a wireless network; [[and]]

aggregating the device generated service usage information ~~for a settlement platform~~ for the one or more devices in wireless communication with the network system over the wireless network; and

translating the device generated service usage information into a syntax and a communication protocol that can be used to augment or replace network generated service usage information for the one or more devices in wireless communication on the wireless network.

26. (New) The system recited in claim 23, wherein the device generated service usage information includes a transaction code for associating a user of a first device, the first device, or the intermediate networking device with the device generated service usage information, wherein the one or more devices include the first device.

3. Further pertinent references of interest are noted on the attached PTO-892.

4. Applicant's Information Disclosure Statements (IDS's) submitted August 14, 2012 and October 10, 2012 have been reviewed. Note the attached IDS's.

5. 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

Notice of References Cited	Application/Control No. 12/694,451	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-8,275,830	09-2012	Raleigh, Gregory G.	709/203
*	B	US-8,238,287	08-2012	Gopi et al.	370/328
*	C	US-8,155,620	04-2012	Wang et al.	455/405
*	D	US-8,126,123	02-2012	Cai et al.	379/114.03
*	E	US-7,957,511	06-2011	Drudis et al.	379/201.01
*	F	US-7,930,553	04-2011	Satarasinghe et al.	713/184
*	G	US-7,418,257	08-2008	Kim, Myong-Ju	455/411
*	H	US-7,174,174	02-2007	Boris et al.	455/461
*	I	US-7,113,997	09-2006	Jayapalan et al.	709/229
*	J	US-5,594,777	01-1997	Makkonen et al.	455/406
	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.

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BIB DATA SHEET

CONFIRMATION NO. 6041

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/694,451	01/27/2010 RULE	705	3687	RALEP026 [26WV-160503]

APPLICANTS

Gregory G. Raleigh, Woodside, CA;

**** CONTINUING DATA ***************************

This application is a CIP of 12/380,780 03/02/2009
and claims benefit of 61/206,354 01/28/2009
and claims benefit of 61/206,944 02/04/2009
and claims benefit of 61/207,393 02/10/2009
and claims benefit of 61/207,739 02/13/2009
and claims benefit of 61/270,353 07/06/2009
and claims benefit of 61/252,153 10/15/2009

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

02/05/2010

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /ANDREW JOSPEH RUDY/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		CA	34	25	3

ADDRESS

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

TITLE

DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM

FILING FEE RECEIVED	FEES: Authority has been given in Paper	
1480	No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

BIB (Rev. 05/07).

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

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99**)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP026

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	5794142		1998-08-11	Vanttila, Jaakko et al.	
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	Art Unit	3687
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP026

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Doc code: IDS
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Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	12/694,451	RALEIGH, GREGORY G.	
	Examiner	Art Unit	
	ANDREW JOSEPH RUDY	3687	

SEARCHED			
Class	Subclass	Date	Examiner
705	28,30,34	10/19/2012	AJR
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SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Continuity data reviewed.	10/19/2012	AJR
Inventor name search conducted.	10/19/2012	AJR
Bibliographic data updated.	10/19/2012	AJR

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	12/694,451	RALEIGH, GREGORY G.	
	Examiner	Art Unit	
	ANDREW JOSEPH RUDY	3687	

ISSUE CLASSIFICATION

ORIGINAL						CROSS REFERENCE(S)							
CLASS				SUBCLASS		CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)						
455				408		455	411	414.1					
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XXXXXXXXXXXXXXXXXXXX (Assistant Examiner) (Date)		Total Claims Allowed: 25
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	27		57		87		117		147		177		207
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	29		59		89		119		149		179		209
	30		60		90		120		150		180		210

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	12694451
Filing Date	2010-01-27
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy, Andrew J
Attorney Docket Number	RALEP026

U.S.PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7609700		2009-10-27	Ying, Wen-Ping et al.	
	2	8255515		2012-08-28	Melman, David et al.	
	3	7945240		2011-05-17	Klock, Jacqueline et al.	
	4	7912056		2011-03-22	Brassem, Wayne	
	5	7920529		2011-04-05	Mahler, Roger et al.	
	6	8184530		2012-05-22	Swan, Tim L. et al.	
	7	8213363		2012-07-03	Ying, Wen-Ping et al.	
	8	8214536		2012-07-03	Zhao, Wen	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20080085707		2008-04-10	FADELL, Tony	

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FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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	Attorney Docket Number	RALEP026

CERTIFICATION STATEMENT

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OR

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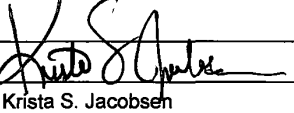
☐ See attached certification statement.

☒ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

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

Signature		Date (YYYY-MM-DD)	2012-11-02
Name/Print	Krista S. Jacobsen	Registration Number	59374

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Electronic Patent Application Fee Transmittal	
Application Number:	12694451
Filing Date:	27-Jan-2010
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP026 [26WV-160503]
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:	14140872
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026 [26WV-160503]
Receipt Date:	02-NOV-2012
Filing Date:	27-JAN-2010
Time Stamp:	17:46:51
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$180
RAM confirmation Number	4943
Deposit Account	505876
Authorized User	
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	P026Trans.pdf	299837 a4f123382d0c9f5fd6e54d7cfca27b87c16eb501	no	1
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	P026IDS.pdf	743119 953452367e16523efb214ee98b26c01bfa4cadcc	no	3
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Fee Worksheet (SB06)	fee-info.pdf	30573 1ca60633e382ac9e28f1465d6e4c907c4e52d142	no	2
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<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.

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Doc Code: TRAN.LET

Document Description: Transmittal Letter

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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	6

Application Number	12/694451
Filing Date	January 27, 2010
First Named Inventor	Gregory G. Raleigh
Art Unit	3687 Conf. 6041
Examiner Name	Andrew J. Rudy
Attorney Docket Number	RALEP026

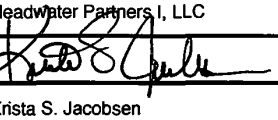
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- [ ] Fee Attached
- [ ] Amendment/Reply
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- [ ] Affidavits/declaration(s)
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- [x] Information Disclosure Statement
- [ ] Certified Copy of Priority 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
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- [ ] 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
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Remarks

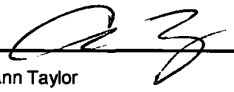
You are hereby authorized to charge any additional fee required or credit any overpayment to Deposit Account No. 50-5876.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Headwater Partners I, LLC		
Signature			
Printed name	Krista S. Jacobsen		
Date	November 2, 2012	Reg. No.	59374

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

Application Number	12694451
Filing Date	2010-01-27
First Named Inventor	Raleigh, Gregory G.
Art Unit	3687
Examiner Name	Rudy, Andrew J.
Attorney Docket Number	RALEP026

U.S.PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6502131		2002-12-31	Vaid, Aseem et al.	
	2	6505114		2003-01-07	Luciani, Sergio	
	3	6763000		2004-07-13	Walsh, Peter J.	
	4	6967958		2005-11-22	Ono, Yoshiyuki et al.	
	5	7644267		2010-01-05	Ylikoski, Martti et al.	
	6	7710932		2010-05-04	Muthuswamy, Sivakumar et al.	
	7	7881199		2011-02-01	Krstulich, Zlatko	
	8	7886047		2011-02-08	Potluri, Dora	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	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.	

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	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	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	

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	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	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	8160015		2012-04-17	Rashid, Mohammed H. et al.	

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	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	42	8108520		2012-01-31	Ruutu, Jussi et al.	
	43	7778643		2010-08-17	Laroia, Rajiv et al.	
	44	7668176		2010-02-23	Chuah, Mooi Choo	
	45	7515608		2009-04-07	Yuan, Yuan et al.	
	46	7251218		2007-07-31	Jorgensen, Jacob W.	
	47	7002920		2006-02-21	Ayyagari, Deepak et al.	
	48	7685131		2010-03-23	Batra, Vishal Singh et al.	
	49	7283561		2007-10-16	Picher-Dempsey, Heidi	
	50	7212491		2007-05-01	Koga, Takahiro	
	51	6683853		2004-01-27	Kannas, Chris et al.	
	52	8135392		2012-03-13	Marcellino, Chris et al.	

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	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

	53	7953808		2011-05-31	Sharp, Christopher Brooke et al.	
	54	8064896		2011-11-22	Bell, Kris M. et al.	

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20100144310		2010-06-10	Bedingfield Sr., James Carlton, et al.	
	2	20080132201		2008-06-05	Karlberg, Johan	
	3	20080081606		2008-04-03	Cole, Terry L.	
	4	20090248883		2009-10-01	Suryanarayana, Lalitha et al.	

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FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
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NON-PATENT LITERATURE DOCUMENTS

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

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	European Search Report and Opinion mailed July 25, 2012; 10736344.2-1246/2392090; PCT/US2010022238 [RALEP026]	☐

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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	First Named Inventor	Raleigh, Gregory G.
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	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

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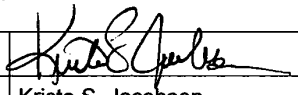
☐ See attached certification statement.

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☐ None

SIGNATURE

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Signature		Date (YYYY-MM-DD)	2012-10-09
Name/Print	Krista S. Jacobsen	Registration Number	59374

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Electronic Patent Application Fee Transmittal	
Application Number:	12694451
Filing Date:	27-Jan-2010
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP026 [26WV-160503]
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:	13946753
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026 [26WV-160503]
Receipt Date:	10-OCT-2012
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Application Type:	Utility under 35 USC 111(a)

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Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$180
RAM confirmation Number	7750
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Warnings:					
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2	Information Disclosure Statement (IDS) Form (SB08)	P026IDS.pdf	1607344 b9a916ac0792f0e855ef140941681b7973aebdb4	no	8
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Application Number	12/694451
Filing Date	January 27, 2010
First Named Inventor	Gregory G. Raleigh
Art Unit	3687 Conf. 6041
Examiner Name	Andrew J. Rudy
Attorney Docket Number	RALEP026

Total Number of Pages in This Submission: 10

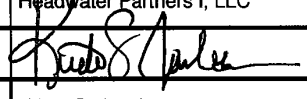
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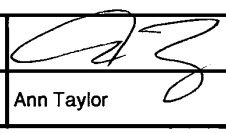
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Firm Name	Headwater Partners I, LLC		
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Printed name	Krista S. Jacobsen		
Date	October 9, 2012	Reg. No.	59374

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Raleigh	Examiner:	Rudy, Andrew J.
Serial No.:	12/694,451	Art Unit:	3687
Filed:	January 27, 2010	Conf. No.:	6041
Title:	Device Group Partitions and Settlement Platform		

Mail Stop Amendment
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AMENDMENT AND RESPONSE

Sir:

In response to the Office Action dated February 16, 2012, the deadline for response ending on August 16, 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 begin on page 9.

LISTING OF CLAIMS

Without prejudice and without surrender of any subject matter, please amend the claims as follows:

1. (Currently amended) A system, comprising:

a processor of a network device in communication with a wireless network, wherein the processor is configured to:

collect device generated service usage information for one or more devices in wireless communication with the system over[[on]] the wireless network; and

aggregate the device generated service usage information for a settlement platform for the one or more devices in wireless communication with the system over[[on]] the wireless network; and

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

2. (Currently amended) The system recited in claim 1, wherein the one or more devices are assigned to a device group partition, and wherein the settlement platform determines accounting and settlement information for one or more services for the one or more devices assigned to the[[a]] device group partition and distributes the accounting and settlement information to one or more of the following associated with the device group partition: a carrier, a distribution partner, a[[n]] mobile virtual network operator (MVNO), and a wholesale partner.

3. (Previously presented) The system recited in claim 1, wherein the device generated service usage information is translated into a syntax and a communication protocol that can be used by other network devices to augment or replace network generated service usage information for the one or more devices in wireless communication on the wireless network.

4. (Currently amended) The system recited in claim 1, wherein the device generated service usage information includes micro-charging data records (micro-CDRs).

5. (Currently amended) The system recited in claim 1, wherein the device generated service usage information includes micro-charging data records (micro-CDRs) collected by a service controller from a service processor executed on each of the one or more devices in wireless communication with the system over[[on]] the wireless network.

6. (Currently amended) The system recited in claim 1, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein at least one[[a]] ~~subset~~ of the micro-CDRs includes a transaction code for associating a monitored service usage with a service usage activity.

7. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is translated into a syntax and a communication protocol that can be used by other network devices to augment or replace network generated service usage information for the one or more devices in wireless communication with the system over[[on]] the wireless network, wherein the syntax is a charging data record (CDR), and wherein the device generated service usage information includes micro-charging data records (micro-CDRs).

8. (Previously presented) The system recited in claim 1, wherein the network device includes a service usage data store.

9. (Currently amended) The system recited in claim 1, wherein the network device includes a service usage data store that aggregates and mediates micro-charging data records (micro-CDRs) and network generated charging data records (CDRs) for the one or more devices in wireless communication with the system over[[on]] the wireless network.

10. (Previously presented) The system recited in claim 1, wherein the network device includes a service usage data store and a rules engine for aggregating and mediating the collected device generated service usage information.

11. (Currently amended) The system recited in claim 1, wherein the processor is further configured to:

collect network generated service usage information for the one or more devices in wireless communication with the system over[[on]] the wireless network.

12. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the processor is further configured to:

aggregate micro-CDRs for the one or more devices in wireless communication with the system over[[on]] the wireless network; and

apply a set of rules to the aggregated micro-CDRs using a rules engine to provide aggregated and mediated micro-CDRs to the settlement platform, wherein the settlement platform implements a service billing allocation [[and/]]or a revenue share among one or more partners, and wherein the revenue share includes a service based revenue share or a transactional based revenue share.

13. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), wherein the network device includes a CDR storage, aggregation, and mediation feed, and wherein the processor is further configured to:

aggregate micro-CDRs for the one or more devices in wireless communication with the system over[[on]] the wireless network;

apply a set of settlement platform rules to the aggregated micro-CDRs using a rules engine to generate a new set of CDRs for the one or more devices in wireless communication with the system over[[on]] the wireless network; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over[[on]] the wireless network to a billing interface or a billing system.

14. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device

generated service usage information includes micro-charging data records (micro-CDRs), and wherein the processor is further configured to:

aggregate micro-CDRs for the one or more devices in wireless communication with the system over[[on]] the wireless network;

verify at least a subset of the micro-CDRs;

apply a set of settlement platform rules to the aggregated and verified micro-CDRs using a rules engine to generate a new set of CDRs for the one or more devices in wireless communication with the system over[[on]] the wireless network; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over[[on]] the wireless network to a billing interface or a billing system.

15. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the processor is further configured to:

aggregate micro-CDRs for the one or more devices in wireless communication on the wireless network;

verify the micro-CDRs by comparing at least a subset of the micro-CDRs to a set of one or more network generated CDRs for the one or more devices in wireless communication with the system over[[on]] the wireless network;

apply a set of settlement platform rules to the aggregated and verified micro-CDRs using a rules engine to generate a new set of CDRs for the one or more devices in wireless communication with the system over[[on]] the wireless network; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over[[on]] the wireless network to a billing interface or a billing system.

16. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device

generated service usage information includes micro-charging data records (micro-CDRs), and wherein the processor is further configured to:

aggregate the micro-CDRs for the one or more devices in wireless communication with the system over[[on]] the wireless network;

apply a set of rules to the aggregated micro-CDRs using a rules engine to generate a new set of CDRs, wherein the set of rules includes a bill by account rule; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over[[on]] the wireless network to a billing interface or a billing system.

17. (Currently amended) The system recited in claim 1, wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the processor is further configured to:

aggregate the micro-CDRs for the one or more devices in wireless communication with the system over[[on]] the wireless network;

apply a set of rules to the aggregated micro-CDRs using a rules engine to generate a new set of CDRs, wherein the set of rules includes a bill by account rule; and

communicate the new set of CDRs for the one or more devices in wireless communication with the system over[[on]] the wireless network to a billing interface or a billing system, wherein at least one CDR in the new set of CDRs includes a billing offset.

18. (Currently amended) The system recited in claim 1, wherein the one or more devices are assigned to a device group partition, and wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-charging data records (micro-CDRs), and wherein the processor is further configured to:

communicate a new set of CDRs based at least in part on aggregated micro-CDRs for the one or more devices in wireless communication with the system over[[on]] the wireless network to the settlement platform, wherein the settlement platform determines accounting and settlement information for one or more services for the one or more devices assigned to the[[a]] device

group partition and distributes the accounting and settlement information to one or more of the following associated with the device group partition: a carrier, a distribution partner, a[[n]] mobile virtual network operator (MVNO), and a wholesale partner.

19. (Previously presented) The system recited in claim 1, wherein the processor is further configured to:

store the aggregated device generated service usage information; and

implement a settlement platform to mediate the device generated service usage information.

20. (Currently amended) The system recited in claim 1, wherein the processor is further configured to:

store the aggregated device generated service usage information; and

apply a set of settlement platform rules to mediate the device generated service usage information, wherein the set of settlement platform rules is[[are]] selected based at least in part on a device group partition determination for each of the one or more devices.

21. (Currently amended) The system recited in claim 1, wherein the processor is further configured to:

store the aggregated device generated service usage information;

apply a set of settlement platform rules to mediate the device generated service usage information, wherein the set of settlement platform rules is[[are]] selected based at least in part on a device group partition determination for each of the one or more devices; and

communicate a new set of charging data records (CDRs) to a billing interface based at least in part on the mediated device generated service usage information.

22. (Previously presented) The system recited in claim 1, wherein the processor is further configured to:

communicate the device generated service usage information to a billing interface, wherein the billing interface includes a settlement platform.

23. (Currently amended) The system recited in claim 1, wherein the processor is further configured to:

collect the device generated service usage information for the one or more devices in wireless communication with the system over[[on]] the wireless network from an intermediate networking device, wherein the device generated service usage information includes a transaction code for associating a user of a first device, the first device, [[and/]]or the intermediate networking device with the device generated service usage information, wherein the one or more devices include[[s]] the first device.

24. (Currently amended) A method, comprising:

collecting device generated service usage information for one or more devices in wireless communication with a network system over[[on]] a wireless network; and

aggregating the device generated service usage information for a settlement platform for the one or more devices in wireless communication with the network system over[[on]] the wireless network.

25. (Currently amended) A computer program product, the computer program product being embodied in a non-transitory computer readable storage medium and comprising computer instructions for:

collecting device generated service usage information for one or more devices in wireless communication with a network system over[[on]] a wireless network; and

aggregating the device generated service usage information for a settlement platform for the one or more devices in wireless communication with the network system over[[on]] the wireless network.

REMARKS

Claims 1-25 are pending and were rejected. Claims 1-2, 4-7, 9, 11-18, 20-21, and 23-25 are being amended. No new matter is being added. Reconsideration is respectfully requested.

In section 2, the Office Action objects to claims 2, 4-7, 9, 18, and 21 because each acronym needs to be clarified as to its meaning within the claim. Applicant is amending claims 2, 4-7, 9, 12-18, and 21 to clarify that "CDR" stands for "charging data record," "micro-CDR" stands for "micro-charging data record," and "MVNO" stands for "mobile virtual network operator." Applicant respectfully requests that the objection be withdrawn.

Claim Rejections – 35 U.S.C. § 102

In section 4, the Office Action rejects claims 1, 3-8, 10-17, and 19-25 under 35 U.S.C. § 102(b) as being anticipated by Kung et al. (U.S. 7,289,489) (hereinafter, "Kung").

Kung discloses an end-to-end system that provides least-cost routing for broadband multimedia communications in accordance with a user's selection of a data rate, quality-of-service, and other user selections. (Col. 4, ll. 4-8). Kung discloses placing a broadband residential gateway (BRG) in a residence, business, or government location to provide local control and connectivity to other customer premises equipment, such as, for example, personal computers, televisions, telephones, displays, wireless interfaces, remote controls, and others. (Col. 4, ll. 35-50; col. 19, ll. 1-11). The broadband residential gateway communicates with the other customer premise equipment through one or more of a telephone port connection, an Ethernet connection, a coaxial connection, a fiber distributed data interface (FDDI) connection, a wireless local area network (LAN) connection, and a firewire connection. (Col. 4, ll. 44-60).

The broadband residential gateway may also include a bus that allows information to be transferred between the internal hardware, processors, and ports of the broadband residential gateway. (Col. 19, ll. 19-25). The bus may include memory for storing information and operating data within the broadband residential gateway, an operating program store for storing at least portions of the operating programs for the broadband residential gateway and/or interconnected devices, and/or a distributed processing controller for controlling the broadband residential gateway. (Col. 19, ll. 25-28, 60-63; col. 19, l. 64 – col. 20, l. 1; col. 20, ll. 4-7).

The broadband residential gateway provides an interface between the customer premise equipment and the external network (i.e., the remainder of the broadband network). (Col. 18, ll. 55-58). The broadband residential gateway is connected to the remainder of the broadband network by a "suitable communication mechanism," which, Kung emphasizes, is most preferably a hybrid fiber-coaxial network. (Col. 5, ll. 23-30; col. 18, ll. 61-67; Fig. 1).

The remainder of the broadband network potentially includes various interconnected head-end hubs, other networks (e.g., IP networks, ATM networks, public switched telephone networks, signaling system 7 networks, the Internet, or wireless networks), private branch exchanges, other terminals (e.g., other computers, wireless devices, and stand-alone broadband residential gateways), an administration center, a secure network management data network (e.g., a network operations center), a billing system, and a control center referred to as an IP central station. (Col. 5, l. 56 – col. 6, l. 8; Fig. 1).

Kung describes the functions of various components in the remainder of the broadband network. For example:

The IP central station includes servers and/or gateways to "provide the necessary intelligence and traffic management capabilities to enable information, such as IP telephony signals, to travel through the broadband network." (Col. 6, ll. 39-44). The IP central station may include a central router to interconnect various servers and gateways in the IP central station. (Col. 7, l. 65 – col. 8, l. 1; Fig. 2). Kung discloses that the central router may include one or more servers:

The trivial file transfer protocol server transfers information to or from a broadband residential gateway. (Col. 9, ll. 27-29). For example, the trivial file transfer protocol server provides Data Over Cable Service Interface Specifications (DOCSIS) configuration information containing quality-of-service (QoS) parameters, terminal configuration, and other information required for the broadband residential gateway to operate. (Col. 9, ll. 29-35).

The least cost server enables the system to determine alternative routes available for a communication and to determine the least cost routing of telephone and data transmission throughout the network. (Col. 9, ll. 61-64). The least cost server may also allow broadband

residential gateway users the ability to select among a service provider, data rate, cost, and quality-of-service, and it may allow users to add parties to or delete parties from a communication. (Col. 9, l. 66 – col. 10, l. 3). The least cost server also coordinates with the trivial file transfer protocol server to obtain remote terminal configuration data. (Col. 10, ll. 3-5).

The call manager provides a centralized call control center for supporting call set-up, call change, and call tear-down in the broadband network. (Col. 11, ll. 12-15). The call manager may also maintain the call states for each call it handles and respond to events during the processing of a call, such as call state changes, call feature changes or triggering events, changes in the status of lines and trunks, and/or error conditions. (Col. 11, ll. 50-59). The call manager may also include one or more databases to store information such as (1) an identification of what resources are connected to the broadband network and their current states, (2) an indication of which gateway serves which circuits in a trunk, (3) a user's personal profile that indicates whether a call is authorized, identifies what services a line supports, and determines whether a telephone number is on or off the integrated IP communication network, (4) routing information that enables the IP central station to choose the correct trunk as a function of the called number, and (5) information related to number portability. (Col. 12, ll. 31-50).

The multimedia server provides support for multimedia messaging services and/or the overall management of multimedia voice and mail messages transmitted across the broadband network, including e-mail messages, voice mail messages, and/or video mail messages. (Col. 12, l. 66 – col. 13, l. 6).

In addition to the various servers described above, the IP central station may include one or more gateways. For example:

The accounting gateway receives messages from the call manager, such as when a call is first established and when the call terminates. (Col. 16, ll. 19-24). The accounting gateway also receives messages from the call manager when there is a change in the required bit rate, the quality-of-service, the preferred service provider for the communication, or to add/delete parties to/from a call. (Col. 16, ll. 25-29). Messages from the call manager provide details about the calling and called parties, the timing of the call set-up, and the duration, data rate, and quality of service delivered for each segment of the call. (Col. 16, ll. 30-33). The accounting gateway

stores usage records and may distribute them to, for example, a billing center for processing. (Col. 16, ll. 35-37). The accounting gateway may accommodate multiple days worth of accounting records, such as for one day, two days, three days, four days, a week, or a month. (Col. 16, ll. 41-44).

The multimedia gateway is connected to the public switched telephone network and converts IP-based multimedia packets into standard public switched telephone network traffic. (Col. 17, ll. 46-49).

In rejecting claims 1, 3-8, 10-17, and 19-25, the Office Action states that Kung discloses, e.g., in Figures 1-11C and related text and the abstract, a wireless network system (e.g., col. 4, ll. 4-34); an accounting gateway storing usage information (e.g., col. 16, ll. 19-55); a memory (e.g. col. 19, ll. 60-63); an aggregation device (e.g., col. 37, ll. 15-34); a processor (e.g., col. 16, ll. 41-51); micro-CDRs (e.g., accounting gateway 240); a mobile communications (e.g., col. 2, ll. 14-41); and service usage (e.g., col. 12, l. 66 – col. 13, l. 17).

Applicant is amending independent claims 1, 24, and 25 to clarify that the one or more devices are in wireless communication with the system over the wireless network. Applicant respectfully submits that Kung fails to disclose each and every limitation of the claims as amended.

Claim 1

As amended, claim 1 reads:

> A system, comprising:
>
> a processor of a network device in communication with a wireless network, wherein the processor is configured to:
>
> collect device generated service usage information for one or more devices in wireless communication with the system over the wireless network; and
>
> aggregate the device generated service usage information for a settlement platform for the one or more devices in wireless communication with the system over the wireless network; and

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

Applicant respectfully submits that Kung fails to disclose "a processor of a network device . . . configured to collect device generated service usage information for one or more devices in wireless communication with the system over the wireless network" and "a processor of a network device . . . configured to aggregate the device generated service usage information for a settlement platform for the one or more devices in wireless communication with the system over the wireless network" because the only wireless network Kung discloses is between the broadband residential gateway and the other customer premise equipment, and Kung does not disclose that the broadband residential gateway collects service usage information generated by the other customer premise equipment.

Although Kung describes various components of a broadband network—for example, the broadband residential gateway, ATM and IP networks, head-end hubs, an administration center (i.e., a billing and local service management system), an IP central station, a secure management data network (i.e., billing, call tracking, and provision of services), and a billing system (*see, e.g.*, Fig. 1)—only the broadband residential gateway is potentially in wireless communication with the other customer premise equipment. Therefore, because only the broadband residential gateway and the other customer premise equipment communicate wirelessly, if Kung discloses "one or more devices in wireless communication with the system over the wireless network," those one or more devices are the other customer premise equipment that communicates over a wireless network with the broadband residential gateway, and the broadband residential gateway is the network device.

Kung discloses that the broadband residential gateway includes one or more processors (*see, e.g.*, col. 21, ll. 45-49), but the functions those processors perform do not include collecting device generated service information from the other customer premise equipment. *See, e.g.*, col. 21, l. 55 – col. 22, l. 8 (processors perform telephony applications such as call set-up, call re-routing, QoS or data rate changes, call tear down, etc.; management functions such as distribution and coordination of data within various devices of broadband residential gateway; video processing functions; auxiliary processing for off-loading numeric processing; interface

input/output processing; and functions for operation, maintenance and provisioning processing). Kung does not disclose that the broadband residential gateway includes a processor configured to collect service usage information generated by any of the other customer premise equipment that is potentially in wireless communication with the broadband residential gateway.

Therefore, Kung does not disclose "a processor of a network device . . . configured to collect device generated service usage information for one or more devices in wireless communication with the system over the wireless network." It follows, therefore, that because Kung does not disclose collecting device generated service usage information, Kung also fails to disclose "a processor of a network device . . . configured to aggregate the device generated service usage information for a settlement platform for the one or more devices in wireless communication with the system over the wireless network."

Moreover, even if Kung disclosed using a wireless network instead of a hybrid fiber-coaxial network for communications between the broadband residential gateway and the remainder of the broadband network—which it does not—Kung still would not disclose "a processor of a network device . . . configured to collect device generated service usage information for one or more devices in wireless communication with the system over the wireless network" because none of the network components that communicates with the broadband residential gateway over the hybrid fiber-coaxial network is "configured to collect *device generated service usage information*" for either the broadband residential gateway or the customer premise equipment coupled to the broadband residential gateway.

Kung discloses that the trivial file transfer protocol server in the IP central station transfers information to or from the broadband residential gateway. *See, e.g.*, col. 9, ll. 30-35 ("the trivial file transfer protocol server provides Data Over Cable Service Interface Specifications (DOCSIS) configuration information containing QoS parameters, terminal configuration and other information required for the broadband residential gateway 300 to operate optimally"); col. 10, ll. 3-5 (least cost server coordinates with trivial file transfer protocol server to obtain "remote terminal configuration data"). But Kung does not disclose that either the customer premise equipment or the broadband residential gateway generates *service usage information* or that the trivial file transfer server collects such information. Therefore, the trivial

file transfer protocol server is not "a processor of a network device . . . configured to collect device generated service usage information for one or more devices in wireless communication with the system over the wireless network."

Likewise, although the least cost server in the IP central station may allow "one or more broadband residential gateway users" to select a service provider, a data rate, a cost, or a quality of service, or allow users to add parties to or delete parties from a communication (col. 9, l. 66 - col. 10, l. 3), Kung does not disclose that any of these parameters are generated by the broadband residential gateway itself or by the customer premise equipment coupled wirelessly to the broadband residential gateway. Therefore, the least cost server is not "a processor of a network device . . . configured to collect device generated service usage information for one or more devices in wireless communication with the system over the wireless network."

In addition, although the call manager in the IP central station receives messages that occur during the processing of a call, such as call state changes, call feature changes or triggering events, changes in the status of lines and trunks, and/or error conditions, (col. 11, ll. 50-59), Kung does not disclose that any of this information is generated by the broadband residential gateway or by any of the devices coupled to the broadband residential gateway by the wireless network. Therefore, the call manager is not "a processor of a network device . . . configured to collect device generated service usage information for one or more devices in wireless communication with the system over the wireless network."

Moreover, although the accounting gateway receives messages from the call manager when a call is first established, when a call terminates, and when there is a change in the required bit rate, the quality-of-service, the preferred service provider for the communication, or to add/delete parties to/from a call (col. 16, ll. 25-29), the accounting gateway does not receive *device generated* information. Even if some of this information is "service usage information," it is not *device generated service usage information* because it is not generated by either the broadband residential gateway or the customer premise equipment coupled to the broadband residential gateway. Kung discloses only that the accounting gateway receives messages from the call manager. But both the accounting gateway and the call manager are within the IP central station, which is part of the network system. Therefore, the accounting gateway is not "a

processor of a network device . . . configured to collect device generated service usage information for one or more devices in wireless communication with the system over the wireless network."

Furthermore, although the multimedia server provides support for multimedia messaging services and management of multimedia voice and mail messages (e.g., e-mail messages, voice mail messages, and video mail messages) (col. 12, l. 66 - col. 13, l. 6), some of which may be generated by customer premise equipment coupled to the broadband residential gateway, these messages constitute the service itself and are not *service usage information.* Therefore, the multimedia server is not "a processor of a network device . . . configured to collect device generated service usage information for one or more devices in wireless communication with the system over the wireless network."

Thus, Applicant respectfully submits that Kung does not disclose "a processor of a network device . . . configured to collect device generated service usage information for one or more devices in wireless communication with the system over the wireless network." Because Kung does not disclose "a processor of a network device . . . configured to collect device generated service usage information for one or more devices in wireless communication with the system over the wireless network," it follows that Kung does not disclose "a processor of a network device . . . configured to aggregate the device generated service usage information for a settlement platform for the one or more devices in wireless communication with the system over the wireless network."

Therefore, for at least the reasons stated above, Applicant respectfully submits that claim 1, as amended, is patentable over Kung, and Applicant respectfully requests that the 35 U.S.C. § 102(b) rejection be withdrawn.

Claim 24

As amended, claim 24 recites:

A method, comprising:

> collecting device generated service usage information for one or more devices in wireless communication with a network system over a wireless network; and
>
> aggregating the device generated service usage information for a settlement platform for the one or more devices in wireless communication with the network system over the wireless network.

Applicant respectfully submits that Kung fails to disclose the limitations of claim 24, as amended, because Kung does not disclose "collecting device generated service usage information for one or more devices in wireless communication with a network system over a wireless network," and therefore Kung does not disclose "aggregating the device generated service usage information for a settlement platform for the one or more devices in wireless communication with the network system over the wireless network."

As explained above, Kung only discloses using a wireless network between the broadband residential gateway and the other customer premise equipment, and Kung does not disclose collecting service usage information generated by the other customer premise equipment. As also explained above, Kung does not disclose that the network between the broadband residential gateway and the remainder of the broadband network can be a wireless network, but even if Kung did disclose doing so, Kung would still fail to disclose collecting device generated service usage information for one or more devices in wireless communication with the system over a wireless network because Kung does not disclose collecting service usage information generated by either the broadband residential gateway or the other customer premise equipment. Consequently, Kung does not disclose "collecting device generated service usage information for one or more devices in wireless communication with a network system over a wireless network." It follows, therefore, that Kung also does not disclose "aggregating the device generated service usage information for a settlement platform for the one or more devices in wireless communication with the network system over the wireless network."

Thus, for at least the reasons stated above, Applicant respectfully submits that claim 24, as amended, is patentable over Kung, and Applicant respectfully requests that the 35 U.S.C. § 102(b) rejection be withdrawn.

Claim 25

As amended, claim 25 recites:

> A computer program product, the computer program product being embodied in a non-transitory computer readable storage medium and comprising computer instructions for:
>
> collecting device generated service usage information for one or more devices in wireless communication with a network system over a wireless network; and
>
> aggregating the device generated service usage information for a settlement platform for the one or more devices in wireless communication with the network system over the wireless network.

Applicant respectfully submits that claim 25, as amended, is patentable over Kung for at least the same reasons that claim 24 is patentable over Kung. In particular, Applicant respectfully submits that Kung does not disclose "collecting device generated service usage information for one or more devices in wireless communication with a network system over a wireless network," and therefore Kung does not disclose "aggregating the device generated service usage information for a settlement platform for the one or more devices in wireless communication with the network system over the wireless network." Therefore, Applicant respectfully requests that the 35 U.S.C. § 102(b) rejection be withdrawn.

Claims 3-8, 10-17, and 19-23

Claims 3-8, 10-17, and 19-23 depend directly from claim 1. Therefore, Applicant respectfully submits that claims 3-8, 10-17, and 19-23 are also patentable over Kung, and Applicant respectfully requests that the 35 U.S.C. § 102(b) rejections be withdrawn.

Claim Rejections – 35 U.S.C. § 103

In Section 5, the Office Action rejects claims 2, 9, and 18 under 35 U.S.C. § 103(a) as being unpatentable over Kung in view of Mashinsky et al. (U.S. 2003/0050070 A1) (hereinafter, "Mashinsky").

Mashinsky discloses a method and device for dynamically allocating purchased network capacity to devices of different origin and ownership. (Abstract). Mashinsky seeks to mitigate the problem of "unbalanced usage" in which a wireless device subscribing to service with Carrier A is within range of both an at-capacity tower provided by Carrier A and an available-capacity tower provided by Carrier B, but the device cannot communicate because the device cannot access the tower of Carrier B. (¶ [0006]). Mashinsky discloses allowing a service provider to purchase a small number of accounts from each network targeted for roaming by the service provider's customers, loaning these accounts on an as-needed basis to its customers, and allocating fractional service usage associated with the loaned accounts to the devices that used the accounts. (¶¶ [0016], [0056]). For example, Mashinsky discloses tracking usage in usage records that are later sent to a data clearing house to establish charges. (¶ [0054]). Mashinsky discloses a wireless device with two or more transceivers, one of which supports user communications and another of which scans the airwaves searching for a more efficient connection for the user communications. (¶¶ [0043]-[0044]).

In rejecting claims 2, 9, and 18, the Office Action states that Kung does not disclose distributing accounting and settlement information, but that Mashinsky teaches such in, e.g., paragraphs [0004]-[0006], [0054]-[0055], and [0084]. The Office Action states that to have provided such along with the teachings of Kung would have been obvious to one of ordinary skill in the art in view of Mashinsky.

Claim 2

As amended, claim 2 recites:

> The system recited in claim 1, wherein the one or more devices are assigned to a device group partition, and wherein the settlement platform determines accounting and settlement information for one or more services for the one or more devices assigned to the device group partition and distributes the accounting and settlement information to one or more of the following associated with the device group partition: a carrier, a distribution partner, a mobile virtual network operator (MVNO), and a wholesale partner.

Applicant respectfully submits that claim 2, as amended, is nonobvious over Kung in view of Mashinsky because neither Kung nor Mashinsky discloses "a processor of a network device . . . configured to collect device generated service usage information for one or more devices in wireless communication with the system over the wireless network" or "a processor of a network device . . . configured to aggregate the device generated service usage information for a settlement platform for the one or more devices in wireless communication with the system over the wireless network." As discussed above, Kung does not disclose either of these limitations, and Mashinsky also fails to do so. All service usage information disclosed in Mashinsky is network generated service usage information. *See, e.g.*, ¶ [0056] (purchased network capacity dynamically allocated to devices, and central operator administers rebilling and reconciliation of usage to each device). Therefore, like Kung, Mashinsky does not disclose "a processor of a network device . . . configured to collect device generated service usage information for one or more devices in wireless communication with the system over the wireless network" or "a processor of a network device . . . configured to aggregate the device generated service usage information for a settlement platform for the one or more devices in wireless communication with the system over the wireless network."

Moreover, even if one or both of Kung and Mashinsky disclosed "a processor of a network device . . . configured to collect device generated service usage information for one or more devices in wireless communication with the system over the wireless network" and "a processor of a network device . . . configured to aggregate the device generated service usage information for a settlement platform for the one or more devices in wireless communication with the system over the wireless network," which they do not, Applicant respectfully submits that Mashinsky does not teach or suggest all limitations of claim 2. In particular, Mashinsky does not disclose or contemplate that the one or more devices are assigned to a device group partition, nor does it disclose a settlement platform that distributes the accounting and settlement information to one or more of a carrier, a distribution partner, a mobile virtual network operator (MVNO), and a wholesale partner associated with the device group partition.

Mashinsky discloses only that the "central system operator administrates the rebilling and reconciliation of any fractional usage [of the pooled accounts] to *each device*." (¶ [0056], emphasis added). Thus, Mashinsky does not contemplate or disclose that devices are assigned to

a device group partition. Because Mashinsky does not contemplate that devices are assigned to a device group partition, Mashinsky also does not contemplate that a carrier, a distribution partner, an MVNO, or a wholesale partner is associated with such device group partition. Finally, Mashinsky does not contemplate or disclose distributing accounting and settlement information to a carrier, a distribution partner, an MVNO, or a wholesale partner associated with the device group partition. Rather, Mashinsky discloses allocating fractional usage of the pooled accounts to the individual devices that used those accounts.

Therefore, Applicant respectfully submits that claim 2 is nonobvious over Kung in view of Mashinsky, and Applicant respectfully requests that the 35 U.S.C. § 103(a) rejection be withdrawn.

Claim 9

As amended, claim 9 recites:

> The system recited in claim 1, wherein the network device includes a service usage data store that aggregates and mediates micro-charging data records (micro-CDRs) and network generated charging data records (CDRs) for the one or more devices in wireless communication with the system over the wireless network.

Applicant respectfully notes that claim 9 does not include the phrase "determining accounting and settlement information," which the Office Action discusses in the rejection of claim 9. Applicant respectfully submits that because claim 9 depends directly from claim 1, and, as explained above, claim 1 is patentable over Kung, claim 9 is also patentable over Kung for at least the same reasons that claim 1 is patentable over Kung. Applicant therefore respectfully requests that the 35 U.S.C. § 103(a) rejection be withdrawn.

Claim 18

As amended, claim 18 recites:

> The system recited in claim 1, wherein the one or more devices are assigned to a device group partition, and wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage

information includes micro-charging data records (micro-CDRs), and wherein the processor is further configured to:

communicate a new set of CDRs based at least in part on aggregated micro-CDRs for the one or more devices in wireless communication with the system over the wireless network to the settlement platform, wherein the settlement platform determines accounting and settlement information for one or more services for the one or more devices assigned to the device group partition and distributes the accounting and settlement information to one or more of the following associated with the device group partition: a carrier, a distribution partner, a mobile virtual network operator (MVNO), and a wholesale partner.

Applicant respectfully submits that claim 18, as amended, is nonobvious over Kung in view of Mashinsky for at least the same reasons that claim 2, as amended, is nonobvious over Kung in view of Mashinsky. In particular, neither Kung nor Mashinsky discloses "a processor of a network device . . . configured to collect device generated service usage information for one or more devices in wireless communication with the system over the wireless network" or "a processor of a network device . . . configured to aggregate the device generated service usage information for a settlement platform for the one or more devices in wireless communication with the system over the wireless network." In addition, Mashinsky does not disclose that devices are assigned to a device group partition or distributing accounting and settlement information to a carrier, a distribution partner, a mobile virtual network operator (MVNO), or a wholesale partner associated with the device group partition.

Therefore, Applicant respectfully submits that claim 18, as amended, is nonobvious over Kung in view of Mashinsky, and Applicant respectfully requests that the 35 U.S.C. § 103(a) rejection be withdrawn.

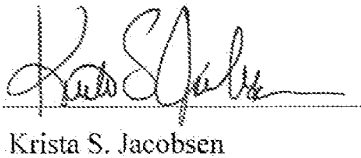
CONCLUSION

Applicant respectfully requests entry of these amendments as provided herein. The application is believed to be in condition for allowance, and a Notice of Allowance is hereby respectfully requested. If the Examiner has any questions or needs any additional information, the Examiner is invited to contact the undersigned.

The Commissioner is authorized to charge any fee deficiency or credit any overpayment to Deposit Account 50-5876.

Respectfully submitted,

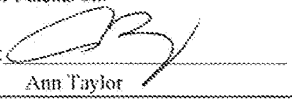
Date: Aug. 14, 2012

By: 

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Date: Aug 14, 2012 By: 

Ann Taylor

Electronic Patent Application Fee Transmittal	
Application Number:	12694451
Filing Date:	27-Jan-2010
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP026 [26WV-160503]
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($)
Miscellaneous:				
			Total in USD ($)	**635**

Electronic Acknowledgement Receipt	
EFS ID:	13497720
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026 [26WV-160503]
Receipt Date:	14-AUG-2012
Filing Date:	27-JAN-2010
Time Stamp:	20:11:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$635
RAM confirmation Number	6569
Deposit Account	505876
Authorized User	
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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	Trans.pdf	365630 591a2f7c8450ad982344ab7116b18e06892 4fd61	no	1
Warnings:					
Information:					
2	Extension of Time	Exten.pdf	348224 c639ae25cf82ea8936de1415f36da2c3620a 49ff	no	1
Warnings:					
Information:					
3		Amend.pdf	3428843 1bf4a6181e68bf7ea823dddefb595a010c28 a378	yes	23

Multipart Description/PDF files in .zip description

Document Description	Start	End
Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Claims	2	8
Applicant Arguments/Remarks Made in an Amendment	9	23

Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30688 1dd4728fbec2a0e2fe5bc67b60057420c19 69c18	no	2
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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

New International Application Filed with the USPTO as a Receiving Office
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TRANSMITTAL FORM

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Total Number of Pages in This Submission: 24

Application Number	12/694,451
Filing Date	January 27, 2010
First Named Inventor	Gregory G. Raleigh
Art Unit	3687 Conf. No.: 6041
Examiner Name	Andrew J. Rudy
Attorney Docket Number	RALEP026

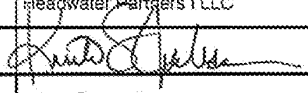
ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☑ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☑ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☐ Other Enclosure(s) (please identify below):

Remarks

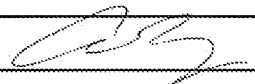
You are hereby authorized to charge any additional fee required or credit any overpayment to Deposit Account No. 50-5676.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Headwater Partners I LLC		
Signature			
Printed name	Krista S. Jacobsen		
Date	August 14, 2012	Reg. No.	59374

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Signature			
Typed or printed name	Ann Taylor	Date	August 14, 2012

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)	Docket Number (Optional) RALEP026
Application Number 12/694,451	Filed January 27, 2010
For Device Group Partitions and Settlement Platform	
Art Unit 3687 Conf. No. 6041	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 50-5876.

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 59374

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



Signature — August 14, 2012 (Date)

Krista S. Jacobsen (Typed or printed name) — 650-517-2798 (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 _____ forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PTO/SB/06 (07-06)
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
12/694,451	01/27/2010	

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	08/14/2012	(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))	* 25	Minus	** 25	= 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:
/TAMARA DARKO/

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Doc Code: TRAN.LET

Document Description: Transmittal Letter

PTO/SB/21 (07-09)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	12/694,451
Filing Date	2010-01-27
First Named Inventor	Gregory G. Raleigh
Art Unit	3687 Cont.: 6041
Examiner Name	Rudy, Andrew J
Attorney Docket Number	RALEP026

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☑ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☐ Other Enclosure(s) (please identify below):

Remarks

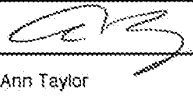
You are hereby authorized to charge any additional fee required or credit any overpayment to Deposit Account No. 50-5876.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Headwater Partners I LLC		
Signature			
Printed name	Krista S. Jacobsen		
Date	August 13, 2012	Reg. No.	59,374

CERTIFICATE OF TRANSMISSION/MAILING

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Signature			
Typed or printed name	Ann Taylor	Date	August 13, 2012

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99**)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP026

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	5794142		1998-08-11	Vanttila, Jaakko et al.	
	2	5903845		1999-05-11	Buhrmann, Michael et al.	
	3	5933778		1999-08-03	Buhrmann, Michael et al.	
	4	6078953		2000-06-20	Vaid, Aseem et al.	
	5	6317584		2001-11-13	Abu-Amara, Hosame et al.	
	6	6418147		2002-07-09	Wiedeman, Robert A	
	7	6765864		2004-07-20	Natarajan, Shankar et al.	
	8	6829596		2004-12-07	Frazee, Steve	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP026

	9	7024200		2006-04-04	McKenna, Daniel B. et al.	
	10	7366497		2008-04-29	Nagata, Hideaki	
	11	7388950		2008-06-17	Elsey, Nicholas J. et al.	
	12	7450927		2008-11-11	Creswell, Carroll W. et al.	
	13	7499537		2009-03-03	Elsey, Nicholas J. et al.	
	14	7610328		2009-10-27	Haase, Oliver et al.	
	15	7620162		2009-11-17	Aaron, Jeffrey A. et al.	
	16	7650137		2010-01-19	Jobs, Steven P. et al.	
	17	7693720		2010-04-06	Kennewick, Robert A. et al.	
	18	7734784		2010-06-08	Araujo, Wladimir et al.	
	19	7747699		2010-06-29	Prueitt, James K. et al.	

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	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP026

	20	7792708		2010-09-07	Alva, Jessi	
	21	7797401		2010-09-14	Stewart, Hugh Donal et al.	
	22	7822837		2010-10-26	Urban, Mark et al.	
	23	7949529		2011-05-24	Weider, Chris et al.	
	24	8023425		2011-09-20	Raleigh, Gregory G.	
	25	8095666		2012-01-10	Schmidt, Jonathan E. et al.	
	26	8099077		2012-01-17	Chowdhury, Amor et al.	
	27	8099517		2012-01-17	Jia, Lujun R. et al.	
	28	8170553		2012-05-01	Bennett, James D.	
	29	7984130		2011-07-19	Bogineni, Kalyani et al.	
	30	8019687		2011-09-13	Wang, Feng Chi et al.	

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	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP026

	31	8144591		2012-03-27	Ghai, Rajat et al.	
	32	7336960		2008-02-26	Zavalkovsky, Arthur et al.	
	33	8194549		2012-06-05	Huber, Kurt Donald et al.	
	34	6606744		2003-08-12	Mikurak, Michael G.	
	35	8190675		2012-05-29	Tribbett, David	
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	37	7069248		2006-06-27	Huber, Adriano	
	38	6574465		2003-06-03	Marsh, William et al.	

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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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
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U.S.PATENT APPLICATION PUBLICATIONS						
Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20030013434		2003-01-16	Rosenberg, Dave H. et al.	
	2	20030018524		2003-01-23	Fishman, Dan et al.	
	3	20030046396		2003-03-06	Richter, Roger K.	
	4	20030220984		2003-11-27	Jones, Paul David et al.	
	5	20040021697		2004-02-05	Beaton, Brian Finlay et al.	

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	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP026

	6	20040107360		2004-06-03	Herrmann, Conrad K. et al.	
	7	20040249918		2004-12-09	Sunshine, Roger N.	
	8	20050048950		2005-03-03	Morper, Hans-Jochen	
	9	20060112016		2006-05-25	Ishibashi, Yoshihito	
	10	20060258341		2006-11-16	Miller, Quentin S.C. et al.	
	11	20070061243		2007-03-15	Ramer, Jorey et al.	
	12	20070282896		2007-12-06	Wydroug, Zoe M. et al.	
	13	20080010452		2008-01-10	Holtzman, Michael et al.	
	14	20080060066		2008-03-06	Wynn, Simon et al.	
	15	20080062900		2008-03-13	Rao, Bindu Rama	
	16	20080164304		2008-07-10	Narasimhan, Subram et al.	

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	Art Unit	3687
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP026

	17	20080184127		2008-07-31	Rafey, Richter A. et al.	
	18	20080207167		2008-08-28	Bugenhagen, Michael K.	
	19	20080221951		2008-09-11	Stanforth, Peter	
	20	20080311885		2008-12-18	Dawson, Christopher James et al.	
	21	20080319879		2008-12-25	Carroll, Jim et al.	
	22	20090005005		2009-01-01	Forstall, Scott et al.	
	23	20090013157		2009-01-08	Beaule, Stephane	
	24	20090068984		2009-03-12	Burnett, R. Alan	
	25	20090079699		2009-03-26	SUN, JIAN	
	26	20090286507		2009-11-19	O'Neil, Douglas R. et al.	
	27	20100017506		2010-01-21	Fadell, Anthony	

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	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP026

	28	20100191576		2010-07-29	Raleigh, Gregory G.	
	29	20100191612		2010-07-29	Raleigh, Gregory G.	
	30	20100192212		2010-07-29	Raleigh, Gregory G.	
	31	20100195503		2010-08-05	Raleigh, Gregory G.	
	32	20110126141		2011-05-26	King, Bennett M. et al.	
	33	20100325420		2010-12-23	Kanekar, Tushar	
	34	20100103820		2010-04-29	Fuller, Randy et al.	
	35	20070254675		2007-11-01	Zorlu Ozer, Sebnem et al.	
	36	20080005285		2008-01-03	Robinson, James David et al.	
	37	20080256593		2008-10-16	Vinberg, Anders B. et al.	
	38	20090077622		2009-03-19	Baum, Marc et al.	

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	Art Unit	3687
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	Attorney Docket Number	RALEP026

	39	20090113514		2009-04-30	Hu, Q. James	
	40	20090288140		2009-11-19	Huber, Kurt Donald et al.	
	41	20100042675		2010-02-18	FUJII, Hiroshi	
	42	20040132427		2004-07-08	Lee, Wan-Yeon et al.	

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FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2010088413	WO		2010-08-05	Headwater Partners I LLC		☐

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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		☐

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*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.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J.
	Attorney Docket Number	RALEP026

[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	12694451
	Filing Date	2010-01-27
	First Named Inventor	Raleigh, Gregory G.
	Art Unit	3687
	Examiner Name	Rudy, Andrew J
	Attorney Docket Number	RALEP026

CERTIFICATION STATEMENT

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

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

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

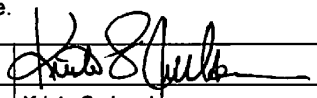
☐ See attached certification statement.

☒ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

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

Signature		Date (YYYY-MM-DD)	2012-08-13
Name/Print	Krista S. Jacobsen	Registration Number	59,374

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

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

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

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

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

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

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

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

Electronic Patent Application Fee Transmittal	
Application Number:	12694451
Filing Date:	27-Jan-2010
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Filer:	Krista Susan Jacobsen/Ann Taylor
Attorney Docket Number:	RALEP026 [26WV-160503]
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:	13487895
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026 [26WV-160503]
Receipt Date:	13-AUG-2012
Filing Date:	27-JAN-2010
Time Stamp:	23:34:25
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	8226
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	Information Disclosure Statement (IDS) Form (SB08)	Trans.pdf	366342 647019b5aacb1f9cdd6cbcd6220d2f3a062e79eb	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Information Disclosure Statement (IDS) Form (SB08)	IDS.pdf	1444228 accea21b32977aa20680873823c3559580a711e4	no	12
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Foreign Reference	WO2010.pdf	8109078 055807212236103389 26e7c7d074f9ec8d64dd4a	no	97
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30573 2e1c805540b93a7997d4fa6d0bd93286fbd18b92	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	9950221		

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
12/694,451	01/27/2010	Gregory G. Raleigh	26WV-160503 [RALEP026]

CONFIRMATION NO. 6041

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

POWER OF ATTORNEY NOTICE

OC000000055642921

Date Mailed: 07/31/2012

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/16/2012.

- 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).

/agizaw/

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
12/694,451	01/27/2010	Gregory G. Raleigh	26WV-160503 [RALEP026]

CONFIRMATION NO. 6041

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

POA ACCEPTANCE LETTER

OC000000055642940

Date Mailed: 07/31/2012

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/16/2012.

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.

/agizaw/

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

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JUL 16 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.

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

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Gregory G. Raleigh

Application No./Patent No.: 12/694,451 Filed/Issue Date: January 27, 2010

Entitled: Device Group Partitions and Settlement Platform

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 024248, Frame 0164, or for which a copy therefore is attached.

OR

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

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

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

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

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

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

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

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

Signature — July 16, 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.

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Date:	July 16, 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 12/694,451.

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

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/694,451	01/27/2010	Gregory G. Raleigh	26WV-160503 [RALEP026]	6041

69849 7590 02/16/2012

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
02/16/2012	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)	
	12/694,451	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) 1-25 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) 1-25 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 1-25 are pending.

2. Claims 2, 4-7, 9, 18 and 21are objected to. Each acronym needs to be clarified as to its meaning within the claim, e.g. see claim 12.

Claim Rejections - 35 USC § 102

3. 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.

4. Claims 1, 3-8, 10-17 and 19-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Kung et al., US 7,289,489 B1.

Kung discloses, e.g. Figs. 1-11C and related text, abstract, a wireless network system, e.g. cols. 4, lines 4-34, an accounting gateway, e.g. 240 storing usage information, e.g. col. 16, lines 19-55, a memory, e.g. 322, col. 19, an aggregation device, e.g. col. 37, lines 15-34, processor, col. 16, lines 41-51, micro CDR's, e.g. 240, a mobile communications, e.g. col. 2, lines 14-41, and service usage, e.g. cols. 12-13, lines 66-17.

Claim Rejections - 35 USC § 103

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

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

5. Claims 2, 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kung et al., US 7,289,489 B1 in view of Mashinsky et al., US 2003/0050070 A1.

Kung does not disclose distributing accounting and settlement information. Mashinsky teaches such, e.g. [0004-0006, 0054-0055, 0084]. To have provided such along with the teachings of Kung would have been obvious to one of ordinary skill in the art in view of Mashinsky.

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. 12/694,451	Applicant(s)/Patent Under Reexamination RALEIGH, GREGORY G.	
	Examiner ANDREW J. 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-7,957,511	06-2011	Drudis et al.	379/201.01
*	B	US-7,797,204	09-2010	Balent, Bruce F.	705/28
*	C	US-7,174,174	02-2007	Boris et al.	455/461
	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.:	12/694,451
				Filing Date	January 27, 2010
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Not Assigned
Sheet	1	of	1	Atty Docket No.	RALEP026

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
	3AA	US 7,747,240	06-29-2010	BRISCOE et al.	
	3BB	US 2003/0088671	05-08-2003	KINKER et al.	
	3CC	US 2007/0248100	10-25-2007	ZUBERI et al.	
	3DD	US 2008/0130534	06-05-2008	Tazuko Tomioka	

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	
	3B	WO 2006/004467	01-12-2006	Telefonaktiebolaget LM Ericsson	
	3M	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
	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	
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Examiner	/Andrew Joseph Rudy/	Date Considered	02/10/2012

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

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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.:	12/694,451
				Filing Date	January 27, 2010
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Not Assigned
Sheet	1	of	2	Atty Docket No.	RALEP026

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

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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
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	2B	WO 2008/051379	05-02-2008	Verizon Services	
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Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T^2
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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.:	12/694,451
				Filing Date	January 27, 2010
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Not Assigned
Sheet	2	of	2	Atty Docket No.	RALEP026

Examiner	/Andrew Joseph Rudy/	Date Considered	02/10/2012

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 4

Complete if Known	
Application Number	12/694,451
Filing Date	January 27, 2010
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160503 [RALEP026]

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
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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	02/10/2012

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 2 of 4

Complete if Known	
Application Number	12/694,451
Filing Date	January 27, 2010
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160503 [RALEP026]

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
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Examiner Signature	/Andrew Joseph Rudy/	Date Considered	02/10/2012

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 3 of 4

Complete if Known	
Application Number	12/694,451
Filing Date	January 27, 2010
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160503 [RALEP026]

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Examiner Signature	/Andrew Joseph Rudy/	Date Considered	02/10/2012

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 4 of 4

Complete if Known	
Application Number	12/694,451
Filing Date	January 27, 2010
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160503 [RALEP026]

NON PATENT LITERATURE DOCUMENTS

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		International Search Report and Written Opinion mailed March 22, 2010 from International Serial Number PCT/US2010/022238 filed January 27, 2010.	

Examiner Signature	/Andrew Joseph Rudy/	Date Considered	02/10/2012

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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.:	12/694,451
				Filing Date	January 27, 2010
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Not Assigned
Sheet	1	of	1	Atty Docket No.	RALEP026

U.S. Patent Documents

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	Z.	WO 2007/018363	08-02-2006	Upresto, Inc.	

NON PATENT LITERATURE DOCUMENTS

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	AA.		
	BB.		

Examiner	/Andrew Joseph Rudy/	Date Considered	02/10/2012

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

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

Application Number	12694451
Filing Date	2010-01-27
First Named Inventor	RALEIGH, Gregory G.
Art Unit	2617
Examiner Name	YAO, Kwang Bin
Attorney Docket Number	26WV-160503 [RALEP026]

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
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2617
	Examiner Name	YAO, Kwang Bin
	Attorney Docket Number	26WV-160503 [RALEP026]

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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2617
	Examiner Name	YAO, Kwang Bin
	Attorney Docket Number	26WV-160503 [RALEP026]

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	Examiner Name	YAO, Kwang Bin
	Attorney Docket Number	26WV-160503 [RALEP026]

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]
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EXAMINER SIGNATURE

Examiner Signature	/Andrew Joseph Rudy/	Date Considered	02/10/2012

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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.:	12/694,451
				Filing Date	January 27, 2010
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Not Assigned
Sheet	1	of	4	Atty Docket No.	RALEP026

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Examiner Initials	CiteNo.	Document Number Number-Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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				Art Unit	2617
				Examiner Name	Not Assigned
Sheet	2	of	4	Atty Docket No.	RALEP026

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				Filing Date	January 27, 2010
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Not Assigned
Sheet	3	of	4	Atty Docket No.	RALEP026

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	JJJJJ.	US 2007/0101426	05-03-2007	LEE et al.	
	KKKKK.	US 2008/0222692	09-11-2008	ANDERSSON et al.	
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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.:	12/694,451
				Filing Date	January 27, 2010
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Not Assigned
Sheet	4	of	4	Atty Docket No.	RALEP026

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	1R	WO 2006/050758	05-18-2006	Telefonaktiebolaget LM Ericsson	

Examiner	/Andrew Joseph Rudy/	Date Considered	02/10/2012

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Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	12/694,451	RALEIGH, GREGORY G.	
	Examiner	Art Unit	
	ANDREW J. RUDY	3687	

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Class	Subclass	Date	Examiner
705	28,30,34	2/10/2012	AJR
709	203,217	2/10/2012	AJR
709	223,224	2/10/2012	AJR
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INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Continuity data reveiwed.	2/6/2012	AJR

PTO/SB/08a (07-09)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 4

Complete if Known	
Application Number	12/694,451
Filing Date	January 27, 2010
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160503 [RALEP026]

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 2 of 4

Complete if Known	
Application Number	12/694,451
Filing Date	January 27, 2010
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160503 [RALEP026]

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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.

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PTO/SB/08a (07-09)
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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 4

Complete if Known	
Application Number	12/694,451
Filing Date	January 27, 2010
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160503 [RALEP026]

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		2007/0093243	04-26-2007	KAPADEKAR et al	
		2007/0259673	11-08-2007	WILLARS et al	
		2007/0263558	11-15-2007	SALOMONE	
		2008/0049630	02-28-2008	KOZISEK et al	
		2008/0147454	06-19-2008	WALKER, et al.	
		2008/0162637	07-03-2008	ADAMCZYK et al	
		2008/0167027	07-10-2008	GAUTIER et al	
		2008/0318547	12-25-2008	BALLOU et al	
		2009/0180391	07-16-2009	PETERSEN et al	
		2009/0197585	08-06-2009	AARON, Jeffrey A.	
		2009/0257379	10-15-2009	ROBINSON et al	
		2010/0082431	04-01-2010	RAMER et al	
		2010/0188975	07-29-2010	RALEIGH, Gregory G.	
		2010/0188990	07-29-2010	RALEIGH, Gregory G.	
		2010/0188992	07-29-2010	RALEIGH, Gregory G.	
		2010/0188994	07-29-2010	RALEIGH, Gregory G.	
		2010/0191846	07-29-2010	RALEIGH, Gregory G.	
		2010/0192170	07-29-2010	RALEIGH, Gregory G.	
		2010/0197268	08-05-2010	RALEIGH, Gregory G., et al	
		2010/0198698	08-05-2010	RALEIGH, Gregory G., et al	
		2010/0198939	08-05-2010	RALEIGH, Gregory G., et al	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] "Number[4] "Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

Examiner Signature		Date Considered	

*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.

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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 4 of 4

Complete if Known	
Application Number	12/694,451
Filing Date	January 27, 2010
First Named Inventor	Gregory G. Raleigh
Art Unit	3687
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160503 [RALEP026]

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
		International Search Report and Written Opinion mailed March 22, 2010 from International Serial Number PCT/US2010/022238 filed January 27, 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)* 22 MAR 2010
Applicant's or agent's file reference RALEP026PCT	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No. PCT/US 10/22238	International filing date *(day/month/year)* 27 January 2010 (27.01.2010)
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 RALEP026PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 10/22238	International filing date *(day/month/year)* 27 January 2010 (27.01.2010)	(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 3 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 10/22238

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

Device group partitions and a settlement platform are provided. A settlement platform service is provided for partitioned devices. Collecting device generated service usage information for one or more devices in wireless communication on a wireless network; and aggregating the device generated service usage information for a settlement platform for the one or more devices in wireless communication on the wireless network is provided. Service usage information includes micro-CDRs, which are used for CDR mediation or reconciliation that provides for service usage accounting on any device activity. In some embodiments, each device activity that is desired to be associated with a billing event is assigned a micro-CDR transaction code, and a service processor of the device is programmed to account for that activity associated with that transaction code.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 10/22238

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - H04L 1/00 (2010.01)
USPC - 370/232
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: 370/232

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 370/229, 232 (keyword limited - 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, USOC, EPAB, JPAB); GOOGLE; Google Scholar
Terms: broadband, network, wireless, measurement, usage, accounting, settlement, billing, record, item, device, partition, mvno, syntax, protocol, aggregate.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 7,289,489 B1 (Kung et al.) 30 October 2007 (30.10.2007), entire document, especially abstract, col. 4, ln 4-11, col. 4, ln 14-34, col. 12, ln 66 to col. 13, ln 17, col. 15, ln 3-21, col. 16, ln 19-55, col. 16, ln 56 to col. 17, ln 26, col. 18, ln 34-52, col. 19, ln 19 to col. 20, ln 24, col. 35, ln 6-32, col. 37, ln 15-34, col. 37, ln 60 to col. 38, ln 9.	1, 3-8, 10-17, 19-25 --- 2, 9, 18
Y	US 2003/0050070 A1 (Mashinsky et al.) 13 March 2003 (13.03.2003), entire document, especially abstract, para [0004], [0005], [0006], [0054], [0055], [0084].	2, 9, 18

☐ 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
07 March 2010 (07.03.2010)	22 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)*	22 MAR 2010
Applicant's or agent's file reference RALEP026PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US 10/22238	27 January 2010 (27.01.2010)	28 January 2009 (28.01.2009)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - H04L 1/00 (2010.01)
USPC - 370/232

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	07 March 2010 (07.03.2010)	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 10/22238

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:

Form PCT/ISA/237 (Box No. I) (July 2009)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 10/22238

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	2, 9, 18	YES
	Claims	1, 3-8, 10-17, 19-25	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-25	NO
Industrial applicability (IA)	Claims	1-25	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1, 3-8, 10-17, and 19-25 lack novelty under PCT Article 33(2) as being anticipated by US 7,289,489 B1 to Kung et al. (hereinafter Kung).

Regarding claim 1, Kung teaches a system (system is provided for broadband multimedia access and billing applications providing a least cost routing for a communication in accordance with the user's selection of data rate and quality of service, col. 4, ln 4-11), comprising: a processor of a network device in communication with a wireless network (Billing centers typically include bill processors that receive accounting information from the accounting gateway, col. 16, ln 19-55; over, for example, the public switched telephone network, Internet, or wireless communication networks, col. 4, ln 14-34), wherein the processor is configured to: collect device generated service usage information for one or more devices in wireless communication on the wireless network (The accounting gateway 240 stores usage records and may then distribute them to linked destinations (for example, billing centers) for processing, col. 16, ln 19-55); and aggregate the device generated service usage information for a settlement platform for the one or more devices in wireless communication on the wireless network (achieving minimum settlement charges and maximizing the originating service providers, col. 37, ln 15-34); and a memory coupled to the processor and configured to provide the processor with instructions (memory 322, col. 19, ln 19 to col. 20, ln 24).

Regarding claim 3, Kung further teaches wherein the device generated service usage information is translated into a syntax and a communication protocol that can be used by other network devices to augment or replace network generated service usage information for the one or more devices in wireless communication on the wireless network (Depending on the protocols linking the selected network providers, the packets will be delivered at the DNP, col. 37, ln 60 to col. 38, ln 9).

Regarding claim 4, Kung further teaches wherein the device generated service usage information includes micro-CDRs (The accounting gateway 240 stores usage records and may then distribute them to linked destinations (for example, billing centers) for processing, col. 16, ln 19-55).

Regarding claim 5, Kung further teaches wherein the device generated service usage information includes micro-CDRs collected by a service controller from a service processor executed on each of the one or more devices in wireless communication on the wireless network (to provide billing usage measurements data (for example, the Bellcore Automatic Message Accounting Format (BAF)). This data may be utilized either to permit charging the customer for use of network resources or to permit charging other carriers, col. 16, ln 56 to col. 17, ln 26).

Regarding claim 6, Kung further teaches wherein the device generated service usage information includes micro-CDRs, and wherein at least a subset of micro-CDRs include a transaction code for associating a monitored service usage with a service usage activity (identifying a service provider to a type involves providing a number of service providers in a vertical bar, col. 35, ln 6-32).

Regarding claim 7, Kung further teaches wherein the device generated service usage information is translated into a syntax and a communication protocol that can be used by other network devices to augment or replace network generated service usage information for the one or more devices in wireless communication on the wireless network (Depending on the protocols linking the selected network providers, the packets will be delivered at the DNP, col. 37, ln 60 to col. 38, ln 9), wherein the syntax is a charging data record (CDR), and wherein the device generated service usage information includes micro-CDRs (The accounting gateway 240 stores usage records and may then distribute them to linked destinations (for example, billing centers) for processing, col. 16, ln 19-55).

Regarding claim 8, Kung further teaches wherein the network device includes a service usage data store (where the messages are stored in a centralized location, the multimedia server may provide such storage, col. 12, ln 66 to col. 13, ln 17).

Regarding claim 10, Kung further teaches wherein the network device includes a service usage data store and a rules engine for aggregating and mediating the collected device generated service usage information (the multimedia gateway control protocol may be utilized to request the voice gateway 232 to initiate, cancel, and/or otherwise modify connections in order to set up and tear down RTP media streams. A similar procedure may also be utilized to request continuity tests and results, col. 15, ln 3-21).

Regarding claim 11, Kung further teaches wherein the processor is further configured to: collect network generated service usage information for the one or more devices in wireless communication on the wireless network (The accounting gateway 240 stores usage records and may then distribute them to linked destinations (for example, billing centers) for processing, col. 16, ln 19-55).

---continued in supplemental box---

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 10/22238

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 12, Kung further teaches wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-CDRs (The accounting gateway 240 stores usage records and may then distribute them to linked destinations (for example, billing centers) for processing, col. 16, ln 19-55), and wherein the processor is further configured to: aggregate micro-CDRs for the one or more devices in wireless communication on the wireless network; and apply a set of rules to the aggregated micro-CDRs using a rules engine to provide aggregated and mediated micro-CDRs to the settlement platform, wherein the settlement platform implements a service billing allocation and/or a revenue share among one or more partners, and wherein the revenue share includes a service based revenue share or a transactional based revenue share (the normal AMA format and associated processes may be modified to additionally report time stamped entries and data for actual changes in provided bit rate, quality of service, parties to a communication and/or preferred service provider for billable and non-billable segments (assuming Internet telephony and usage billing remains free of charge on a per unit of time basis). The accounting gateway 240 may be configured to convert this information into an Automatic Message Accounting Format (AMA) Format (for example, BAF) records and send these records to the external billing systems using, for example, a TFTP (trivial file transfer protocol), col. 16, ln 56 to col. 17, ln 26).

Regarding claim 13, Kung further teaches wherein the device generated service usage information is received in a charging data record (CDR) syntax, wherein the device generated service usage information includes micro-CDRs (The accounting gateway 240 stores usage records and may then distribute them to linked destinations (for example, billing centers) for processing, col. 16, ln 19-55), wherein the network device includes a CDR storage, aggregation, and mediation feed (the normal AMA format and associated processes may be modified to additionally report time stamped entries and data for actual changes in provided bit rate, quality of service, parties to a communication and/or preferred service provider for billable and non-billable segments (assuming Internet telephony and usage billing remains free of charge on a per unit of time basis). The accounting gateway 240 may be configured to convert this information into an Automatic Message Accounting Format (AMA) Format (for example, BAF) records and send these records to the external billing systems using, for example, a TFTP (trivial file transfer protocol), col. 16, ln 56 to col. 17, ln 26), and wherein the processor is further configured to: aggregate micro-CDRs for the one or more devices in wireless communication on the wireless network (achieving minimum settlement charges and maximizing the originating service providers, col. 37, ln 15-34); apply a set of settlement platform rules to the aggregated micro-CDRs using a rules engine to generate a new set of CDRs for the one or more devices in wireless communication on the wireless network (the multimedia gateway control protocol may be utilized to request the voice gateway 232 to initiate, cancel, and/or otherwise modify connections in order to set up and tear down RTP media streams. A similar procedure may also be utilized to request continuity tests and results, col. 15, ln 3-21); and communicate the new set of CDRs for the one or more devices in wireless communication on the wireless network to a billing interface or a billing system (existing Operation, Maintenance and Provisioning (OAM&P) 195 systems that support, billing, accounting, provisioning and/or configuration management functions, col. 18, ln 34-52).

Regarding claim 14, Kung further teaches wherein the device generated service usage information is received in a charging data record (CDR) syntax (The accounting gateway 240 stores usage records and may then distribute them to linked destinations (for example, billing centers) for processing, col. 16, ln 19-55), wherein the device generated service usage information includes micro-CDRs (the normal AMA format and associated processes may be modified to additionally report time stamped entries and data for actual changes in provided bit rate, quality of service, parties to a communication and/or preferred service provider for billable and non-billable segments (assuming Internet telephony and usage billing remains free of charge on a per unit of time basis). The accounting gateway 240 may be configured to convert this information into an Automatic Message Accounting Format (AMA) Format (for example, BAF) records and send these records to the external billing systems using, for example, a TFTP (trivial file transfer protocol), col. 16, ln 56 to col. 17, ln 26), and wherein the processor is further configured to: aggregate micro-CDRs for the one or more devices in wireless communication on the wireless network (achieving minimum settlement charges and maximizing the originating service providers, col. 37, ln 15-34); verify at least a subset of the micro-CDRs (verifying the caller with call manager, col. 22, ln 49 to col. 23, ln 13); apply a set of settlement platform rules to the aggregated and verified micro-CDRs using a rules engine to generate a new set of CDRs for the one or more devices in wireless communication on the wireless network (the multimedia gateway control protocol may be utilized to request the voice gateway 232 to initiate, cancel, and/or otherwise modify connections in order to set up and tear down RTP media streams. A similar procedure may also be utilized to request continuity tests and results, col. 15, ln 3-21); and communicate the new set of CDRs for the one or more devices in wireless communication on the wireless network to a billing interface or a billing system (existing Operation, Maintenance and Provisioning (OAM&P) 195 systems that support, billing, accounting, provisioning and/or configuration management functions, col. 18, ln 34-52).

Regarding claim 15, Kung further teaches wherein the device generated service usage information is received in a charging data record (CDR) syntax (The accounting gateway 240 stores usage records and may then distribute them to linked destinations (for example, billing centers) for processing, col. 16, ln 19-55), wherein the device generated service usage information includes micro-CDRs (the normal AMA format and associated processes may be modified to additionally report time stamped entries and data for actual changes in provided bit rate, quality of service, parties to a communication and/or preferred service provider for billable and non-billable segments (assuming Internet telephony and usage billing remains free of charge on a per unit of time basis). The accounting gateway 240 may be configured to convert this information into an Automatic Message Accounting Format (AMA) Format (for example, BAF) records and send these records to the external billing systems using, for example, a TFTP (trivial file transfer protocol), col. 16, ln 56 to col. 17, ln 26), and wherein the processor is further configured to: aggregate micro-CDRs for the one or more devices in wireless communication on the wireless network (achieving minimum settlement charges and maximizing the originating service providers, col. 37, ln 15-34); verify the micro-CDRs by comparing at least a subset of the micro-CDRs to a set of network generated CDRs for the one or more devices in wireless communication on the wireless network (verifying the caller with call manager, col. 22, ln 49 to col. 23, ln 13); apply a set of settlement platform rules to the aggregated and verified micro-CDRs using a rules engine to generate a new set of CDRs for the one or more devices in wireless communication on the wireless network (the multimedia gateway control protocol may be utilized to request the voice gateway 232 to initiate, cancel, and/or otherwise modify connections in order to set up and tear down RTP media streams. A similar procedure may also be utilized to request continuity tests and results, col. 15, ln 3-21); and communicate the new set of CDRs for the one or more devices in wireless communication on the wireless network to a billing interface or a billing system (existing Operation, Maintenance and Provisioning (OAM&P) 195 systems that support, billing, accounting, provisioning and/or configuration management functions, col. 18, ln 34-52).

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Supplemental Box

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Box No. V.2. Citations and explanations.

Regarding claim 16, Kung further teaches wherein the device generated service usage information is received in a charging data record (CDR) syntax (The accounting gateway 240 stores usage records and may then distribute them to linked destinations (for example, billing centers) for processing, col. 16, ln 19-55), wherein the device generated service usage information includes micro-CDRs (the normal AMA format and associated processes may be modified to additionally report time stamped entries and data for actual changes in provided bit rate, quality of service, parties to a communication and/or preferred service provider for billable and non-billable segments (assuming Internet telephony and usage billing remains free of charge on a per unit of time basis). The accounting gateway 240 may be configured to convert this information into an Automatic Message Accounting Format (AMA) Format (for example, BAF) records and send these records to the external billing systems using, for example, a TFTP (trivial file transfer protocol), col. 16, ln 56 to col. 17, ln 26), and wherein the processor is further configured to: aggregate the micro-CDRs for the one or more devices in wireless communication on the wireless network; apply a set of rules to the aggregated micro-CDRs using a rules engine to generate a new set of CDRs, wherein the set of rules includes a bill by account rule (achieving minimum settlement charges and maximizing the originating service providers, col. 37, ln 15-34); and communicate the new set of CDRs for the one or more devices in wireless communication on the wireless network to a billing interface or a billing system (existing Operation, Maintenance and Provisioning (OAM&P) 195 systems that support, billing, accounting, provisioning and/or configuration management functions, col. 18, ln 34-52).

Regarding claim 17, Kung further teaches wherein the device generated service usage information is received in a charging data record (CDR) syntax (The accounting gateway 240 stores usage records and may then distribute them to linked destinations (for example, billing centers) for processing, col. 16, ln 19-55), wherein the device generated service usage information includes micro-CDRs (the normal AMA format and associated processes may be modified to additionally report time stamped entries and data for actual changes in provided bit rate, quality of service, parties to a communication and/or preferred service provider for billable and non-billable segments (assuming Internet telephony and usage billing remains free of charge on a per unit of time basis). The accounting gateway 240 may be configured to convert this information into an Automatic Message Accounting Format (AMA) Format (for example, BAF) records and send these records to the external billing systems using, for example, a TFTP (trivial file transfer protocol), col. 16, ln 56 to col. 17, ln 26), and wherein the processor is further configured to: aggregate the micro-CDRs for the one or more devices in wireless communication on the wireless network (achieving minimum settlement charges and maximizing the originating service providers, col. 37, ln 15-34); apply a set of rules to the aggregated micro-CDRs using a rules engine to generate a new set of CDRs, wherein the set of rules includes a bill by account rule (the multimedia gateway control protocol may be utilized to request the voice gateway 232 to initiate, cancel, and/or otherwise modify connections in order to set up and tear down RTP media streams. A similar procedure may also be utilized to request continuity tests and results, col. 15, ln 3-21); and communicate the new set of CDRs for the one or more devices in wireless communication on the wireless network to a billing interface or a billing system, wherein at least one CDR in the new set of CDRs includes a billing offset (existing Operation, Maintenance and Provisioning (OAM&P) 195 systems that support, billing, accounting, provisioning and/or configuration management functions, col. 18, ln 34-52).

Regarding claim 19, Kung further teaches wherein the processor is further configured to: store the aggregated device generated service usage information (memory 322, col. 19, ln 19 to col. 20, ln 24); and implement a settlement platform to mediate the device generated service usage information (the normal AMA format and associated processes may be modified to additionally report time stamped entries and data for actual changes in provided bit rate, quality of service, parties to a communication and/or preferred service provider for billable and non-billable segments (assuming Internet telephony and usage billing remains free of charge on a per unit of time basis). The accounting gateway 240 may be configured to convert this information into an Automatic Message Accounting Format (AMA) Format (for example, BAF) records and send these records to the external billing systems using, for example, a TFTP (trivial file transfer protocol), col. 16, ln 56 to col. 17, ln 26).

Regarding claim 20, Kung further teaches wherein the processor is further configured to: store the aggregated device generated service usage information (memory 322, col. 19, ln 19 to col. 20, ln 24); and apply a set of settlement platform rules to mediate the device generated service usage information, wherein the set of settlement platform rules are selected based at least in part on a device group partition determination for each of the one or more devices (the normal AMA format and associated processes may be modified to additionally report time stamped entries and data for actual changes in provided bit rate, quality of service, parties to a communication and/or preferred service provider for billable and non-billable segments (assuming Internet telephony and usage billing remains free of charge on a per unit of time basis). The accounting gateway 240 may be configured to convert this information into an Automatic Message Accounting Format (AMA) Format (for example, BAF) records and send these records to the external billing systems using, for example, a TFTP (trivial file transfer protocol), col. 16, ln 56 to col. 17, ln 26).

Regarding claim 21, Kung further teaches wherein the processor is further configured to:
store the aggregated device generated service usage information (memory 322, col. 19, ln 19 to col. 20, ln 24); apply a set of settlement platform rules to mediate the device generated service usage information, wherein the set of settlement platform rules are selected based at least in part on a device group partition determination for each of the one or more devices (the normal AMA format and associated processes may be modified to additionally report time stamped entries and data for actual changes in provided bit rate, quality of service, parties to a communication and/or preferred service provider for billable and non-billable segments (assuming Internet telephony and usage billing remains free of charge on a per unit of time basis). The accounting gateway 240 may be configured to convert this information into an Automatic Message Accounting Format (AMA) Format (for example, BAF) records and send these records to the external billing systems using, for example, a TFTP (trivial file transfer protocol), col. 16, ln 56 to col. 17, ln 26); and communicate a new set of CDRs to a billing interface based at least in part on the mediated device generated service usage information (the multimedia gateway control protocol may be utilized to request the voice gateway 232 to initiate, cancel, and/or otherwise modify connections in order to set up and tear down RTP media streams. A similar procedure may also be utilized to request continuity tests and results, col. 15, ln 3-21).

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Regarding claim 22, Kung further teaches wherein the processor is further configured to: communicate the device generated service usage information to a billing interface, wherein the billing interface includes a settlement platform (existing Operation, Maintenance and Provisioning (OAM&P) 195 systems that support, billing, accounting, provisioning and/or configuration management functions, col. 18, ln 34-52).

Regarding claim 23, Kung further teaches wherein the processor is further configured to: collect the device generated service usage information for the one or more devices in wireless communication on the wireless network from an intermediate networking device (The accounting gateway 240 stores usage records and may then distribute them to linked destinations (for example, billing centers) for processing, col. 16, ln 19-55), wherein the device generated service usage information includes a transaction code for associating a user of a first device, the first device, and/or the intermediate networking device with the device generated service usage information, wherein the one or more devices includes the first device (verifying the user identification data to be associated with a broadband subscriber, col. 2, ln 37-59).

Regarding claim 24, Kung teaches a method (methods for billing for Internet broadband communications, col. 1, ln 12-17), comprising: collecting device generated service usage information for one or more devices in wireless communication on a wireless network (The accounting gateway 240 stores usage records and may then distribute them to linked destinations (for example, billing centers) for processing, col. 16, ln 19-55); and
aggregating the device generated service usage information for a settlement platform for the one or more devices in wireless communication on the wireless network (achieving minimum settlement charges and maximizing the originating service providers, col. 37, ln 15-34).

Regarding claim 25, Kung teaches a computer program product, the computer program product being embodied in a computer readable storage medium (methods for billing for Internet broadband communications, col. 1, ln 12-17) and comprising computer instructions for: collecting device generated service usage information for one or more devices in wireless communication on a wireless network (The accounting gateway 240 stores usage records and may then distribute them to linked destinations (for example, billing centers) for processing, col. 16, ln 19-55); and aggregating the device generated service usage information for a settlement platform for the one or more devices in wireless communication on the wireless network (achieving minimum settlement charges and maximizing the originating service providers, col. 37, ln 15-34).

Claims 2, 9, and 18 lack an inventive step under PCT Article 33(3) as being obvious over Kung in view of US 2003/0050070 A1 to Mashinsky et al. (hereinafter Mashinsky).

Regarding claim 2, Kung teaches all of the elements as per claim 1. Kung further teaches wherein the settlement platform determines accounting and settlement information for one or more services for the one or more devices assigned to a device group partition (The accounting gateway 240 stores usage records and may then distribute them to linked destinations (for example, billing centers) for processing, col. 16, ln 19-55). Kung does not expressly teach distributes the accounting and settlement information to one or more of the following associated with the device group partition: a carrier, a distribution partner, an MVNO, and a wholesale partner. However Mashinsky, in an analogous art, teaches distributes the accounting and settlement information (a financial settlement institution must provide the actual mechanism for the exchange of funds , para [0054]) to one or more of the following associated with the device group partition: a carrier, a distribution partner, an MVNO, and a wholesale partner (a service provider (i.e. carrier or Mobile Virtual Network Providers (MVNO's)) could go through the trouble of procuring the necessary accounts and programming them into a custom phone, para [0055]). It would have been obvious to one skilled in the art to combine the teachings of Mashinsky with those of Kung in order to measure usage in open access wireless networks between different service providers and therefore increase wireless capacity (see Mahinsky para [0004]-[0006]).

Regarding claim 9, Kung teaches all of the elements as per claim 1. Kung does not expressly teach wherein the network device includes a service usage data store that aggregates and mediates micro-CDRs and network generated CDRs for the one or more devices in wireless communication on the wireless network. However Mashinsky, in an analogous art, teaches wherein the network device includes a service usage data store that aggregates and mediates micro-CDRs and network generated CDRs for the one or more devices in wireless communication on the wireless network (a device might need to communicate with an intended target node through an intermediary node. This is typically necessary to achieve some form of transparency in the communication. A proxy service provider is an entity which advertises and implements such nodes, para [0084]). It would have been obvious to one skilled in the art to combine the teachings of Mashinsky with those of Kung in order to measure usage in open access wireless networks between different service providers and therefore increase wireless capacity (see Mahinsky para [0004]-[0006]).

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International application No.
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Regarding claim 18, Kung further teaches wherein the device generated service usage information is received in a charging data record (CDR) syntax (The accounting gateway 240 stores usage records and may then distribute them to linked destinations (for example, billing centers) for processing, col. 16, ln 19-55), wherein the device generated service usage information includes micro-CDRs (the normal AMA format and associated processes may be modified to additionally report time stamped entries and data for actual changes in provided bit rate, quality of service, parties to a communication and/or preferred service provider for billable and non-billable segments (assuming Internet telephony and usage billing remains free of charge on a per unit of time basis). The accounting gateway 240 may be configured to convert this information into an Automatic Message Accounting Format (AMA) Format (for example, BAF) records and send these records to the external billing systems using, for example, a TFTP (trivial file transfer protocol), col. 16, ln 56 to col. 17, ln 26), and wherein the processor is further configured to: communicate a new set of CDRs based at least in part on aggregated micro-CDRs for the one or more devices in wireless communication on the wireless network to the settlement platform (existing Operation, Maintenance and Provisioning (OAM&P) 195 systems that support, billing, accounting, provisioning and/or configuration management functions, col. 18, ln 34-52), wherein the settlement platform determines accounting and settlement information for one or more services for the one or more devices assigned to a device group partition (The accounting gateway 240 stores usage records and may then distribute them to linked destinations (for example, billing centers) for processing, col. 16, ln 19-55). Kung does not expressly teach distributes the accounting and settlement information to one or more of the following associated with the device group partition: a carrier, a distribution partner, an MVNO, and a wholesale partner. However Mashinsky, in an analogous art, teaches distributes the accounting and settlement information to one or more of the following associated with the device group partition: a carrier, a distribution partner, an MVNO, and a wholesale partner (a financial settlement institution must provide the actual mechanism for the exchange of funds , para [0054]) to one or more of the following associated with the device group partition: a carrier, a distribution partner, an MVNO, and a wholesale partner (a service provider (i.e. carrier or Mobile Virtual Network Providers (MVNO's)) could go through the trouble of procuring the necessary accounts and programming them into a custom phone, para [0055]). It would have been obvious to one skilled in the art to combine the teachings of Mashinsky with those of Kung in order to measure usage in open access wireless networks between different service providers and therefore increase wireless capacity (see Mahinsky para [0004]-[0006]).

Claims 1-25 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

Electronic Acknowledgement Receipt	
EFS ID:	11989872
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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-160503 [RALEP026]
Receipt Date:	02-FEB-2012
Filing Date:	27-JAN-2010
Time Stamp:	20:21:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		160503-RALEP026-IDS-020212.pdf	664015 3a69ac55ad25308c3c73cbec41864d75ba4b55b0	yes	18

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

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

PTO/SB/21 (07-09)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	18

Application Number	12/694,451
Filing Date	January 27, 2010
First Named Inventor	Gregory G. Raleigh
Art Unit	3687 Conf. No. 6041
Examiner Name	Andrew J. Rudy
Attorney Docket Number	26WV-160503 [RALEP026]

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☒ Information Disclosure Statement with PTO/SB/08a/b (6 pgs.)
- ☐ Certified Copy of Priority Document(s)
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- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
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- ☒ Other Enclosure(s) (please Identify below):

  Copy of International Search Report and Written Opinion for PCT/US2010/022238 (11 pgs.)

Remarks

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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Sheppard, Mullin, Richter & Hampton LLP Customer No. 69849		
Signature			
Printed name	Marc A. Sockol		
Date	February 2, 2012	Reg. No.	40,823

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Typed or printed name	Linda K. Brost	Date	February 2, 2012

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Examiner:
Gregory G. Raleigh	Andrew J. Rudy
Serial No.: 12/694,451	Art Unit: 3687
Filed: January 27, 2010	Conf. No.: 6041
Title: Device Group Partitions and Settlement Platform	

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

INFORMATION DISCLOSURE STATEMENT PURSUANT TO 37 C.F.R. §§1.97(b)

Sir:

In accordance with the duty of disclosure under 37 CFR §1.56 and pursuant to 37 CFR §§1.97-1.98, Applicant hereby notifies the U.S. Patent and Trademark Office of the references listed on the enclosed Form PTO-SB/08A. Pursuant to the USPTO's waiver of the requirements under 37 CFR 1.98(a)(2)(i) for submitting a copy of each cited U.S. patent, we are not submitting copies of U.S. patents and/or patent publications cited.

The present Information Disclosure Statement is being filed more than three months after the filing date but before receiving the first Office Action. Accordingly, no fee or certification is needed.

The submission of the listed documents is not intended as an admission that any such document constitutes prior art against the claims of the present application. Applicant reserves the right to dispute any of the listed documents as prior art during examination. Furthermore, Applicant does not waive any right to take any action that would be appropriate to antedate or otherwise remove any listed document as a competent reference against the claims of the

present application. The submission of this Information Disclosure Statement is not to be construed as a representation that a search has been made or that no other material information may exist.

The Examiner is requested to initial the enclosed Form PTO/SB/08A and return a copy thereof to the undersigned.

No fee is believed to be due relative to this submission, but if for any reason an insufficient fee has been paid, please charge the insufficiency to Deposit Account No. **50-4561**.

Respectfully submitted,

Date: February 2, 2012 By: _____

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PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2617
	Examiner Name	YAO, Kwang Bin
	Attorney Docket Number	26WV-160503 [RALEP026]

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	12694451
	Filing Date	2010-01-27
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2617
	Examiner Name	YAO, Kwang Bin
	Attorney Docket Number	26WV-160503 [RALEP026]

	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	12694451
	Filing Date	2010-01-27
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2617
	Examiner Name	YAO, Kwang Bin
	Attorney Docket Number	26WV-160503 [RALEP026]

	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	

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

FOREIGN PATENT DOCUMENTS

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

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	12694451
	Filing Date	2010-01-27
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2617
	Examiner Name	YAO, Kwang Bin
	Attorney Docket Number	26WV-160503 [RALEP026]

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	12694451
	Filing Date	2010-01-27
	First Named Inventor	RALEIGH, Gregory G.
	Art Unit	2617
	Examiner Name	YAO, Kwang Bin
	Attorney Docket Number	26WV-160503 [RALEP026]

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)	2011-07-20
Name/Print	Marc A. Sockol	Registration Number	40,823

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

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

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

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

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

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

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

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

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

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

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

Electronic Acknowledgement Receipt	
EFS ID:	10564927
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026
Receipt Date:	20-JUL-2011
Filing Date:	27-JAN-2010
Time Stamp:	20:46:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		160503-RALEP026-IDS072011.pdf	459101 fa7271ce35443ee8063ebb8c47990c78a6041746	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:					
2	Foreign Reference	WO1999-065185A2andA3.pdf	1952852 b4b22a6a3b435dba71663391f5ac019eb0e4ba7f	no	56
Warnings:					
Information:					
		Total Files Size (in bytes):	2411953		

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
12/694,451	01/27/2010	Gregory G. Raleigh	RALEP026

CONFIRMATION NO. 6041

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

POA ACCEPTANCE LETTER

OC000000047369155

Date Mailed: 04/28/2011

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/20/2011.

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.

/fstephanos/

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
12/694,451	01/27/2010	Gregory G. Raleigh	RALEP026

CONFIRMATION NO. 6041

21912
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

POWER OF ATTORNEY NOTICE

OC000000047369139

Date Mailed: 04/28/2011

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/20/2011.

- 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).

/fstephanos/

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:	9924473
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026
Receipt Date:	20-APR-2011
Filing Date:	27-JAN-2010
Time Stamp:	20:41:30
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		160503POAand3-73bStmt042011.pdf	155688 b3d42ed7b732ac1c81d5620dd515b5890f837134	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):	155688	

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.: 12/694,451 Filed/Issue Date: January 27, 2010

Titled: Device Group Partitions and Settlement Platform

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. ☒ 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. ☒ 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 024248, Frame 0164, 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

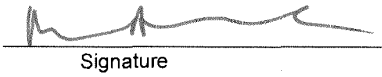
Reel _____, Frame _____, or for which a copy thereof is attached.

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

☒ 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 April 20, 2011

Date

Marc A. Sockol, Reg. No. 40,823 Attorney of Record

Printed or Typed Name Title

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

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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.:	12/694,451
				Filing Date	January 27, 2010
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Not Assigned
Sheet	1	of	1	Atty Docket No.	RALEP026

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 2006/0236095	10-19-2006	SMITH et al.	
	E.	US 2009/0054030	02-26-2009	Golds	
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	I.	US 2003/0005112	01-03-2003	Krautkremer	
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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
	Z.	WO 2007/018363	08-02-2006	Upresto, Inc.	

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
	AA.		
	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.

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

Electronic Acknowledgement Receipt

EFS ID:	8591920
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026
Receipt Date:	08-OCT-2010
Filing Date:	27-JAN-2010
Time Stamp:	19:27:49
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	RALEP026_IDS_Before_1st_OA.pdf	55737 d7b4cd4ac8d3f52b0b6d559498310b22ff34a013	no	2

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Information:					
		Total Files Size (in bytes):	1479364		

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:	Not Assigned
Application No.:	12/694,451	Art Unit:	2617
Filed:	January 27, 2010	Docket No.:	RALEP026
Title:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM		

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. RALEP026).

Respectfully submitted,
VAN PELT, YI & JAMES LLP

/Michael J. Schallop/

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Substitute for form 1449/PTO				Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*				Application No.:	12/694,451
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Sheet	1	of	4	Atty Docket No.	RALEP026

U.S. Patent Documents					
Examiner Initials	CiteNo.	Document Number Number-Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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	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.	
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Substitute for form 1449/PTO				Complete if Known	
Information Disclosure Statement By Applicant *(Use as many sheets as necessary)*				Application No.:	12/694,451
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				Examiner Name	Not Assigned
Sheet	2	of	4	Atty Docket No.	RALEP026

	OO.	US 2007/0140275	06-21-2007	BOWMAN et al.	
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	DDD.	US 2008/0064367	03-13-2008	NATH et al.	
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				First Named Inventor	Gregory G. Raleigh
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				Examiner Name	Not Assigned
Sheet	3	of	4	Atty Docket No.	RALEP026

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	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.	
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	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.	
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	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.:	12/694,451
				Filing Date	January 27, 2010
				First Named Inventor	Gregory G. Raleigh
				Art Unit	2617
				Examiner Name	Not Assigned
Sheet	4	of	4	Atty Docket No.	RALEP026

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

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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	
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	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:	8298791
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026
Receipt Date:	27-AUG-2010
Filing Date:	27-JAN-2010
Time Stamp:	16:10:23
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.)
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Information:	

2	Information Disclosure Statement (IDS) Filed (SB/08)	RALEP026_IDS_SB08_1.pdf	124564 aece56bf483d168cc85cc69322b77f2b73bcc1ca	no	4
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17	Foreign Reference	RALE_Foreign_Ref_1O.pdf	941474 84b1feb984dd76f2b40de9e9bf24bca6cbc317aa	no	18
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18	Foreign Reference	RALE_Foreign_Ref_1P.pdf	4880569 cf0b517f0ea17a760054e4b34ec60d67a2caf375	no	37
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19	Foreign Reference	RALE_Foreign_Ref_1Q.pdf	5439339 547fe6d96444a8d3f0953a82899a468dcaa3c29b	no	37

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PATENT

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Application No.:	12/694,451	Art Unit:	2617
Filed:	January 27, 2010	Docket No.:	RALEP026
Title:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM		

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. RALEP026).

Respectfully submitted,
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				Art Unit	2617
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Examiner Initials	CiteNo.	Document Number Number-Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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	3BB	US 2003/0088671	05-08-2003	KINKER et al.	
	3CC	US 2007/0248100	10-25-2007	ZUBERI et al.	
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	3A	WO 2007/014630	02-08-2007	Telefonaktiebolaget LM Ericsson	
	3B	WO 2006/004467	01-12-2006	Telefonaktiebolaget LM Ericsson	
	3M	WO 1999/065185	12-16-1999	British Telecommunications	

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Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, 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	
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(57) Abstract

In a communications network, loading of network resources is detected locally at a customer terminal, and a tariff for network usage is varied automatically depending on the usage.

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Communications Network

BACKGROUND TO THE INVENTION

The present invention relates to a communications network, and in particular to charging mechanisms in such a network. It includes aspects of the inventions disclosed and claimed in the present applicant's co-pending British patent application no. 9812161.9 filed 5 June 1998 (applicant's ref: A25547) and the contents of that earlier application are incorporated herein by reference.

In conventional communications networks, such as national PSTNs (public switched telephone networks), a significant proportion of the network resources are devoted to metering and billing network usage. Studies have estimated these resources as consuming as much as 6% of the revenue of a telecommunications company. The Internet, by contrast, does not in general incorporate metering and billing mechanisms for individual customers. The absence of the network infrastructure required to support metering and billing reduces the operational costs of the Internet compared to conventional telephony networks, and has facilitated the rapid expansion of the Internet. However, the absence of appropriate billing mechanisms has significant disadvantages in terms of the characteristics of the traffic carried by the Internet: it encourages profligate use of network resources, and diminishes the incentive for investment in network infrastructure to support new applications requiring, e.g., guaranteed quality of service (QoS).

SUMMARY OF THE INVENTION

According to a first aspect of the present invention, there is provided a method of operating a communications network, including automatically varying, depending on network loading as detected at a customer terminal, a tariff for network usage by the customer terminal.

In this document references to varying a tariff encompass changing a price, e.g. as a function of a congestion parameter. The structure of the tariff may be unchanged.

The present invention provides an approach to charging for network usage which involves little or no network overheads, and which moreover is able to reflect local variations in network loading. This is achieved by detecting a measure of

network loading at the customer terminal. This measure will reflect those resources being used by the customer terminal at a particular time. For example, in a federated data network comprising a number of sub-domains, such as the Internet, a customer terminal in one subdomain may attempt to access a server in another subdomain at a time when there is overloading of a router somewhere in the path from the customer terminal to the server. Then, even if average loading of the network as a whole is low, the loading as perceived by the customer terminal is high, and a tariff for use of the network by the customer terminal is increased to reflect the scarcity of the relevant network resources. Similarly other terminals attempting to access data via the same router will also perceive the network loading as being high, and will also have their tariffs increased accordingly. With an appropriately steep rise in tariff, at least some customer terminals will then choose to abandon or defer their attempts to use the network resource in question, thereby relieving the loading of the router.

This aspect of the invention may be used in systems in which the end user is merely informed of the price and accounting and billing is carried out by the network provider, also in systems where the end user measures their usage and supplies this information to the network provider, and also in systems where the end user both measures their usage and calculates the payment due to the network provider.

The method may include detecting at the customer terminal a network performance parameter which depends on network loading, and varying the tariff depending on the network performance parameter. When the network is a packet network, then the network performance parameter may be the number of packets lost in transmission between a data source and the customer terminal. This approach has the advantage that it is suitable for implementation using existing congestion control mechanisms in packet networks. For example, in the Internet, routers respond to congestion by dropping packets, and a customer terminal using TCP (Transport Control Protocol) detects packet loss and controls a congestion window at the terminal accordingly. The present invention may use the detected packet loss to trigger an increase in the tariff applicable to the terminal. This may be accompanied by the signalling of congestion by the receiving terminal to the data source.

In an alternative and preferred approach, when congestion is detected within the network an explicit congestion signal may be generated and transmitted to the customer terminal, and the receipt of the explicit congestion signal at the customer

terminal may then trigger the increase in the tariff. This approach has the advantage that an appropriate congestion signal may be generated in advance of significant degradation in network performance occurring, making it easier to maintain a required quality of service. Preferably the explicit congestion signal is carried with a data packet on the communications network. Preferably a router in the network writes an explicit congestion signal in a packet when congestion is detected at the router.

As a further alternative, the congestion notification signal may be a source quench signal generated at the router and transmitted back to the data source.

Preferably there is a non-linear relationship between the increase in tariff and the detected network loading. Preferably the method includes making a first relatively smaller increase in the tariff when congestion is first detected, and making at least one further, relatively larger increase, if the congestion persists. This behaviour may be pre-programmed into the tariff algorithm. In this way oscillatory behaviour of the network can be avoided, while ensuring that a sufficient increase is made to have a desired impact on the demand for network resources.

Preferably the method includes programming a decision agent at the customer terminal with user-determined price criteria, and comparing a price calculated using the tariff with the said price criteria. For example, the decision agent might be programmed to proceed with data communications as long as a per-packet charge is zero or is less than a predetermined threshold. Then if congestion causes the charge to rise above that threshold, the data communication is interrupted and the decision agent modifies the operation of the customer terminal. For example the decision agent may slow down communications once the cost threshold is exceeded. The user may then choose to continue with the communication, or may elect to abandon the attempt to access data from a particular source. The decision agent may be programmed with rules which relate to an overall price for multiple simultaneous transmissions and which accord different weights to different respective applications.

Preferably the method includes distributing a tariff algorithm via the communications network to a plurality of terminals and calculating at each terminal using the tariff a charge for network usage by the terminal. In this case preferably the method includes steps, carried out by a network operator, of intermittently

sampling traffic between a customer terminal and the network, and as part of the sampling recording network loading affecting the customer terminal;

for the sampled traffic comparing a charge calculated by the customer terminal and an expected charge and detecting thereby any discrepancy.

The step of recording network loading may involve, for example, recording packet drops, or explicit congestion notification (ECN) bits or source quench messages.

The invention also encompasses a network operating by a method in accordance with the first aspect of the invention, and customer terminals, network routers and other network nodes for use in such a network.

DESCRIPTION OF DRAWINGS

Systems embodying the present invention will now be described in further detail, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a schematic showing a network embodying the invention;

Figures 2a and 2b are graphs showing tariff functions;

Figure 3 shows the format of a differential service byte;

Figure 4 is a schematic showing the component objects of a charging architecture for use with the network of Figure 1;

Figure 5 shows data passed between the accounting objects of Figure 4;

Figure 6 is a schematic showing protocol stacks on a customer terminal and in the network domain;

Figure 7 is a graph showing the variation of tariff with time;

Figures 8a to 8e are class diagrams for software implementing accounting and measurement objects;

Figure 9 is a diagram showing a graphic user interface (GUI) for use with the objects of figures 8a to 8e;

Figure 10 is a class diagram for software implementing tariff objects; and

Figure 11 is a diagram showing an alternative embodiment.

DESCRIPTION OF EXAMPLES

As shown in Figure 1, a communications network 1 includes a number of network sub-domains 2A-C. The network sub-domains may be under the control of different operators who may not trust each other. The network subdomains are interconnected by gateway routers 3, 4. In the present example the communications network is the Internet and supports both unicast and multicast Internet Protocol (IP) and associated protocols. A customer terminal 5 is connected via a public switched telephony network (PSTN) 6 and an access router 7 to a subdomain 2A. A single blocking test is applied to traffic at this point of access. The gateway routers 3,4, and access router 7 may be commercially available devices such as CISCO series 7500 routers and CISCO series AS5800 universal access server respectively. Other customer terminals are connected to the network, including a Java-enabled mobile terminal 8 and a data server 9. The customer terminal 5 may be connected via a LAN to an accounting server. The accounting server may include an accounting object as described below that receives measurement data from the customer terminal.

In addition to the local tariff variation mechanism that is described below, the network also uses network-based control of a number of tariff bands. A network management platform 10 is connected to each subdomain. Each network management platform may comprise, for example, a computing system comprising a SPARC workstation running UNIX (Solaris) together with network management applications. The network management platform 10 hosts management entities and tariff entities. The network management platform communicates with agents 100 in managed devices connected to the respective subdomain, for example using SNMP (simple network management protocol). The management platforms monitors the overall loading of network resources in the respective subdomains, and, as will be further described below, adjust the tariffs for network use accordingly. The Net management platform (NMP) instructs the agent to monitor the device and report aggregated results at regular intervals back to the NMP, so the NMP can monitor the combination of all reports.

Tariff data is communicated to peer tariff entities in other subdomains and also to the customer terminals. The tariff data is multicast using, for example Distance Vector Multicast Routing Protocol (DVMRP) or Protocol Independent Multicast (PIM) dense mode. The tariff data channels are announced and monitored

using protocols based on SDP (Session Description Protocol), SAP (Session Announcement Protocol) Charging is carried out on a "pay and display" model. Each customer terminal monitors its own network usage, for example by counting the number of packets it sends or receives across the network interface and the quantity of data (in bytes) in those packets. It calculates, using a tariff received via the network, the payment due to the network operator, and makes a corresponding payment into an account at the network operator. The network operator polices the use made by customers of the terminal by intermittently sampling traffic to or from a particular customer and comparing the use made and the use paid for.

The tariffs supplied to the customer terminals are divided into bands of different volatilities. The tariffs are varied under the control of the network operators to reflect the overall loading of the network. That is to say, if network loading becomes high, then the tariffs may be increased to reflect the scarcity of network resources.

A service provider may offer different products defined by different service level agreements, and/or by different price volatilities. For example product A might offer best-effort service at a fixed price while another product B might offer best-effort service at a variable price. A service provider may adjust product prices on the basis of the following parameters: the price the service provider pays to its wholesale provider: competitors' prices; current resource utilisation; relevant demand for different products. In response to changes in these parameters, tariff adjustments may be effected in one of three ways. Firstly, a tariff may adjust prices on the basis of local observations of network loading, without necessitating explicit communication from the provider. This approach, which is described in further detail below, needs to be built into the tariff at the outset, and is limited to those price variations which are dependent exclusively on local observations. Secondly, the provider may tune a tariff by adjusting some of its parameters. This kind of adjustment is required when the decision is dependent on parameters which cannot be observed directly by the customer, e.g., variation in the wholesale price of network resources. Thirdly, the provider may completely replace a tariff. This is required when the existing tariff cannot accommodate the changes that are required.

The first of the tariff changes described above is necessarily carried out automatically. The second type of change may be performed manually, or by an

agent that issues adjustments automatically in response to observations made by the service provider system. The third type of change is likely to be performed manually, as replacement of a new tariff will in general require an element of design requiring human input. However, it is possible that an agent might be employed to automatically switch tariffs for a product on the basis of a set of specified rules.

This section describes a prototype that we implemented to demonstrate the tariff subsystem outlined above. Features of the design include:

* using mobile code to represent tariffs and associated user interface components;
* use of a repeated multicast announcement protocol to communicate tariffs and tariff adjustments efficiently;
* using dynamic class loading and reflection in order to receive and tune tariffs.

The prototype consists of a library of general-purpose Java classes and two specific applications, namely:

* a provider system which allows the provider to introduce, replace, and tune tariffs for a number of products;
* a customer system that enables customer to keep track of the charges being applied for the products they are using.

The provider system services multiple instances of the customer system running on different hosts in a multicast-enabled network. A multicast announcement protocol is used to communicate tariff changes from the provider system to customer systems.

In order to maximise flexibility with respect to the definition of tariffs, we chose to represent tariffs using Java classes. This technique is also used to supply user interface components to customers to support visualisation of the behaviour of a tariff.

The `Tariff` interface acts as the base class for all tariffs. This defines a single operation get `GUI()` which returns as a Java SWING component that can be incorporated into the customer's GUI (graphical user interface). This GUI component enables the customer to visualise the behaviour of the tariff using techniques appropriate to the tariff.

Subclasses of the `Tariff` interface establish a set of tariff types, each of which is associated with a different set of measurement and input parameters. These parameters are identified by listing them in the signature of the `getCharge()` method. For example, the interface `RSVPTariff` defines `getCharge()` as

receiving n RSVP TSPEC, allowing for the definition of tariffs that compute price on the basis of the characteristics of an RSVP reservation. On the other hand, the interface PacketCountTariff defines getCharge () as receiving measurements of packets in, packets out, and current congestion (typically measured as a function of packet drop), allowing for the definition of tariffs that are dependent on packet counts and sensitive to congestion. Other tariffs may be added as new forms of usage-measurement emerge.

Tariffs are defined by providing implementations of the various tariff interfaces described above. For example, the tariff PacketCountLinear implements PacketCountTariff to compute charges in proportion to packet counts. Another tariff CongestionSensitiveLinear works on a similar basis, but adds a penalty charge if the customer does not stay within a specified traffic limit in the presence of congestion.

In addition to the tariff interface implementation, a tariff may make use of other 'helper' classes to assist in its operation, as well as one or more user interface component classes for customer visualisation purposes. A provider-side user interface may also be required in order to enable the provider to make tariff adjustments.

A complete tariff description consists of a set of Java classes, some of which are destined for the customer system and others which are intended for use by the provider system. The customer-side classes are bundled into a Java archive (JAR) file to facilitate processing by the provider system.

In order to deploy a new tariff, the provider system first loads the tariff classes which it requires into its execution environment. It then loads the customer-side bundle, serialises it, signs it with a private key, and uses an announcement protocol to distribute it to customer systems. The use of a signature makes it possible for customers to verify that received tariffs are authentic.

Upon receiving the bundle, each customer system verifies the signature (using the public key matching the provider's private key), and at the activation time specified in the announcement protocol headers which may be significantly later, e.g. hours or days, unpacks the bundle, and loads the classes into its execution environment using a purpose-built dynamic class loader. An instance of the received tariff class is created and installed in place of the previous tariff. If the tariff has a

user interface component (obtained by calling the tariff object's `getGUI()` method), then it replaces the user interface of the previous tariff. The change in user interface serves to notify the user that the tariff has changed.

Tariff adjustment involves the remote invocation of an operation which is specific to the tariff currently in force. This means that a customer system cannot know the signature of this operation in advance of receiving the tariff i.e. the operation will not be listed in any of the tariff interfaces known to the customer system.

In order to get around this problem, use is made of the "reflection" feature supported by Java. In order to disseminate a tariff adjustment, the provider creates an instance of an `Invocation` object, which stores the name of the operation to be called, together with the parameters that are to be supplied to it. This object is then serialised, signed, and announced using the announcement protocol. When an adjustment is receive and verified by a customer system, the `Invocation` object is de-serialised and applied to the current tariff by using reflection to invoke the described operation.

In order to simplify the announcement protocol, adjustments are required to be idempotent and complete. Idempotency guarantees that a tariff will not be adversely affected if an adjustment is applied more than once. Completeness implies that an adjustment determines the entire parameter set of a tariff object, so that an adjustment completely removed the effects of any previously applied adjustments.

The customer system may apply a tariff by repeatedly invoking the `getCharge()`operation supported by that tariff every second, and adding the returned value to the cumulative charge. The parameters supplied to `getCharge()`depend on the kind of tariff currentiy in force. For example, if the tariff is an implementation of `PacketCountTariff`, then measurements of inbound packets, outbound packets and congestion over the past second are required. However, if the tariff is an implementation of `RsvpTariff`, then only a `TSPEC` describing the current reservation is required. This implies that a customer system can only subscribe to a product if it can supply the parameters require by the tariff associated with hat product.

Each invocation of the `getCharge ()` method also results in an update to the tariff-specific user interface. For example, in the `CongestionSensitiveLinear` tariff, the usage parameters supplied to `getCharge ()` are used to update the graphical displays of traffic and congestion.

The announcement protocol is used to communicate serialised tariffs and adjustments from a provider system to multiple customer systems. The number of customer systems is assumed to be large, and a repeated multicast solution is adopted.

Each product supported by a provider is assigned a multicast channel for announcement purposes. Customer systems listen to the channels corresponding to the products that they are using. In the current implementation, it is assumed that each customer system has knowledge of well-known multicast addresses for the products it is interested in.

For each product channel, the provider repeatedly announces the current tariff and the most recent adjustment made to it (if any). Each announcement carries a version number, which is incremented each time the announcement is changed. Customer systems only process announcements when a version number change is detected. If a new customer joins a channel, it waits until it receives a tariff before processing any adjustment announcements. Furthermore, an adjustment is only applied if its announcement version is greater than that of the current tariff, thereby ensuring that a missed tariff announcement does not result in the application of a subsequent adjustment to an old tariff.

While centralised monitoring and control of tariffs by the network management platform is effective to respond to global changes in the loading of the network, it is difficult to handle localised congestion in this way. It is difficult to cause a price rise signal to be multicast in such a way that the signal is only received by those attempting to communicate packets through the point of congestion. This would require a separate multicast transmission for each element in the Internet , e.g. a multicast for every different queue on every interface of every router. Alternatively some aggregation of price rises triggered by local resource loading might be used. This however would mean that price rise signals were sent to users who were not making use of the congested resource. This in turn would make it necessary for the

price rise signal to be damped, reducing the ability of the price rise to reduce the demand on the congested resource.

To overcome these difficulties, the tariff algorithms installed on the customer terminals are arranged to respond automatically to congestion in a network resource being used by the terminal. Each algorithm includes a function which varies the price for network usage in dependence upon the detected congestion level. This function may be integrated in the main tariff algorithm, or, as in the example described here may be a separate algorithm used to calculate a premium to be added to a price calculated in accordance with the main tariff algorithm.

The main tariff algorithm calculates a price P as a function of a number of quality parameters, Q_1, Q_2, Q_3 where, for example, Q_1 is a specified latency for packets communicated across the interface between the customer terminal and the network, Q_2 is the reserved bandwidth for the transmission, Q_3 is a specified level of reliability corresponding to a maximum permissible level of packet loss.

The price P is then given by:

$$P = f(Q_1, Q_2, Q_3, \ldots\ldots)$$

An example of the pricing function in terms of one of the quality parameters Q is shown schematically in Figure 2a.

The congestion tariff algorithm calculates a premium ΔP which is a function of one or more congestion parameters C:

$$\Delta P = f(C_1, C_2 \ldots)$$

The congestion parameters provide a measure of the loading of the resources which a customer terminal is making use of at any given time. In the present example the ratio of packets lost to packets received is used as the congestion parameter. This parameter is readily calculated, for example in the case of packets using TCP (transport control protocol), or RTP (real time protocol) over UDP (user datagram protocol), since such packets include a sequence number. Figure 2b shows one example of the function for generating the premium. In this case, the premium increases as an approximately exponential function of the congestion, so that at low congestion levels a small premium is charged, while if congestion increases still further, then at higher levels of congestion the premium increases sharply.

In an alternative implementation, an explicit congestion signal is added by any congested router within the network to packets transmitted to the customer

terminal. Whether congestion is signalled explicitly or implicitly by packet drop, the price algorithm might not directly charge for congestion indication. Instead, it may charge if the customer terminal does not halve the congestion window in response to a congestion indication. Halving the congestion window halves the rate of transmission which is the standard response to congestion indication used in TCP and other compatible congestion control protocols. The change in transmission rate can be measured by the network provider as well as at the customer terminal, although this places a heavy load on router processing resources. If the provider is merely sampling certain customers to audit their own measurements, this results in an acceptable load.

Although only a single main tariff and premium are described here, in practice different subdomains, and different service providers associated with each subdomain, may each have a different pricing structure, with different main and premium tariffs. However, there is across all the subdomains a common relationship between network loading levels and congestion signalling.

The operation of this second implementation will now be described in the context of a network operating using a differentiated service as described in the Internet Engineering Task Force dratt "Differentiated Services Operational Model and Definitions" and in the paper by David D Clark (MIT), "A Model for Cost Allocation and Pricing in the Internet", presented at MIT Workshop on Internet Economics, Mar 1995, URL:http://www.press.umich.edu/jep/works/ClarkModel.html. In a network implementing differentiated services, nodes are arranged to discriminate between packets to provide different levels of service. This capability might be used, for example, to accord delay-sensitive data, such as data generated by an IP telephony client, a higher priority compared to other data, such as email data. At the network edge, for example at a client terminal running the IP telephony client, bits in a TOS (type of service) octet contained within each packet header are set to indicate the appropriate service level. Those bits are used by routers within the network to determine how the relevant packets should be handled.

The TOS octet when used in this way is termed the DS (differential service) byte. The format of the differential service byte is shown in Figure 3. Bit zero, labelled "IN" indicates whether the packet is inside or outside a defined profile. Bits 1 to 5 labelled "PHB" define a "per-hop-behaviour" that is they indicate how, for

example, a router should handle the packet, e.g. by according it lower or higher priority. Bits 6 to 7, in this particular form of the DS byte, are used for explicit congestion notification (ECN). One of these bits is set to indicate whether the routers in the path of the packet are capable of setting the ECN field, and the other bit is used as a flag which is set (by ECN capable routers) when congestion, or loading which would potentially lead to congestion, occurs. Random Early Detection (RED) algorithms are currently implemented in routers. These algorithms measure average queue length within the packet buffers of a router. An exponential moving average is calculated. When that average queue length exceeds a predetermined threshold, then the router signals that congestion is occurring. Conventionally this signalling has been done simply by dropping a packet. However, in the context of an ECN scheme, the router, instead of dropping a packet, sets an ECN bit in a packet header to indicate that congestion is occurring. This is done probabilistically: that is, some only of the packets passing through the router are marked. The probability of a packet being marked increases with the average queue size. In the rare case that the queue increases to a length where the router buffers are full, then packets are dropped, rather than an ECN bit being set. In this case ECN bits are set for all the remaining packets.

In operation, if the client terminal 5 is accessing a data source on the server 9, congestion may occur, for example, at router 4 which links network sub-domains 2B and 2C. RED-like algorithms in the router 4 detect that the queue lengths in the router buffers, as calculated using the exponential moving average, exceed a predetermined threshold. Accordingly some of the packets from the server 9 en route to the client terminal have the ECN bit of the DS byte set by the router 9 to mark the fact that congestion is occurring. At the client terminal, the DS byte in the headers of incoming packets is read. A moving average of the number of packets containing an ECN bit which is marked is calculated. This average then provides the congestion parameter C_1 which is used to calculate the premium:

$$\Delta P = f(C_1).$$

The total price to the user P_{TOT} is then calculated by adding together the prices determined by main tariff algorithm and by the premium algorithm:

$$P_{TOT} = P + \Delta P.$$

This total price is passed to a cost decision agent running on the client terminal. This cost decision agent is programmed with user defined rules. These might state, for example, that the cost decision agent should authorise the system to proceed with a connection as long as the total cost averaged over a certain time period falls below a predetermined threshold, e.g. of £0.01 per minute, and that the cost decision agent should suspend a connection and alert the user if the cost rises above that threshold. Alternatively, as previously noted, the cost decision agent may handle several applications simultaneously, and may be programmed to slow down one of the applications as the premium for using a data source accessed by that application increases.

For some customers in some circumstances, the variability of the tariff for network usage may pose problems. For example, a customer might wish to schedule a multicast audio-video conference with, say, twenty participants and with the customer intending to pay the network usage costs for all of the participants. The conference will be scheduled a day or more in advance, but since the tariff is variable over time, at the point when the conference is scheduled, the customer will not know the cost which will be incurred. The preferred implementation of the present invention overcomes this problem for the customer, and also provides an additional revenue source for the network operator. This is achieved by applying a further tariff which defines a premium for price stability for a given customer terminal, the value of the premium increasing as the required duration of the period of stability increases. In the example referred to above, the customer scheduling a conference one day in advance refers to the current tariff to determine the present cost of the network resources required, including any congestion premium currently applicable, and then refers to the further tariff to determine the premium for maintaining the cost at its present value for a period of one day. Then if the user decides to make use of the fixed tariff a message is sent from the user to the network operator. The message identifies the data flows in question, for example by specifying the IP addresses and the service levels for the audio and video data flows between the participants, together with the current time at which the user is contracting for a fixed period, and the required duration of the fixed period and also an identifying code for the message. Alternatively, the message with these details may be tracked with an appropriate cryptographic function (e.g. MD5), and the hash value only communicated initially to

the provider, and subsequently used to verify account data. Subsequently, for the duration of the specified period, in this case one day, the user applies the fixed tariff. In systems where the users themselves are responsible for generating accounting data and calculating the applicable charge for network usage, then the user calculates the charge using the fixed tariff and returns the accounting data to the network operator together with the identifying code for the fixed tariff contract.

This aspect of the invention is not only applicable to systems where tariff variation is carried out locally in response to the detection of congestion, but may also be used in systems where, for example, the only variation is imposed by the network operator.

The tariff for the stability premium may be distributed by multicasting from tariff entities in network operator platforms to the customer terminals in the same manner as described previously for the other tariffs discussed above. As with those other tariffs, different tariffs and optionally different periods of stability might apply to different service levels. In a scenario such as that discussed in the preceding paragraph, then different service levels might be used for different elements of the audio and video data streams required for the multicast conference.

Figure 2c shows a possible for the stability premium tariff. This tariff may be embodied in a Java function multicast to the users. Curve C is communicated to the customer terminal as another subsidiary algorithm that contributes to the main tariff algorithm. The customer may choose a period of price stability and calculate the premium above the spot price that his will require using curve C. Curve B is an example of the stable price chosen in a particular case. Once the period of stability expires a new one can be bought at the premium over the spot price at that time. To buy a period of price stability, the customer must announce the period required and the range of addresses for which it applies to her provider. It may be required for one address (e.g. for the duration of an Internet phone call to a single person) or for a range of addresses (e.g. for a video conference). Certain risk-averse customers might request stable pricing for all addresses all the time.

For ease of description, the preceding sections have treated in isolation the local variations in tariff in response to congestion. In practice, this mechanism will in general be combined with other responses to congestion, and with other sources of variation in the tariff. Also, a decision to proceed with a transmission despite

congestion will in general require the consent of parties at both ends of the transmission. Considering the entire system of the data source, network and routers and the data receiver, the implementation of an increase in tariff (also termed here a "fine") in response to locally detected congestion occurs as a last resort. Other responses are implemented first, in the following numerical order:

1.the network re-routes around congestion

2.the network borrows capacity from lower levels of service (lower in the context of the relevant dimension(s) of QoS) including the best effort service

3.the network introduces extra capacity (possibly automatically)

4.the end-system establishes that the congestion is on the shared network and not just on the access links or end systems

5.the end-system sets QoS requirements to a "higher" level (if cheaper than the fine for ignoring congestion at the current level)

6.the end-system decides it is essential to ignore the congestion, given the fine for doing

so might be quite high

7.both (all) end-systems agree to ignore the congestion.

Typically, it is at step 4 that an ECN signal is generated. Steps 1 to 3 precede the generation of this signal and steps 5 to 7 follow the generation of the ECN signal.

The last step prior to proceeding with a connection and paying the premium for doing so is establishing agreement by both parties. Accordingly, when the customer terminal detects congestion, either through receiving explicit congestion notification, or through detection of a relevant parameter such as packet loss, the customer terminal signals this fact back to the or each other end system. In the present example therefore, the client terminal 5 signals to the data server 9 that congestion is occurring. The data server is programmed with rules, which as at the customer may be implemented as an agent, which determine the response to such a signal. For example, the server may refuse service in these conditions. As described previously with respect to Figure 1, in the present example tariffs are multicast through the network from network operators to the customer terminals, and charging is carried out using a "pay and display" process. Figures 4a and 4b shows the objects used to implement the charging architecture in this case. Figure 4a

shows the higher level objects and 4b shows the component objects used in a software implementation of the architecture of Figure 4b. In Figure 4a, objects on the client terminal are shown in the half of the Figure labelled "customer" and objects on the access router 7 and the corresponding network sub-domain are shown in the half of the Figure labelled "edge network". The objects on the customer terminal include a session control object S, a customer business rules object B_c, a customer pricing object Pr_c, a QoS manager Q, a customer accounting object Act_c and a customer measurement object M_c. The business rules object B_c receives information on those aspects of the session which involve liability for payment and receives current pricing data from the pricing object Pr_c. The customer business object makes decisions, under the customer's policy control on which chargeable services are utilised, and how much of the chargeable services are utilised. These decisions are fed to the QoS manager Q, which decides which mechanisms are used to achieve the requirements. The QoS manager then controls the customer measurement object M_c to determine which aspects of traffic and service to measure and which aspects to ignore. The measurement object then records the selected aspects of the traffic, for example counting the number of packets received by the customer terminal and the QoS levels for those packets. These data together with the current tariffs, including any premium for congestion, are then used by the customer terminal to determine the charge payable to the network operator. The measurement object M_c is also programmed with instructions which determine the frequency with which it passes data to the customer accounting object Act_c. The customer accounting object Act_c passes payments to an accounting object Act_p in the network provider's domain.

The accounting objects on the customer terminal may be implemented using a small encrypted flat-file database. On the network provider's side, the equivalent objects may be implemented using a larger database that is scaleable to handle e.g., tens of thousands of customer accounts. An object request broker (ORB) is used for communication between the customer-side objects and the network-side objects, implemented using commercially available tools such as ORBIX (TradeMark) from Iona Technologies plc.

On the network provider's side, that is to say within the subdomain to which the customer terminal is connected, the customer's traffic is measured by a version of M_c denoted M_p, but only on a sampling basis determined by the policing function,

Po. That is to say, the network operator samples the customer's traffic only intermittently. Po controls where in the network measurements are made in order to capture all of any particular customer's traffic. A bulk measurement function, M_b, is responsible for reporting aggregate traffic levels, as reflected in the moving average of the router queue lengths, to the pricing object, Pr_p. Bulk measurements would typically be collected from across the provider's domain to a centralised pricing function (which would be replicated for reliability). Pr_p sets prices taking into account the business rules from the network provider's business object, B_p, as well as the current traffic levels reported by Mb and pricing from neighbouring providers (see below). The policing function, Po, compares sample measurements from M_p with accounting messages received at Act_p as a result of the customers own measurements . If it establishes that the accounts are insufficient it might restrict service at the access control gateway, Acs, or initiate some other punishment. Encapsulated within the accounting object another policing object checks the accounts match the payments within the contracted time for payment. Finally, the identity mapping function, I, provides a mapping between a customer's identity (account, digital signature, etc.) and their current network address (typically allocated by the ISP, whether unicast or multicast).

Figure 5 shows the data which are passed between the accounting objects. In this example the account data comprises: account identity; bill record identity; service type identifier; source address; destination address; tariff identity; time; period (i.e. the period covered by the bill record); units; cost; and currency. In addition, the payment data comprises the amount of money and the currency of payment.

Figure 6 shows the measurement region within protocol stacks on the customer terminal and in the network domain. Ideally there would be two measurement points within this region, one trusted by the customer and one trusted by the network, for example at the two points referenced (a) in the Figure. For ease of implementation, a single measurement point (b) trusted by both parties may be used. This might be implemented, for example within a secure module such as a cryptographic card on the client terminal. As an alternative, measurements may be made at different points with some possibility of discrepancies between measurements. On the network the practical measurement point is at the first

access device(s) that, for each customer, inspects network layer headers (c)(IP in this case). ISPs should not measure any deeper into their network (d) because their access network and systems will introduce delays and losses.

For an individual customer (e.g. on dial-up access), a practical point at which to measure would also be alongside the network layer but in their end-system's stack (e). Ideally these measurement points would be lower in each stack to be closer to the interface between the two parties and less likely to be affected by contention in the stack. However, measuring at the link layer (f-f) would be inappropriate because only some chargeable parameters set at the network layer will ever be reflected in link layer frames; network level multicast, end-end latency requirements etc. may never be visible at the link layer. Also, link layer headers would need to be ignored when measuring packet sizes for bandwidth calculations to avoid apparent discrepancies where different link technologies are chained together.

In the reception direction (up the stack) this choice of measurement points implies that the lower layers must be dimensioned (buffer sizes, interrupt and thread scheduling priorities) to cope with the most stringent QoS requirements of higher layers. As frames are taken off the physical media, the machine must be able to pass data up the stack without any chance that usage-charged data gets discarded (e.g. due to buffer overflow caused by interrupt contention) before it gets to the network layer. It is at the network layer where the ISP's service is to be measured and where it is most convenient for QoS requirements to control correct differential treatment of the various flows as they are passed further up the stack (on end-systems) or forwarded (on routers).

The measurement objects described above may be implemented using, with appropriate modifications, publicly available network metering software such as Nevil Brownlee's NeTraMet system. This is a software meter which conforms to the IETF Internet accounting architecture described in RFC 2063 and RFC 2064. The meter builds up, using "packet sniffing", packet and byte counts for traffic flows, which are defined by their end-point addresses. Although generally, Addresses can be ethernet addresses, protocol addresses (IP, DECnet, EtherTalk, IPX or CLNS) or 'transport' addresses (IP port numbers, etc), or any combination of these, in the present implementation IP addresses only are used. The traffic flows to be observed are specified by a set of rules, which are downloaded to NeTraMet by a 'manager'

program. Traffic flow data is collected via SNMP (Simple Network Management Protocol) from a 'collector' program.

Figure 7 shows how the main tariff determined by the network operator varies in time. In the Figure, curve A is the spot price calculated to reflect the loading of the network at any instant. Curve B is one of a number of different tariff bands. Different tariff bands have different volatilities, and the customer pays a premium for bands offering greater stability. Tariffs are communicated to the customer terminals using a hierarchy of channels carried by the network. An initial contract between a customer and a service provider a single channel address that might typically hold new announcements distributed some months apart (e.g. for contract variations or for new services specifying which second level channel to listen to for tariffs or for downloading new code to handle new tariff structures). The second level channels might deliver updates hours apart which simply announce the addresses of third level channels for the most volatile information. These third level channels may carry updates at intervals of less than a second. Prices for many services may be carried on one channel. For greatest efficiency, this one channel may be split into several channels at times of highest volatility, and re-aggregated into a single channel in more stable periods.

Tables 1 to 7 below list Java source code used to implement two different tariffs. The code of table 1 establishes the operations used for communication between a customer system and a tariff algorithm downloaded by the customer system. Table 2 shows a linear tariff algorithm, in which the tariff depends on the total of the packets sent and packets received by the customer together with a congestion parameter. Table 3 shows the code for generating the customer display in this case. Table 4 shows the code used to display the tariff at the network operator's server. Table 5 shows an exponential tariff algorithm. Table 6 generates the customer display and Table 7 the operator display for the exponential tariff algorithm. By downloading Java code to generate the user interface, that interface can be tailored to the requirements of the particular tariff, and can be adapted as the tariff changes.

Although the examples so far described have been in the context of federated packet data networks, such as the Internet, many aspects of the invention can also be used with advantage in other types of network, such as in a circuit-

switched PSTN (public switched telephony network). Figure 11 shows an example of the invention applied in this context. In this network, customer terminals 81, which are in this example so-called intelligent phones, that is telephones incorporating a microprocessor and a data interface, are connected via local exchanges 82 and trunk exchanges 3 to the telephony networks. The trunk exchanges 83 are connected via a common channel SS7 (signalling system number 7) signalling network to a service control point 85 that is responsible for the execution of advanced call control functions. The service control point 85 is also connected to an operational support server 86 that is responsible for billing operations, and that, in this example, controls the setting of tariffs for the network. The OSS server and customer terminals include tariff entities (TE). The fixed PSTN network is also interconnected via a gateway 87 to a cellular GSM network 88. Base Stations BS in the cellular network communicate signals to intelligent mobile phones 89. In operation, network tariffs are distributed to customer terminals via the PSTN network and via the GSM network. Conveniently, the tariff may again take the form of Java functions which are executed on processors in the customer terminals. The Java functions may be streamed as Internet packets. In one implementation, these Internet packets may be distributed via the PSTN networks and GSM networks themselves. For example, the packets may be encapsulated and transported to the trunk exchanges using the MTP (message transport part) transport layer and may be communicated onwards to the customer terminals using out-of-band signalling. Alternatively, a separate data connection may be established between the OSS server and the customer terminals via the public internet. As in the examples above, the network operator monitors the loading of resources within the network and may transmit signals to the tariff entities in the customer terminals to change the tariff to reflect the scarceness or otherwise of relevant resources. Customer terminals may themselves monitor network loading and automatically generate variations in the tariffs. Usage of network resources may be measured locally by the customer terminals instead of conventional billing carried out within the network. The network operator may police the measurement of usage data by carrying out sampling, as described previously.

Table 1

```
// Generated by Together
package com.bt.jungle.lsma.charging.pricing;

import com.sun.java.swing.JComponent;

/**This establishes the operations used for
communication between the customer system
and the downloaded algorithm.
@author Mike Rizzo*/
public interface Tariff {
Jcomponenet getGUI( );
Float getPrice (int pkin, int pkout, int cng);
```

Table 2

```
package algorithms.linear;

import com.sun.java.swing.JComponent;
import com.sun.java.swing.JTextField;

import com.bt.jungle.isma.charging.pricing.Tariff ;

public class LinearAlgorithm implements Tariff {
        private float rate;
        private LinearAlgorithmDisplay display;
        public LinearAlgorithm ( ) {
                display = new LinearAlgorithmDisplay ( );
                setRate (new Float(1));
        }
        public float getPrice (int pkin, int pkout, int cng) {
                return (pkin + pkout + cng) * rate;
        }
        public JComponent getGUI( ) { return display; }
        public void setRate (Float f) {
                rate = f.floatValue( ) ;
                display.setRate (rate) ;
        }
}
```

Table 3

```
// Generated by Together

package algorithms.linear;

import com.sun.java.swing.JPanel;
import com.sun.java.swing.JTextField;
import com.sun.java.swing.Box;
import com.sun.java.swing.JLabel;

public class LinearAlgorithmDisplay extends Jpanel {
        private JTextField tfRate = new JTextField (4);
        public LinearAlgorithmDisplay ( ) {

                Box vbox = Box.createVerticalBox ( ) ;

                Box hbox = Box.createHorizontalBox ( ) ;
                hbox.add (Box.createHorizontalGlue ( )) ;
                hbox.add (new Jlabel ("Rate:"));
                hbox.add (Box.createHorizontalGlue( ));
                hbox.add (tfRate);
                tfRate.setEditable (false);
                hbox.add (Box.createHorizontalGlue( ))
                vbox.add (hbox);

                add (vbox());
        }
        public void setRate (float f) {
                tfRate.setText (String.valueOf (f));
        }
        }
```

Table 4

```
// Generated by Together
package algorithms.linear;

import com.sun.java.swing.*;
import java.awt.event.*;

import com.bt.jungle.isma.charging.pricing.provider.*;
import com.bt.jungle.util.*;

public class LinearAlgorithmGUI extends Jpanel {
        private JTextField tfRate - new JTextField ( );
        private TuningMessageListener tuningMessageListener;
        private final static String DEFAULT_RATE = "1.0";
        public LinearAlgorithmGUI (TuningMessageListener tml) {
                tuningMessageListener = tml;
                tfRate.setText (DEFAULT_RATE);

        Box vbox = Box.createVerticalBox( );

        Box hbox = Box.createHorizontalBox ( );
        hbox.add (new Jlabel ("Rate:"));
        hbox.add (Box.createHorizontalGlue( ));
        hbox.add (tfRate);
        hbox.add (Box.createHorizontalGlue( ));
        hbox.add (hbox);

        JButton bTransmit = new JButton ("Transmit");
        bTransmit.addActionListener (
                new ActionListener ( ) {
                        public void actionPerformed (ActionEvent e) {
                                transmit ( ) ;
                        }
                }
        );
        hbox = Box.createHorizontalBox( );
        hbox.add. (Box.createHorizontalGlue( ));
        hbox.add (bTransmit);
        hbox.add (Box.createHorizontalGlue( ));
        vbox.add (hbox);

        add (vbox);
}
void transmit ( ) {
        try {
                Float f = new Float (tfRate.getText( ));
                Object  args [ ] = new Object [1];
                Args [0] = f;
                TuningMessageListener.notify(
```

```
                        new Invocation ("SetRate", args)
                    };
                }
                catch (Exception e) {
                    e.printStackTrace ( );
                }
            }
        }
```

Table 5

```
package algorithms.exp;

import com.sun.java.swing.JComponent;
import com.sun.java.swing.JTextField;

import com.sun.java.isma.charging.pricing.Tariff;

public class ExpAlgorithm implements tariff {
        private float min;
        private float base;
        private float divisor;
        private ExpAlgorithmDisplay display( );
        public ExpAlgorithm( ) {
                display = new ExpAlgorithmDisplay ( );
                setMin (new Float (1));
                setBase (new Float (2));
                setDivisor (new Float (10));
        }
        public float getPrice (int pkin, int pkout, int cng) {
                return min + (float)math.pow (base,(pkin + pkout + cng)/divisor);
        }
        public JComponent getGUI( ) {return display; }
        public void setMin (Float f) {
                min = f.floatValue( );
                display.setMin(min);
        }
        public void setBase (Float f) {
                base = f.floatValue( );
                display.setBase(base);
        }
        public void set Divisor (Float f) {
                base = f.floatValue( );
                display.setBase (divisor);
        }
}
```

Table 6

```
// Generated by Together

package algorithms.exp;

import java.awt.GridLayout;
import com.sun.java.swing JPanel;
import com.sun.java.swing.JTextField;
import com.sun.java.swing.Box;
import com.sun.java.swing.JLabel;

public class ExpAlgorithmDisplay extends Jpanel {
        private JLabel tfDisplay = new JLabel ( );
        private float min, base, div;

        public ExpAlgorithmDisplay ( ) {

                add (tfDisplay);
        //              tfDisplay.setEditable (false);
                updateDisplay ( );
        }
        private void updateDisplay ( ) {
                tfDisplay.setText ("price = " + min + " + " + base +
"^((pkin+pkout+cng)/" + div +")");
        }
        public void setMin (float f) {
                min = f;
                updateDisplay ( );
        }
        public void setBase (float f) {
                base = f;
                updateDisplay ( );

        public void setDivisor (float f) {
                div = f;
                updateDisplay ( );
        }
}
```

Table 7

```
// Generated by Together

package algorithms.exp;

import java.awt.GridLayout;
import com.sun.java.swing.*;
import java.awt.event.*;

import com.bt.jungle.isma.charging.pricing.provider.*;
import com.bt.jungle.util.*;

public class ExpAlgorithmGUI extends Jpanel {
        private JTextField tfMin = new JTextField ( );
        private JTextField tfBase = new JtextFfield ( );
        private JTextField tfDivisor = new JTextField ( );

        private TuningMessageListener tuningMessageListener;
        private final static String DEFAULT_MIN = "1.0";
        private final static String DEFAULT_BASE = "2.0";
        private final static String DEFAULT_DIV = "10.0";

        public ExpAlgorithmGUI (TuningMessageListener tml) {
                tuningMessageListener = tml;
                tfMin.setText (DEFAULT_MIN);
                tfBase.setText (DEFAULT_BASE);
                tfDivisor.setText (DEFAULT_DIV);

                Box vbox = Box.createVerticalBox ( );

                vbox.add (new JLabel ("price = min + pow (base,
(pkin + pkout + cng)/divisor)"));

                vbox.add (Box.createVerticalGlue ( ));

                Jpanel panel = new JPanel (new GridLayout (3,2));
                panel.add (new JLabel ("Minimum"));
                panel.add (tfMin);
                tfMin.addActionListener (
                        new ActionListener ( ) {
                                public void actionPerformed (ActionEvent e) {
                                        transmit ("setMin", tfMin);
                                }
                        }
                );
                panel.add (new JLabel ("Base"));
                panel.add (tfBase)
                tfBase.addActionListener (
                        new ActionListener ( ) {
```

```
                        public void actionPerformed (ActionEvent e) {
                        transmit ("setBase", tfBase);
                    }
                }
            };
            panel.add (new JLabel ("Divisor"));
            panel.add (tfDivisor);
            tfDivisor.addActionListener (
                new ActionListner ( ) {
                    public void actionPerformed (ActionEvent e) {
                        transmit ("setDivisor", tfDivisor);
                    }
                }
            );
            vbox.add (panel);

            add (vbox)
        }
        void transmit (String m, JTextField tf) {
            try {
                Float f = new Float (tf.getText ( ));
                Object args [ ] = new Object [1];
                args [0] = f;
                tuningMessageListener.notify(
                    new Invocation (m, args)
                );
            }
            catch (Exception e) {
            e.printStackTrace ( );
            }
        }
    }
```

CLAIMS

1. A method of operating a communications network, including automatically varying, depending on network loading as detected at a customer terminal, a tariff for network usage by the customer terminal.

2. A method according to claim 1, including detecting at the customer terminal a network performance parameter which depends on network loading, and varying the tariff depending on the network performance parameter.

3 A method according to claim 2, in which the network is a packet network and the network performance parameter is the number of packets lost in transmission between a data source and the customer terminal.

4. A method according to claim 1, including detecting a congestion signal at the customer terminal and varying the tariff in response to the congestion signal.

5. A method according to claim 4, including reading a congestion signal at the customer terminal from a data packet received at the customer terminal.

6. A method according to claim 4 or 5, including generating a congestion signal at a router in the network in response to the detection of congestion at the router.

7. A method according to any one of the preceding claims, including making a first relatively smaller increase in the tariff when congestion is first detected, and making at least one further, relatively larger increase, if the congestion persists.

8. A method according to any one of the preceding claims, including programming a decision agent at the customer terminal with user-determined price criteria, and comparing a price calculated using the tariff with the said price criteria.

9. A method according to any one of the preceding claims, including distributing a tariff algorithm via the communications network to a plurality of terminals and

calculating at each terminal, using the tariff, a charge for network usage by the terminal.

10. A method according to claim 9, further comprising steps, carried out by the network operator, of:

intermittently sampling traffic between a customer terminal and the network, and as part of the sampling recording network loading affecting the customer terminal; and

for the sampled traffic comparing a charge calculated by the customer terminal and an expected charge and detecting thereby any discrepancy.

11. A method according to any one of the preceding claims, in which when the customer terminal detects congestion in data transmitted to the customer terminal from a data source via the network, the customer terminal returns a congestion notification signal to the data source.

12. A method according to any one of the preceding claims, including at a customer terminal, selecting a period of time for which the tariff is to be fixed and paying a premium depending on the duration of the said period.

13. A method of operating a communications network including applying to customer terminals a tariff for network usage, varying the tariff with time; at a customer terminal, selecting a period of time for which the tariff is to be fixed; and paying a premium depending on the duration of the said period.

14. A communications network including :

means for detecting network loading locally at a customer terminal; and

means responsive to the said means for detecting arranged automatically to vary a tariff for network usage by the customer terminal.

15. A customer terminal for use in a communications network, the customer terminal including:

means for detecting loading of a network to which, in use, the customer terminal is connected;

means responsive to the said means for detecting and arranged automatically to vary a tariff for network usage by the customer terminal.

14. A customer terminal for use in a communications network, the customer terminal including one or more processors arranged to carry out the following steps in sequence:

detecting loading of resources in a network to which the customer terminal is connected; and

automatically varying in dependence on the detected loading a tariff for network usage by the customer terminal.

15. A method according to any one of claims 1 to 13, in which the tariff is varied only if the terminal fails to reduce its output in response to detected congestion.

Fig.1.

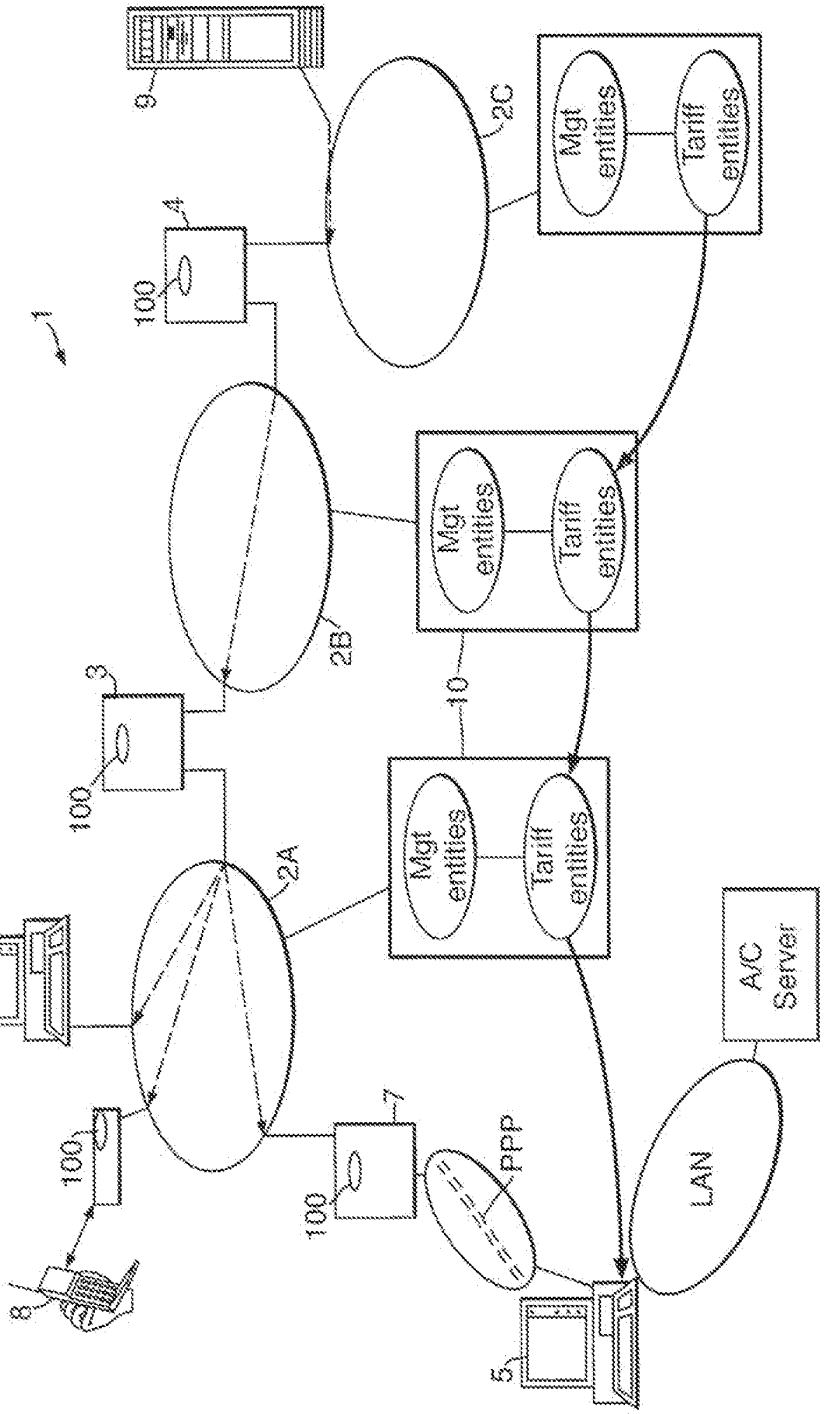

1
2A
2B
2C
3
4
5
7
8
9
10
100
Mgt entities
Tariff entities
A/C Server
LAN
PPP

Fig.2a.

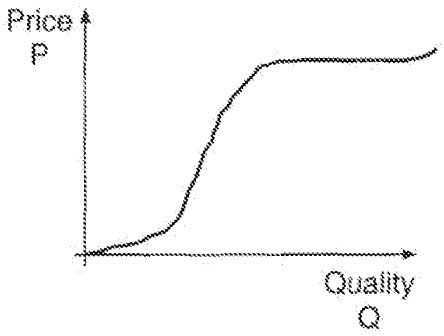


Fig.2b.

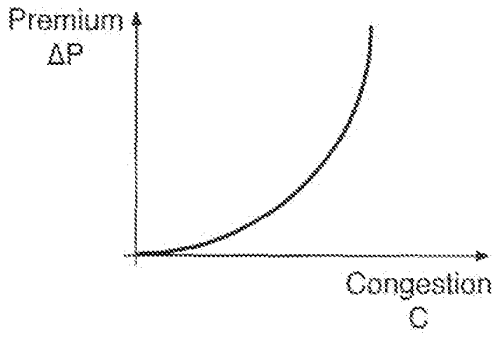


Fig.3.

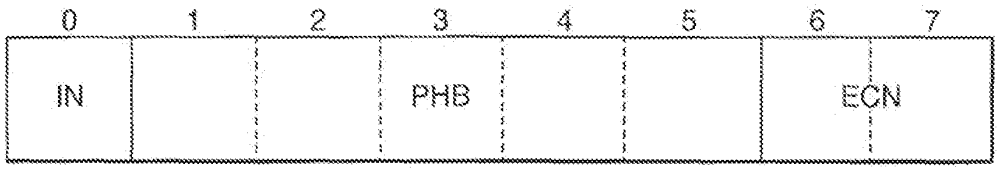


Fig.2c.

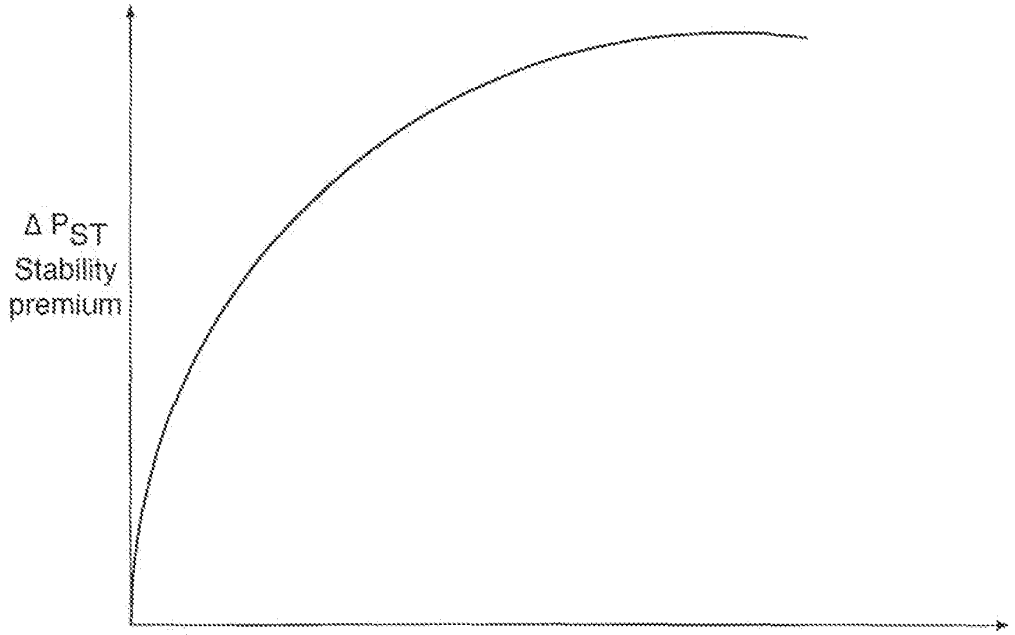


Fig.4a.

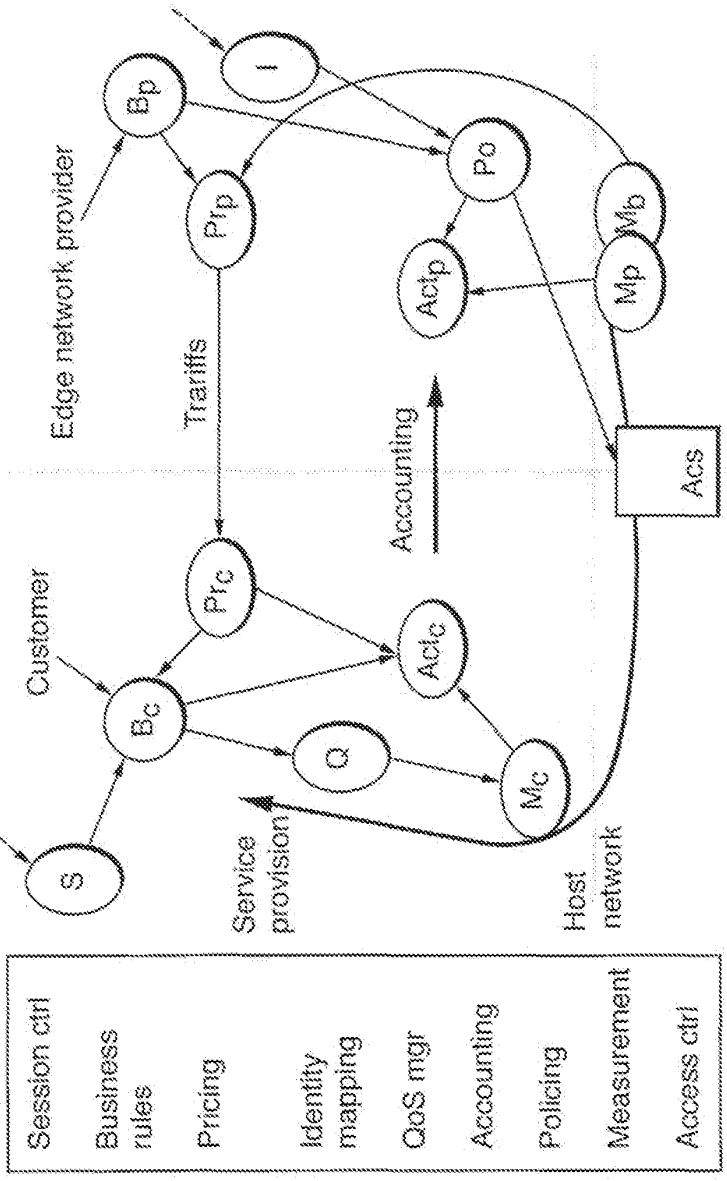

Edge network provider
Customer
Tariffs
Accounting
Service provision
Host network
Session ctrl
Business rules
Pricing
Identity mapping
QoS mgr
Accounting
Policing
Measurement
Access ctrl

Fig.4b.

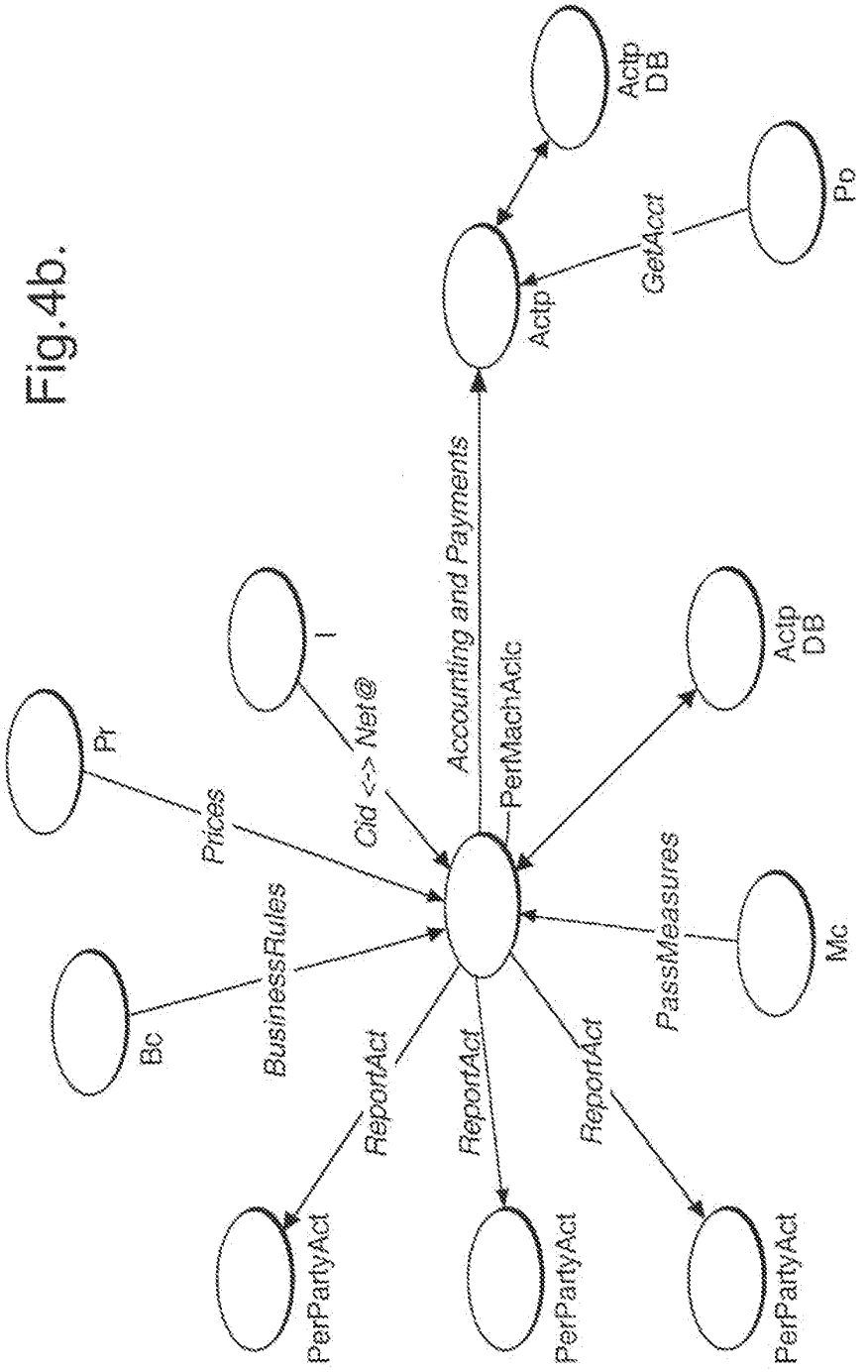

Actp DB
Po
GetAcct
Actp
Accounting and Payments
I
Qid <-> Net@
Pr
Prices
PerMachAcic
Actp DB
BusinessRules
Bc
PassMeasures
Mc
ReportAct
ReportAct
ReportAct
PerPartyAct
PerPartyAct
PerPartyAct

Fig.5a.

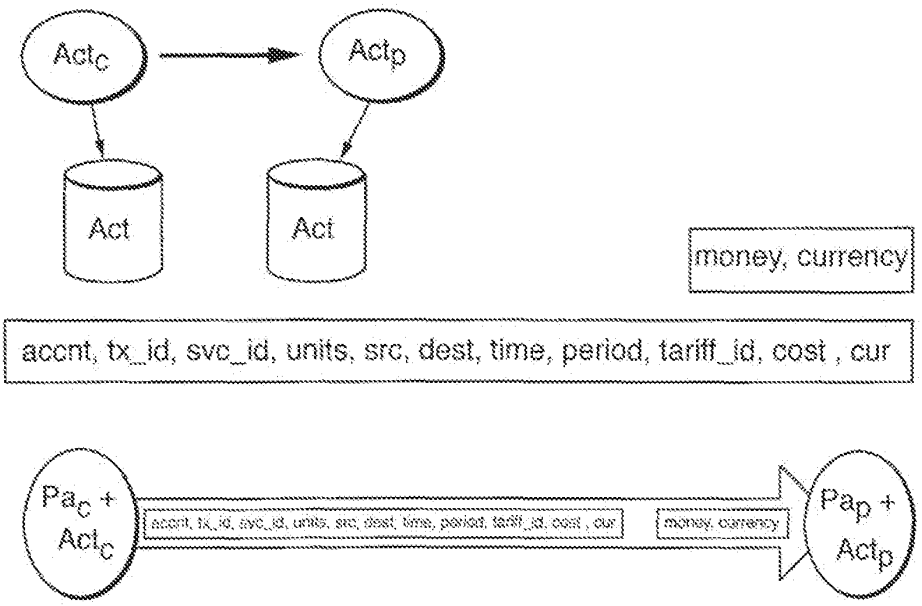

Act$_C$
Act$_P$
Act
Act
money, currency
accnt, tx_id, svc_id, units, src, dest, time, period, tariff_id, cost , cur
Pa$_C$ + Act$_C$
accnt, tx_id, svc_id, units, src, dest, time, period, tariff_id, cost , cur
money, currency
Pa$_P$ + Act$_P$

Fig.5b.

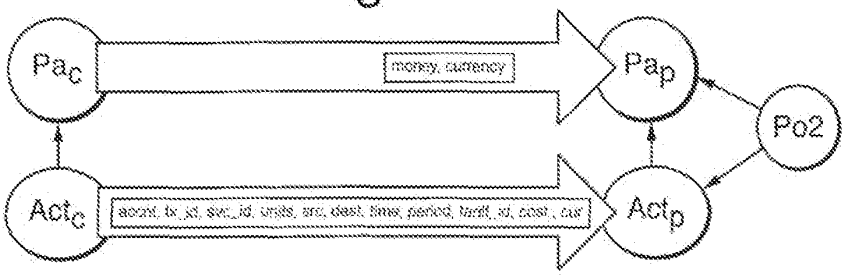

Pa$_C$
money, currency
Pa$_P$
Po2
Act$_C$
accnt, tx_id, svc_id, units, src, dest, time, period, tariff_id, cost , cur
Act$_P$

Fig.6.

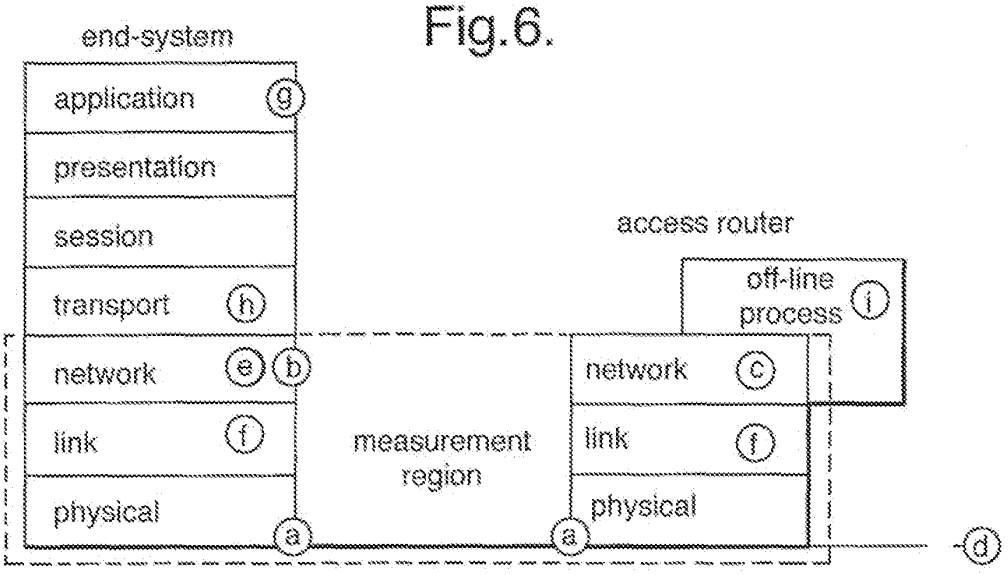

end-system
application
g
presentation
session
transport
h
network
e
b
link
f
physical
a
measurement region
access router
off-line process
i
network
c
link
f
physical
a
d

Fig.7.

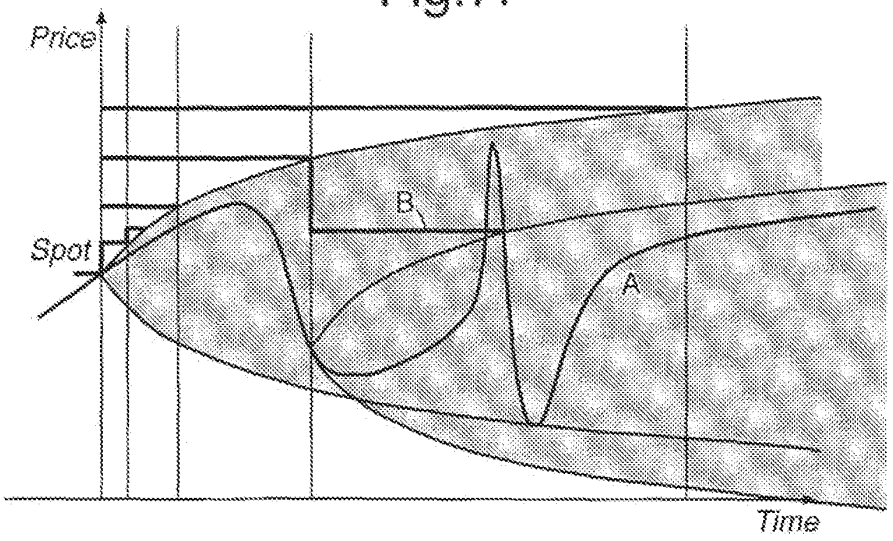

Price
Spot
B
A
Time

Fig.8a.

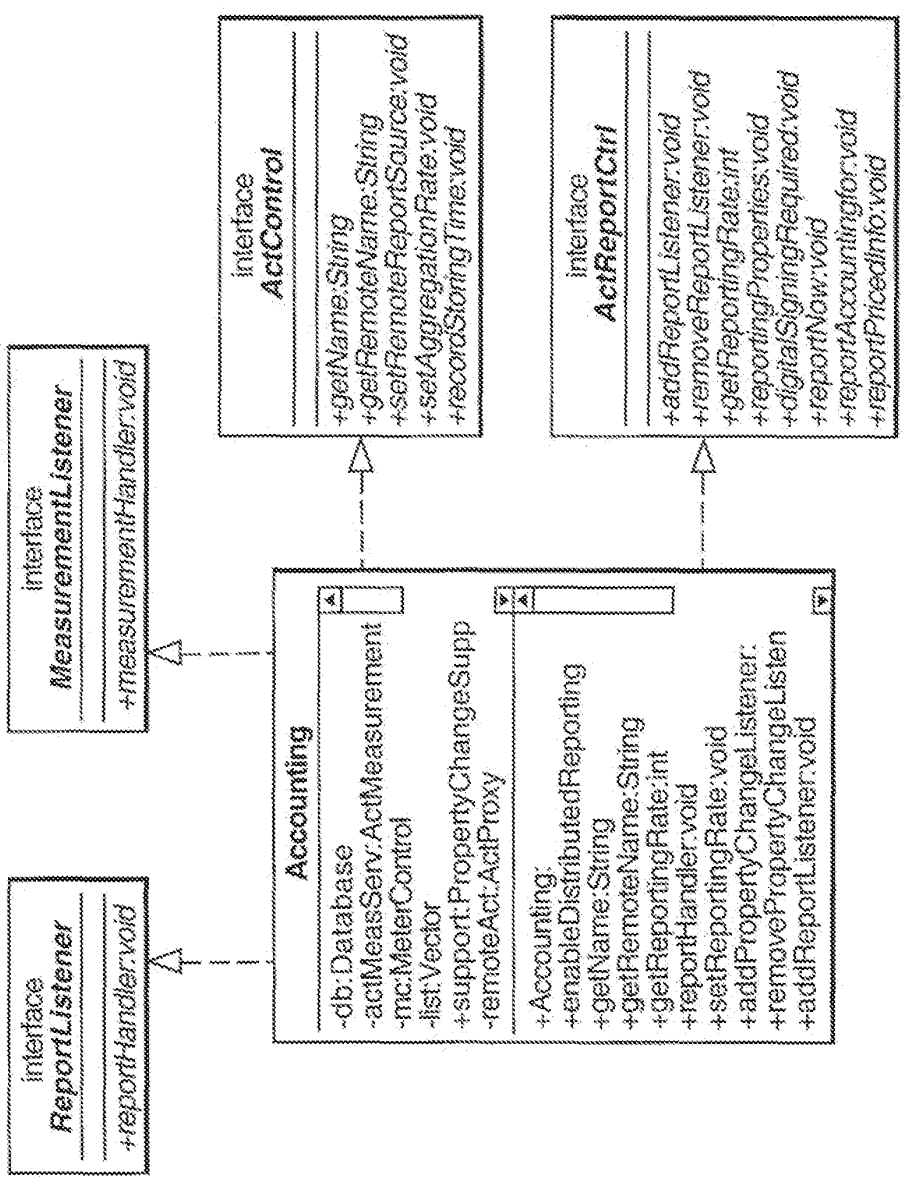

interface
ReportListener
+reportHandler:void
interface
MeasurementListener
+measurementHandler:void
interface
ActControl
+getName:String
+getRemoteName:String
+setRemoteReportSource:void
+setAggregationRate:void
+recordStoringTime:void
interface
ActReportCtrl
+addReportListener:void
+removeReportListener:void
+getReportingRate:int
+reportingProperties:void
+digitalSigningRequired:void
+reportNow:void
+reportAccountingFor:void
+reportPricedInto:void
Accounting
-db:Database
-actMeasServ:ActMeasurement
-mc:MeterControl
-listVector
+support:PropertyChangeSupp
-remoteAct:ActProxy
+Accounting:
+enableDistributedReporting
+getName:String
+getRemoteName:String
+getReportingRate:int
+reportHandler:void
+setReportingRate:void
+addPropertyChangeListener:
+removePropertyChangeListen
+addReportListener:void

Fig.8b.

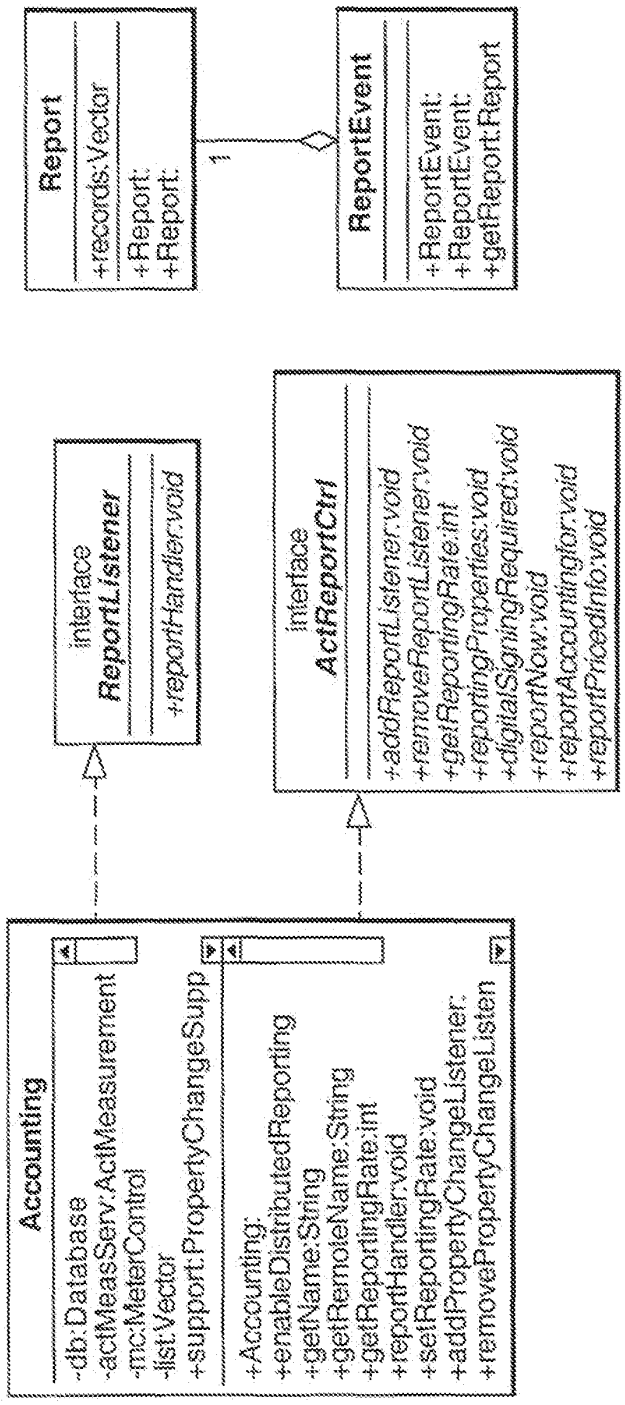

Report
+records:Vector
+Report:
+Report:
1
ReportEvent
+ReportEvent:
+ReportEvent:
+getReport:Report
interface
ReportListener
+reportHandler:void
interface
ActReportCtrl
+addReportListener:void
+removeReportListener:void
+getReportingRate:int
+reportingProperties:void
+digitalSigningRequired:void
+reportNow:void
+reportAccountingfor:void
+reportProcedInfo:void
Accounting
-db:Database
-actMeasServ:ActMeasurement
-mc:MeterControl
-list:Vector
+support:PropertyChangeSupp
+Accounting:
+enableDistributedReporting
+getName:String
+getRemoteName:String
+getReportingRate:int
+reportHandler:void
+setReportingRate:void
+addPropertyChangeListener:
+removePropertyChangeListen

Fig.8c.

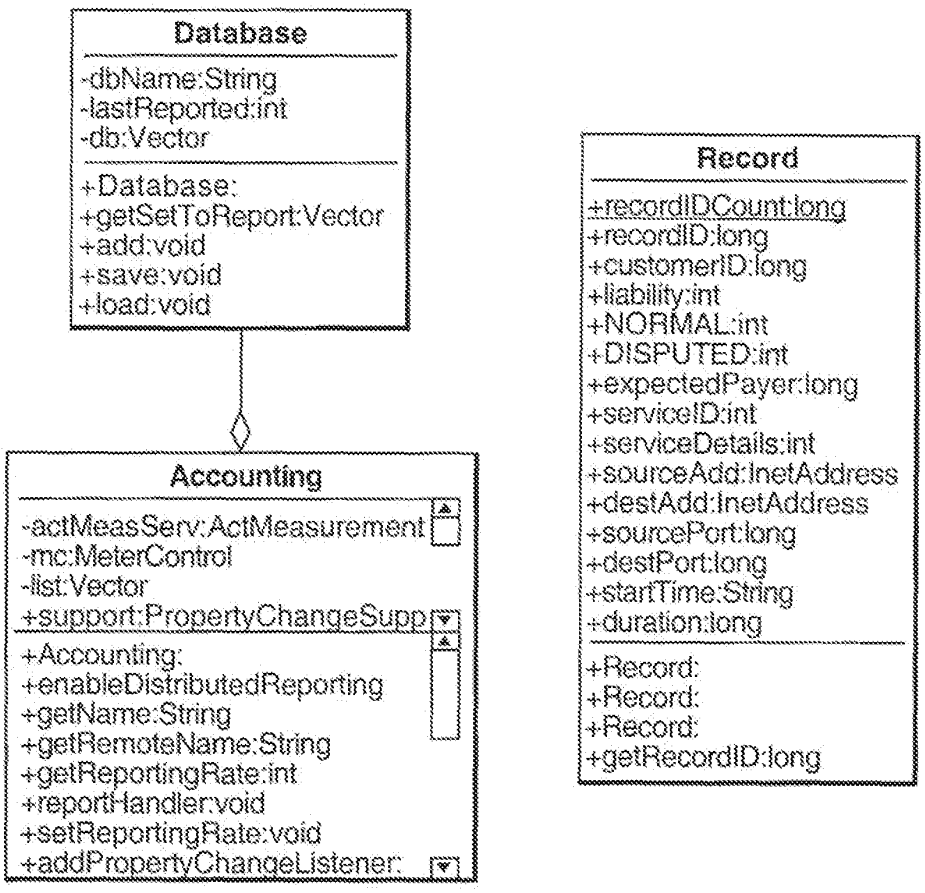

Database
-dbName:String
-lastReported:int
-db:Vector
+Database:
+getSetToReport:Vector
+add:void
+save:void
+load:void
Accounting
-actMeasServ:ActMeasurement
-mc:MeterControl
-list:Vector
+support:PropertyChangeSupp
+Accounting:
+enableDistributedReporting
+getName:String
+getRemoteName:String
+getReportingRate:int
+reportHandler:void
+setReportingRate:void
+addPropertyChangeListener:
Record
+recordIDCount:long
+recordID:long
+customerID:long
+liability:int
+NORMAL:int
+DISPUTED:int
+expectedPayer:long
+serviceID:int
+serviceDetails:int
+sourceAdd:InetAddress
+destAdd:InetAddress
+sourcePort:long
+destPort:long
+startTime:String
+duration:long
+Record:
+Record:
+Record:
+getRecordID:long

Fig.8d.

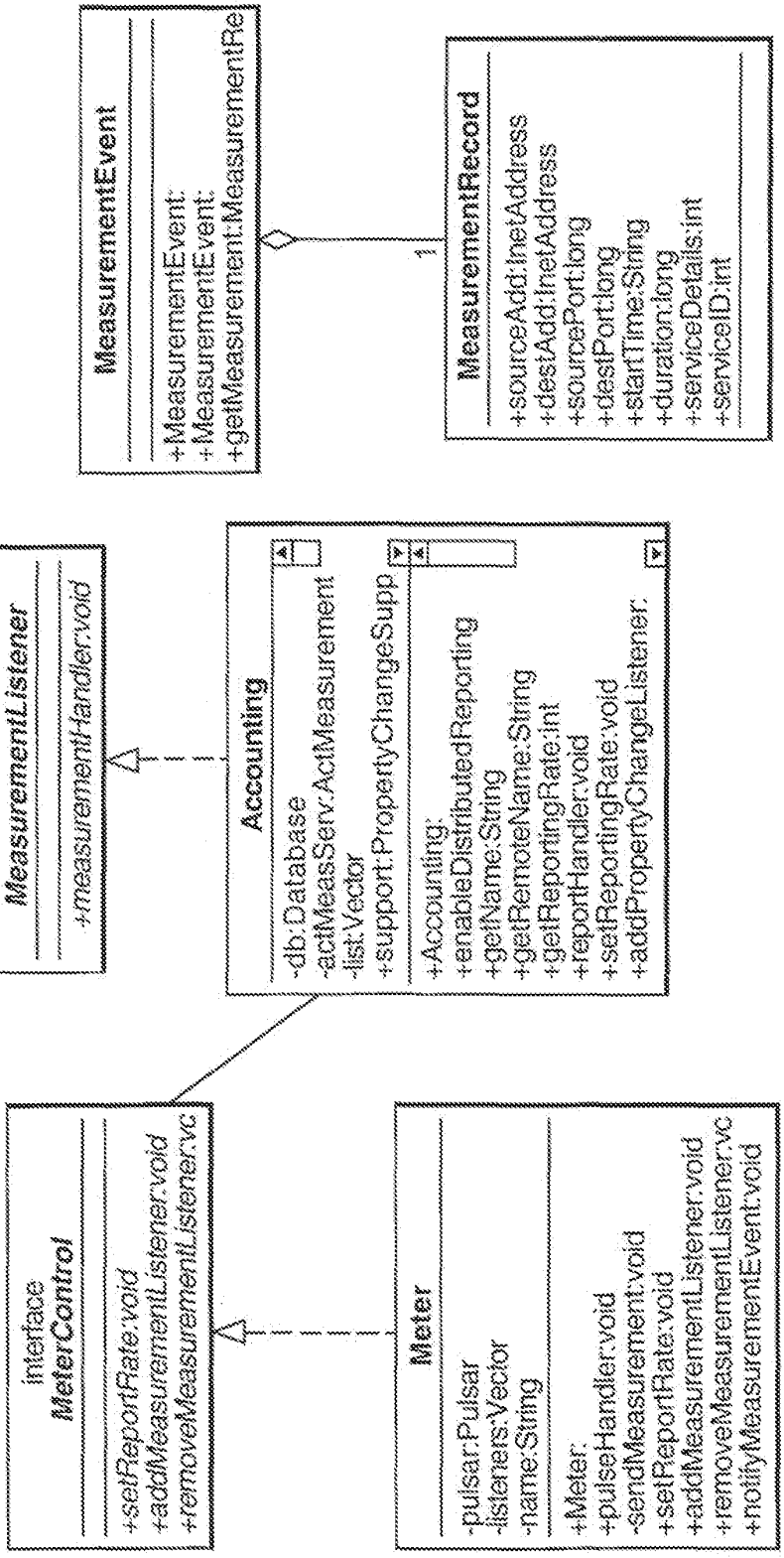

interface
MeasurementListener
+measurementHandler:void
Accounting
-db:Database
-actMeassServ:ActMeasurement
-list:Vector
+support:PropertyChangeSupp
+Accounting:
+enableDistributedReporting
+getName:String
+getRemoteName:String
+getReportingRate:int
+reportHandler:void
+setReportingRate:void
+addPropertyChangeListener:
MeasurementEvent
+MeasurementEvent:
+MeasurementEvent:
+getMeasurement:MeasurementRe
1
MeasurementRecord
+sourceAdd:InetAddress
+destAdd:InetAddress
+sourcePort:long
+destPort:long
+startTime:String
+duration:long
+serviceDetails:int
+serviceID:int
interface
MeterControl
+setReportRate:void
+addMeasurementListener:void
+removeMeasurementListener:vc
Meter
-pulsar:Pulsar
-listeners:Vector
-name:String
+Meter:
+pulseHandler:void
-sendMeasurement:void
+setReportRate:void
+addMeasurementListener:void
+removeMeasurementListener:vc
+notifyMeasurementEvent:void

Fig.8e.

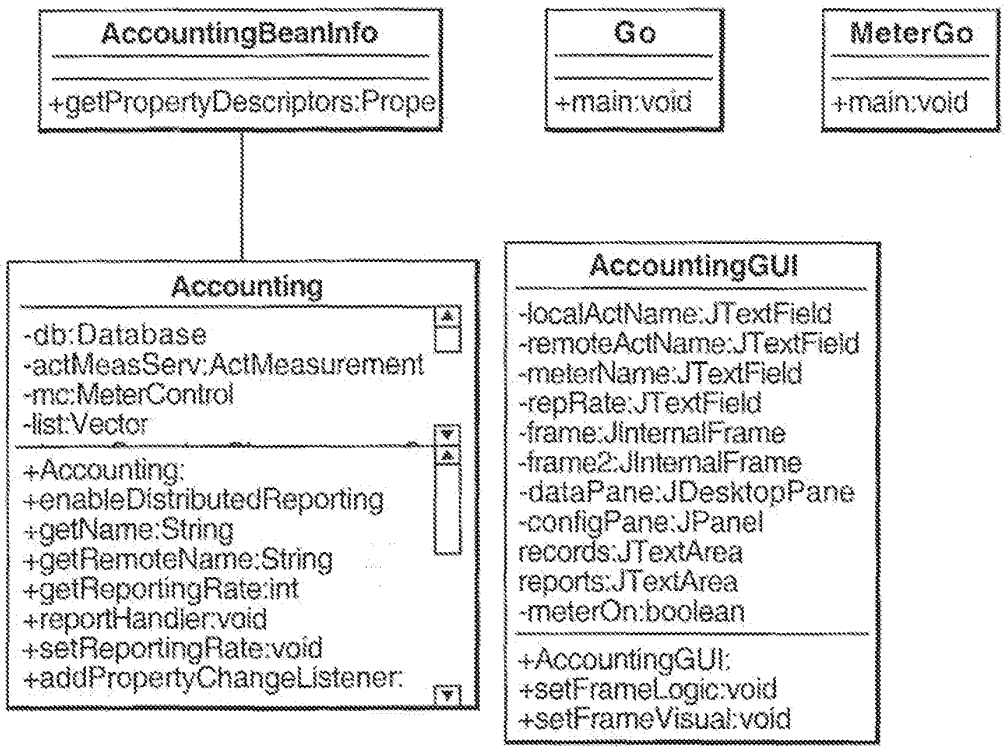

AccountingBeanInfo
+getPropertyDescriptors:Prope
Go
+main:void
MeterGo
+main:void
Accounting
-db:Database
-actMeasServ:ActMeasurement
-mc:MeterControl
-list:Vector
+Accounting:
+enableDistributedReporting
+getName:String
+getRemoteName:String
+getReportingRate:int
+reportHandler:void
+setReportingRate:void
+addPropertyChangeListener:
AccountingGUI
-localActName:JTextField
-remoteActName:JTextField
-meterName:JTextField
-repRate:JTextField
-frame:JInternalFrame
-frame2:JInternalFrame
-dataPane:JDesktopPane
-configPane:JPanel
records:JTextArea
reports:JTextArea
-meterOn:boolean
+AccountingGUI:
+setFrameLogic:void
+setFrameVisual:void

Fig.9.

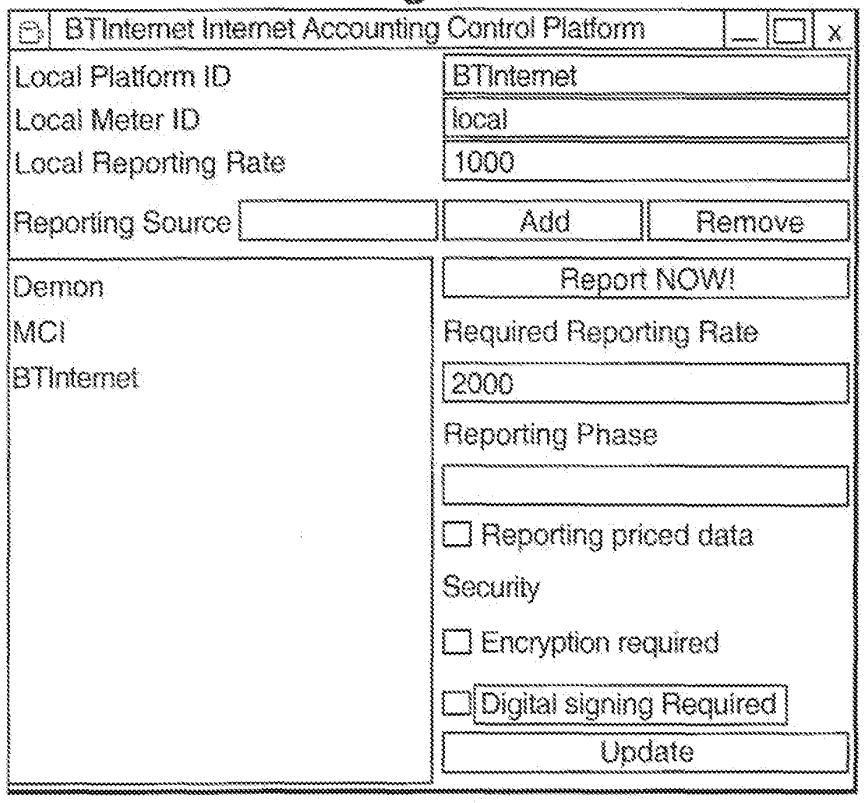
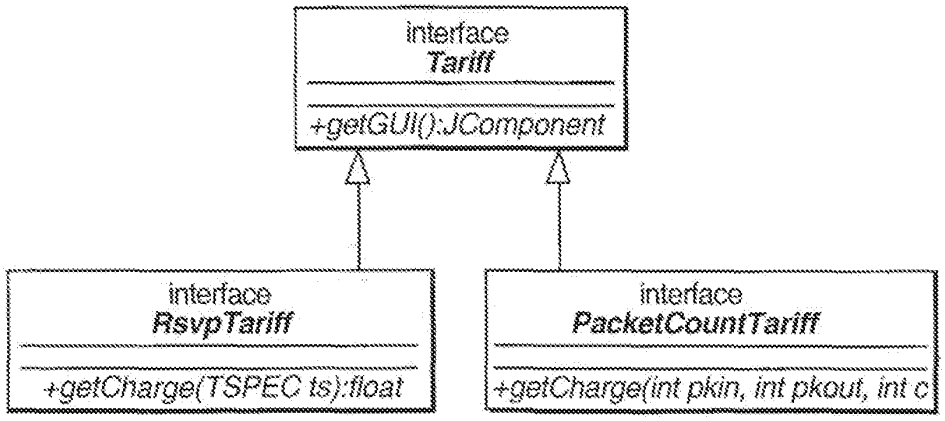

BTInternet Internet Accounting Control Platform
Local Platform ID
BTInternet
Local Meter ID
local
Local Reporting Rate
1000
Reporting Source
Add
Remove
Demon
MCI
BTInternet
Report NOW!
Required Reporting Rate
2000
Reporting Phase
Reporting priced data
Security
Encryption required
Digital signing Required
Update

Fig.10.


interface
Tariff
+getGUI():JComponent
interface
RsvpTariff
+getCharge(TSPEC ts):float
interface
PacketCountTariff
+getCharge(int pkin, int pkout, int c

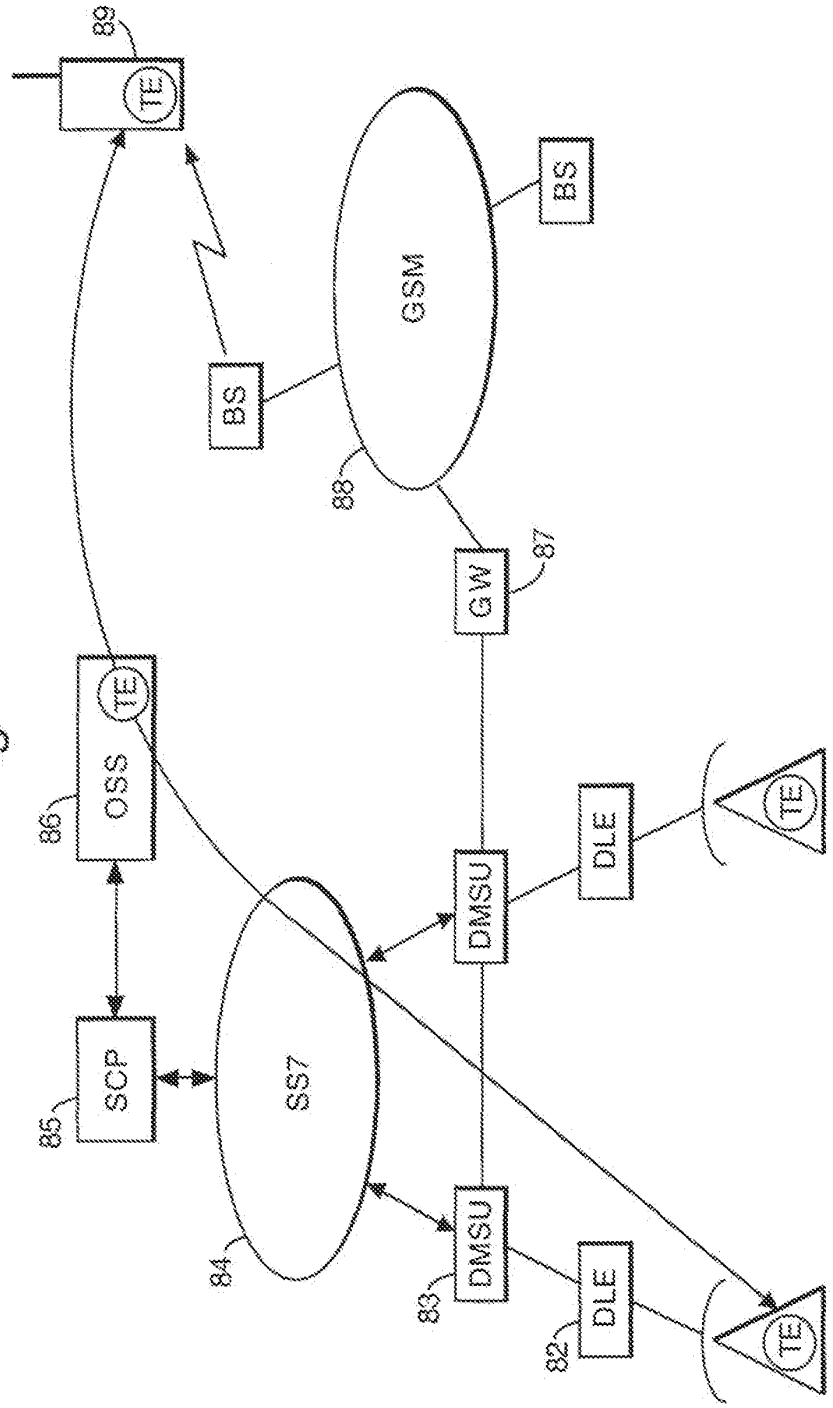

89
TE
BS
GSM
BS
88
GW
87
86
OSS
TE
DMSU
DLE
TE
85
SCP
SS7
84
DMSU
83
DLE
82
TE

Fig.11.

Electronic Acknowledgement Receipt

EFS ID:	8301208
Application Number:	12694451
International Application Number:	
Confirmation Number:	6041
Title of Invention:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM
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:	RALEP026
Receipt Date:	27-AUG-2010
Filing Date:	27-JAN-2010
Time Stamp:	16:16:18
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	RALEP026_IDS_Before_1st_OA.pdf	55737 d7b4cd4ac8d3f52b0b6d559498310b22ff34a013	no	2

Warnings:	
Information:	

2	Information Disclosure Statement (IDS) Filed (SB/08)	RALEP026_IDS_SB08_3.pdf	87669 7598faae26af2de6781f6334ec8fa11b7db688f5	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
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Information:					
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7	NPL Documents	RALE_NPL_Ref_3E.pdf	184255 2e2daf80298dda3e93323c4a7f91f1ec3e478c42	no	9
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Information:					
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Warnings:					
Information:					
9	NPL Documents	RALE_NPL_Ref_3G.pdf	1451509 e95282786ba86e4a05ee8c793a9ec634aa5a654c	no	6
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Information:					
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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:					
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Warnings:					
Information:					
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Information:					
		Total Files Size (in bytes):	30684385		

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:	Not Assigned
Application No.:	12/694,451	Art Unit:	2617
Filed:	January 27, 2010	Docket No.:	RALEP026
Title:	DEVICE GROUP PARTITIONS AND SETTLEMENT PLATFORM		

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.

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Sheet	1	of	2	Atty Docket No.	RALEP026

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FOREIGN PATENT DOCUMENTS					
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	2A	WO 2006/077481	07-27-2006	True Context Corporation	
	2B	WO 2008/051379	05-02-2008	Verizon Services	
	2C	WO 2008/080139	07-03-2008	Integrated Mobile	
	2D	WO 2004/077797	09-10-2004	Boston Communications	
	2E	WO 2003/058880	04-17-2003	Telia AB	

NON PATENT LITERATURE DOCUMENTS

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	
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	2M	Author Unknown, 3GPP TS 23.203, V8.4.0, 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Policy and Charging Control Architecture (Release 8), December 2008	
	2N	Author Unknown, 3GPP TS 23.401, V8.4.0, 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; General Packer Radio Service (GPRS) Enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) Access (Release 8), December 2008	
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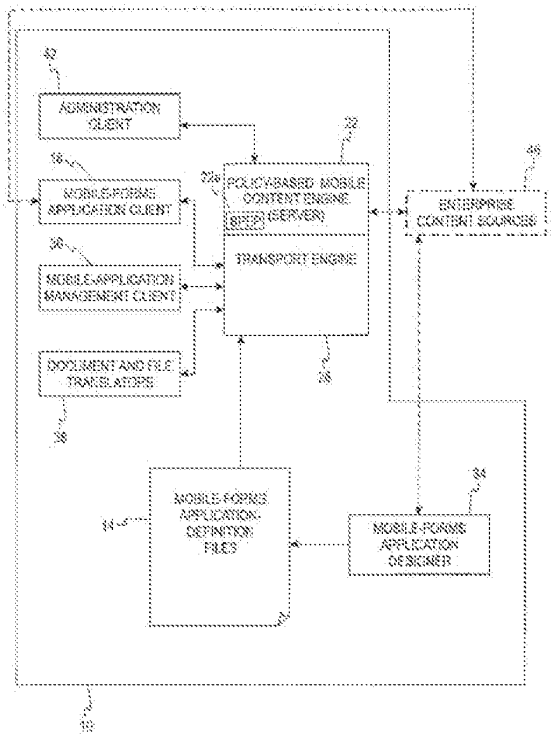
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[Continued on next page]

(54) Title: POLICY-DRIVEN MOBILE FORMS APPLICATIONS



(57) Abstract: A system for capturing data via an extensible markup language form is disclosed comprising a policy-based mobile content engine, a mobile-forms application client, and a transport engine. The policy-based mobile content engine is adapted to process a plurality of definitions from one or more mobile-forms application definition files. The policy-based mobile content engine translates the mobile-forms application definitions into policies and actions enforced by the policy-based mobile content engine. The mobile-forms application client has a plurality of rendering engines targeted for a mobile user device to render form controls and to process the forms-based application. The mobile-forms application client is operable on a mobile user device and is adapted to capture the data as an extensible-markup-language document. The transport engine is adapted to transport the mobile-forms application definition files and captured data through a transport layer between the policy-based mobile content engine and the mobile-forms application client.

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POLICY-DRIVEN MOBILE FORMS APPLICATIONS

FIELD OF THE INVENTION

[0001] The present invention relates generally to content management and, more particularly, to a system and method for defining, deploying, and managing mobile forms applications, in a multi-tenant (multi-domain) hosted environment, that can display and capture data on a wide variety of mobile devices in the context of a business workflow routed through a wide variety of intermittently connected networks both inside and outside of corporate firewalls.

BACKGROUND OF THE INVENTION

[0002] Today, most data in field force industries (e.g., field sales, field services, inspection and reporting, etc.) is distributed and captured on paper-based forms. The data entered on paper-based forms are typically returned to the business office to be manually entered electronically and integrated with a back office system. Furthermore, an enterprise business process might require the captured data to be reviewed by other members of the organization (e.g., authorization, up sell opportunity, billing, etc.) before, during, or after the field has interacted with the data. The process of distributing, updating, capturing, and returning form data and adapting it to a unique business process applies to a large number of mobile workers performing a variety of tasks such as, but not limited to, inspections (e.g., property, health, etc.), sales force reporting, and work order dispatches (e.g., HVAC, insurance claims, etc.).

[0003] Typically, in more complex forms-based business processes, work requests and form data are initially dispatched to field force workers using a voice channel (e.g., cell phone) or pre-printed paper forms (e.g., clipboard) that is then manually filled out or updated by the mobile worker (e.g., technician). A completed work request might also require one or many subsequent requests (e.g., required parts, required authorization, up-sell opportunities, etc.) that are typically done through a call over a cellular phone, or return trip to the office, or may cause the displacement of the mobile worker. Today, field inspectors may also capture data in the field using a series of paper forms and binders to complete their inspection tasks, resulting in a slow and inefficient process.

[0004] Businesses incur high wireless voice and vehicle fleet costs due to the above-described processes used in dispatching field workers, capturing or updating form data, and completing work orders or inspection forms in the field. Additionally, there are significant cost

and inefficiencies with slow, manual processes for the exchange of data using paper-based forms, from the cost of the paper based forms, to duplicate data entry, to errors made in data capture on paper, to waiting for the person with the data to update another person or system, etc.

[0005] Electronic forms and XForms (XML Forms) solutions (such as, Adobe LiveCycle, Microsoft Infopath, FormDocs, Alfova, Advantys, MDSI, X-Smiles, formsPlayer, and Novell XForms) are generally PC-centric and Local Area Network (LAN) oriented as opposed to being optimized for mobile devices and wireless use. Additionally, these solutions are on-line and browser-centric, as opposed to being optimized for on- and off-line use over intermittently connected wireless networks with varying degrees of cost and quality of service. These solutions typically do not provide mechanisms for hosting multi-tenants (multi-domain) forms applications using a common IT infrastructure (e.g., Managed Service Provider hosted environment), nor do they have support for sophisticated routing and tracking of forms and policies that define a mobile forms application.

[0006] Therefore, it would be desirable to have a system and method for defining, deploying, displaying, modifying, capturing, validating, and submitting/returning form data on mobile device using an intermittent network connection that addresses one or more of these issues.

SUMMARY OF THE INVENTION

[0007] According to one embodiment of the present invention, a system for capturing data via an extensible markup language form is disclosed. The system comprises a policy-based mobile content engine, a mobile-forms application client, and a transport engine. The policy-based mobile content engine is adapted to process a plurality of mobile-forms application definitions from one or more mobile-forms application definition files. The policy-based mobile content engine is adapted to translate the plurality of mobile-forms application definitions into policies and actions. The policy-based mobile content engine is adapted to enforce the policies and actions that have been translated. The mobile-forms application client has a plurality of rendering engines targeted for one or more mobile user device. The rendering engines utilize a forms application definition markup language to render form controls and to process the forms-based application. The mobile-forms application client is operable on the one or more mobile user device and is adapted to capture the data both online or offline as an extensible-markup-language document. The transport engine is adapted to transport the mobile-forms application

definition files and captured data through a transport layer between the policy-based mobile content engine and the mobile-forms application client.

[0008] According to another embodiment of the present invention, a method for defining and enforcing routing rules to define a business process workflow is disclosed. The method comprises the act of defining, via a mobile-forms application designer, a mobile-forms application-definition file that defines a mobile forms application by providing, (i) a mobile forms application definition markup language, (ii) an extensible-markup-language-based policy model that applies to one or more data instances that are to be captured, (iii) routing information specifying one or more targeted mobile user devices to deploy the mobile-forms application-definition file to, and (iv) a means of distribution of the forms-based application to targeted mobile users devices. The method further comprises the act of determining the routing rules for the business process workflow by reading, via a business process engine proxy, the mobile-forms application-definition file for the specified routing information and associated extensible-markup-language-based policy model. The method further comprises the act of enforcing, via a policy-based content management engine, the routing rules determined based on the defined and read mobile-forms application-definition file. The deployment, form interaction, routing, and management of the mobile forms application is automatically supported by reading, deploying, and enforcing the mobile-forms application-definition file.

[0009] According to yet another embodiment of the present invention, a method for recognizing data superimposed on a paper form is disclosed. The method comprises the act of scanning a paper based form to create a paper-based form template. The method further comprises the act of capturing the location of a form data instance element overlaid on the paper-based form template. The method further comprises the act of capturing the size of a form data instance element overlaid on the paper-based form template. The method further comprises the act of creating an input field based on the location and size of the form data instance element. The method further comprises the act of linking the paper-based form template to an application data model. The method further comprises the act of populating the paper-based form template with mobile-forms application data for a specific data instance in the input field.

[0010] The above summary of the present invention is not intended to represent each embodiment, or every aspect, of the present invention. Additional features and benefits of the present invention are apparent from the detailed description, figures, and claims set forth below.

Brief Description of the Drawings

[0011] FIG. 1 is an illustration of a content management system for mobile forms applications, according to one embodiment of the present invention.

[0012] FIG. 2 is an illustration of a mobile-forms based content management network, according to one embodiment of the present invention.

[0013] FIG. 3 illustrates a business process engine proxy integrated with a policy-based mobile content engine, according to one embodiment.

[0014] FIG. 4 is an illustration of a process for creating, transmitting, and receiving data via a mobile forms application, according to one embodiment of the present invention.

[0015] While the invention is susceptible to various modifications and alternative forms, specific embodiments have been shown by way of example in the drawings and will be described in detail herein. It should be understood, however, that the invention is not intended to be limited to the particular forms disclosed. Rather, the invention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

Detailed Description of the Illustrated Embodiments

[0016] According to one embodiment of the present invention, the content management system for mobile forms applications enables organizations to define and deploy mobile applications, forms, and business process workflow to mobile users across an enterprise or by using a Managed Service Provider (MSP) hosted environment. The content management system for mobile forms applications can be utilized without any programming language code being written or scripted since it is defined by policies, wizards, templates, and XML models. The content management system for mobile forms applications provides secure centralized control and support for hosting multiple security domains, while addressing all the complications of mobility (access outside the firewall, intermittently connected, wide variety of mobile devices and networks of varying capabilities, integration with existing business processes, IT infrastructure, etc.).

[0017] The content management system defines a mobile-forms-application definition model and associated tools for: (1) defining XML-based applications, forms, and business process workflow that are optimized for mobility; (2) for interacting with XML data in a mobile forms application instance with model-driven, mobile-device-optimized forms; (3) structuring and defining—with model-driven policies—the process for delivering, storing, managing, notifying and routing XML forms and associated form content (data, voice notes, photographs, sketches, GPS/location data, external data inputs—e.g., bar-code scanners, etc.) to and from users and systems for mobile forms applications; (4) managing and monitoring—with device-optimized interfaces—the status of XML mobile forms applications and all its instances, including support for on and off-line use; and (5) document-based translation of XML to and from a wide variety of forms for importing, exporting, transforming, and publishing the data and content associated with an instance of a XML mobile forms application.

[0018] The content management system for mobile forms applications leverages several XML standards and will be compatible with emerging XML standards in the area of business process management. However, the content management system for mobile forms applications provides innovation beyond what is defined in XML and XForms standards by addressing unique challenges presented by wireless and mobility (users, devices, networks, cost of service, quality of service, etc.). The content management system for mobile forms applications provides an automated, model-driven visual framework for the deployment and life-cycle management of mobile forms applications, and the processes associated with them (real-time and near-real time integration with structured and unstructured enterprise applications and content sources, configurable and dynamic notifications and alerts, routing of content, applications, and form data to and from mobile devices automatically or manually, etc.).

[0019] The policy-driven mobile forms applications have been designed and optimized for: (1) deployment and operation within an Enterprise or a hosted MSP environment for Enterprises (multi-tenant or multi-domain); (2) support for multiple types of OS-enabled PCs and mobile devices (beyond a PC/Laptop, including but not limited to Smartphones, PDAs, Handhelds, Tablet PCs, Handsets, Browser-based devices, Portable and Embedded terminals, etc.); (3) use behind the enterprise firewall (e.g. LAN, Wireless LAN, cradle) and while in the field (e.g., on/off-line, asynchronous mobile wireless network connections, Wide-Area Wireless connection, etc.); (4) use by non-technical users within every "role" (form design, business process owner,

end-user, administrators, etc.) and Small and Medium Sized Enterprises (SME's) as opposed to technical-users in enterprise IT departments and Large Enterprise Deployments; and (5) use without requiring extensive IT components needing to already be in place (e.g., middleware, enterprise content management, document and records management systems, databases, web servers, etc.).

[0020] Turning now to the drawings, FIG. 1 illustrates a content management system for mobile forms applications 10, according to one embodiment of the present invention. The content management system for mobile forms applications 10 includes eight main components: a plurality of mobile-forms application definition files 14; a mobile-forms application client 18; a policy-based mobile content engine (server) 22; a transport engine 26; a mobile-application management client 30; a mobile-forms application designer 34; a plurality of translators 38; and an administration client 42.

[0021] The mobile-forms application definition files 14, according to one embodiment, are specified in XML-based forms application definition markup language based on the W3C XForms specification to define a rich presentation of forms rendered in a Graphical User Interface (GUI) by the mobile forms application thick or thin-Client. Some enhancements have been made to extend the XForms schema to make it more efficient for mobile forms applications, as well as to support layout of form controls on mobile devices, and integrating routing of forms between users in a mobile forms application. An XML-based policy model is utilized by the mobile-forms application definition files 14 to define application and form states, workflow, validations, conditions, and actions to be processed for the life cycle of a new or updated form data instance. The policy model defines how the form data is managed (e.g., transformation and validation of data, publication of data to targeted resources, publication of data based on the type network connection, notifications and alerts to users based on form actions and events, etc.) and distributed, as well as to whom (people, systems, resources, etc.) it is distributed.

[0022] As discussed above, the mobile extensible forms markup language (mXForms) used in the mobile-forms application-definition files 14 is based on the XForms W3C recommendation (which can be found at http://www.w3.org/TR/2003/REC-xforms-20031014/). This mXForms markup language defines how to render rich GUIs online or offline for mobile devices, and display, update and captures data. mXForms and XForms distinctly define the presentation definition (look and feel), the format of the data captured, form controls, and the

behavior of the forms-based application (e.g., data validation, navigation, workflow, actions, etc.). It is a language that can fully leverage the limited display and functionality (including native and external peripherals—e.g., barcode scanner, GPS module, etc.) of some of the targeted mobile devices. Multiple views or mobile forms applications may be required to complete the data capture of a forms-based application, including support for contextual (e.g., dynamic) views or interaction with the form (e.g., Y happens only if the user has selected X in the form). Unique form controls are also needed to display, add, edit, and delete repeating line items on such limited devices. The markup language also affords for creation of unique form controls that future business processes may require. These multiple views and form controls can be used on- or off-line, via thin/thick clients on mobile devices that are OS-enabled.

[0023] The mobile-forms application client 18 includes a plurality of rendering engines targeted for each Operating System (OS) enabled mobile device or browser enabled device that can be used as a thick and thin client. The rendering engines use the XML-based forms application definition markup language to render a rich set of GUI form controls and to process the corresponding behavior of the forms-based application for the end-user. The rendering engines are adapted to create a fully configurable look and/or feel for the end-user. Furthermore, the mobile-forms application client 18 is capable of displaying (read-only or read/write), updating, and capturing the end-user's inputted data on- or off-line as one or more XML documents, as well as attachment files and managed lists that may be in a format other than XML.

[0024] The mobile-forms application client 18 is also able to display, update, capture and attach a wide variety of multi-media content to the form data. Alternatively or additionally, the rendering engines are adapted to encode this data to the XML form data instance as a base64 encoded element or reference the inputted text or binary file as a separate entity. The form data may include, for example, signatures, photos, voice notes, sketches, global positioning information, GoogleMaps, bar code scanning information, automobile monitoring information, etc.

[0025] For example, the mobile-forms application client 18 can call and control (interchange data) with an enabled device's Global Positioning System (GPS) coordinates to feed this information (as part of an XML form data instance or data blob) to the policy-based mobile content engine 22 (or to a forms solution). This data may then be used to assist in device

management—adding business value by allowing a user to, for example, locate a lost device or assist in locating and dispatching a desired field worker to a specific job. Additionally, GPS coordinates may be dispatched along with a work order to allow a field worker to utilize a mapping tool (e.g., GoogleMaps, MapPoint Location Server, etc.) to find the directions to the site for the work order. The mobile-forms application client 18 can pass this data to feed a mobile device application. For example, if the address of a dispatched work order is known, the mobile-forms application client 18 can pass this data to Microsoft PocketStreets and launch the application so the field worker can see the mapped address of their next work order. According to one embodiment, the bar code scanning information can be mapped to an input field within a form, or may be used to extract information from an external data source (e.g., a managed list, etc.). For example, the bar code information may represent a part number that can then be searched through a part list to extract the part's name, description, price, etc.

[0026] The content used by the mobile-forms application client 18 can either be embedded within the XML form data (base64 encoded) or be referenced and managed as attachment files in a very elegant way as content under the control of policies that control how the content is managed and distributed (e.g., don't force sending of large multimedia files associated with the form when the form is submitted wirelessly—unlike other database/sync or real-time forms solutions). The mobile-forms application client 18 can support a wide variety of technologies and input devices (e.g., Personal Digital Assistants (PDAs), smartphones, etc.) for data capture and form navigation. The input devices are linked to and interact with controls defined in the mobile extensible forms markup language to provide and enable data capture and form navigation.

[0027] By way of example, the mobile-forms application client 18, via the defined controls, are adapted to support a plurality of input devices, such as: keyboards (e.g., PC keyboard, keypad, Simple Input Panel (SIP), soft-keyboard, etc.); navigation, mouse, and I/O devices (e.g., optical mouse, RS-232 standard modules, touch-screens, scroll wheels, USB memory dongles, hard-drives, etc.); writing instruments and pointers (e.g., stylus, electronic pen/ink, handwriting to text conversion apps, etc.); audio (e.g., speech to text recognition, speech used the selection of an item from a list, speech used for form navigation using technology such as VRML, voice recorders, etc.); infrared reader; magnetic reader and cards (e.g., swipe card, proximity card, smart card, expandable media cards and storage devices such as, for example, SD, MMC,

compact flash, memory stick, etc.); Radio Frequency Identification (RFID); external or internal device peripheral (e.g., GPS, environmental meter, printers, etc.) including devices or data monitoring and reporting modules within an automobile (e.g., telematics); external or internal applications (e.g., VoIP softphone software, GPS software, etc.); scanners (e.g., optical character reader (OCR), bar code, biometric, etc.); incoming messages (e.g., via SMS, Smart Messages, OMA, SyncML, Email, SNMP, Active Sync, SMPP, SMTP, RSS/XML, etc.); and camera and digital imaging tools and devices.

[0028] The policy-based mobile content engine 22 includes a Business Process Engine Proxy (BPEP) 22a that processes mobile forms application definitions from the mobile-forms application definition files 14 and translates the application definitions into folder structures, files, and security roles as well as policies and actions that the policy-based mobile content engine 22 enforces. These policies and actions are utilized by the policy-based mobile content engine 22 to guide each instance of a mobile form through the business workflow process, including but not limited to, routing the form to different users and sending out notifications as the data fields of the mobile form are updated and actions are taken. The BPEP 22a uses the policy model (application data model, process states, user groups, folder structure, workflow, actions, conditions, etc.) defined in the mobile-forms application definition files 14. The policy model is extensible, flexible, visual, and may be wizard driven. As such, the policy model may be designed to be used and interacted with by non-technical users. Note that a mobile forms application is created by the BPEP 22a into a single security domain. The policy-based mobile content engine 22 explicitly represents the concept of multiple tenants (multiple domains) in its internal structures and partitions the content management, security roles, authorization, and policies associated with a mobile forms application by tenant (domain).

[0029] The transport engine 26 is an integrated client/server transport engine that is adapted to reliably transport (e.g., form data instance integrity and auditing of actions on the policy-driven mobile content engine 22 and mobile user device) the XML mobile application, forms data, and content through a configured transport layer (e.g., HTTP/HTTP(S), SyncML, ActiveSync, SOAP, FTP, SMTP, SMPP, RMI, IIOP, etc.) between the policy-based mobile content engine 22 and the mobile-forms application client 18. The transport engine 26 is optimized for mobility in regards to support for on- and off-line use, support for multiple OS-enabled mobile devices, support for various wireless and mobile networks with detection,

consideration and management for their various cost and quality of services, etc. Compression, byte differencing, and network policies (e.g., do not send large attachments when low bandwidth connection) are used to provide intelligent use of bandwidth. File caching, robust session management, partial file transmission support, and a robust synchronization protocol over HTTP are provided to address network unreliability.

[0030] The policy-based mobile content engine 22 addresses the challenges (limited and unique physical attributes, cost of service, quality of service, etc.) associated with wireless and mobile devices and networks through the use of network policies in conjunction with the transport engine 26. The transport engine 26 determines whether data compression should be used to minimize data transmitted over the transport layer as well as a number of other techniques (use right network at the right time, compression, byte-level differencing, check-point restart, caching and queuing of requests, automatic and manual client/server interactions, etc.)

[0031] The mobile-application management client 30 is made available on each Operating System (OS) enabled mobile device or browser enabled device that can be used as a thick and thin client.. The mobile-application management client 30 allows a manager or dispatcher to create, view, edit, assign, sort, search, or track the progress of form data for any given mobile forms application. The mobile-application management client 30 allows such functionality based on the information in the mobile-forms application-definition files 14. The mobile-forms application-definition files 14 map special "search fields" to information in a mobile form, including the current owner, the current state, as well as allowing custom defined fields. The mobile-application management client 30 leverages the folder structure and policies generated by the BPEP 22a, to display to a person managing mobile forms applications (e.g., dispatcher, office administrator, etc.) all the instances of a mobile form application, currently in progress. Additionally, the manager can see what state the mobile form is in, who it is assigned to, if the field worker has installed the right data on their device, etc. The mobile-application management client 30 incorporates the same rendering engine used by the mobile-form application client 18, so that a manager can select any form instance to view or edit it or create a new one. The manager can use this to change the status of a form or assign it to a different person.

[0032] The mobile-forms application designer 34 is adapted to create the mobile-forms application definitions contained within the mobile-forms application definition files 14. In particular, the mobile-forms application designer 34 allows a non-technical designer (having

minimal or no scripting, programming, or coding knowledge) to define an application in terms of: (i) the mobile forms application definition markup language; (ii) the XML-based policy model that applies to the captured data; (iii) the targeted OS-enabled mobile device (e.g., PCs, TabletPCs, Laptop, PDA, Smartphone, Handheld, Handset, Browser-enabled mobile device, etc.) or browser for the forms application definition; and (iv) the means of distribution of the forms-based application to targeted users (e.g., via push technology, SMTP, or available through a Uniform Resource Identifier (URI), etc.).

[0033] The mobile-forms application designer 34 is a simple Integrated Development Environment (IDE) for creating one or more mobile-forms application definition file 14. According to one embodiment of the current invention, the mobile-forms application designer 34 is a standalone PC-based application, but can also be an add-in to an existing application (e.g. Microsoft Visual Studio) or can be browser/web based. The data structure of the forms instance can be created by importing (e.g., via an enterprise content source) XML schema definitions or an instance of an XML file that is used as a demarcation point for back-end system integration. This includes flexible handling of version control and change propagation and data migration when refinements are made to the schema upon which a mobile forms application is based. The mobile-forms application designer 34 supports upgrades to a forms solution without disrupting the use of the forms solution by the field workers. Changes to the model shared between multiple participants are carefully migrated to the upgraded Data Instances (DIs) on the policy-based mobile content engine 22 transparently to the users of the forms solution. Version control on the DIs is important to understanding the data migration that needs to occur—possibly on the fly—at the time it is created and/or updated on the server by a field tech during the transition period until every field worker has the upgraded application/model on their user device.

[0034] The look and feel of the forms application is defined by the mobile-forms application designer 34. The form designer can create form-based applications using a rich set of form controls that can be dragged and dropped or defined on a single or multiple form view. The mobile-forms application designer 34 enables the use of drag and drop properties and other means and controls to define the form flow or navigation of the application. The form flow is how the user of the application can use a forms control (e.g., button, image, link, menu item, etc.) to modify forms. The form flow is mostly defined by an action added to a button. Conditional navigation can be controlled by the behavior typically defined by the "bind"

property of the control or the parent container of the control. The mobile-forms application designer 34 can associate actions to the form control to define the form flow.

[0035] The mobile-forms application designer 34 further defines a rich set of templates to speed the creation of or build forms (new or update forms) based application for specific OS-enabled targeted devices. This includes a translation service that helps with the automatic translation (and optimization) from a form optimized for one device into other devices (e.g., browser, laptop, etc.), as opposed to the user having to start from scratch for each device. The mobile-forms application designer 34 defines several wizards to simplify the steps to create, modify, copy, publish, test, etc. a forms based application and includes a test environment to process the authored mobile-forms application-definition files on the targeted device. Additionally, the mobile-forms application designer 34 provides workflow and form data validation, in one embodiment, through the search values and the predefined policies for a targeted participant for the workflow and the behavior as defined in XForms for validation.

[0036] The packaging of the forms application is provided by the mobile-forms application designer 34 as a simple installable application to any OS-enabled mobile devices (e.g., Windows NT/2000/XP/Tablet, Pocket PC, Win CE, etc.) or via a web-browser. The distribution of the forms application to system and non-system users via a BPEP 22a integrated with the policy-based mobile content engine 22 through push technology, SMTP, or a URI where the application can be downloaded, or rendered on the server and interacted with in a browser session.

[0037] The plurality of translators 38 are adapted to translate the mobile forms application instance data and content into a variety of formats (XML/HTML, PDF, SQL, CSV, Printers, Faxes, etc.) for further importing/exporting or for data manipulation, termination, or storage. A technique for form-based data superimposition recognition allows an author to define and automatically correlate the absolute positioning of form data, text, or image to be printed on a paper-based or electronic form template or layout.

[0038] A special design tool and document translator has been designed as part of this invention to facilitate the creation of a mobile forms application from existing paper-based forms. In typical paper-based processes, mobile workers collect data in paper forms that are faxed or printed. A mobile forms application also needs to use electronic data to print or fax a hard copy to the client on the same paper-based form. Existing print SDKs require absolute

positioning of objects (e.g., text, images) in order to position and size the captured form data sent it to a local printer to be printed on a template paper-based form.

[0039] The paper form data superimposition recognition is a special design tool and document translator that can scan existing paper-forms to create a document template and then link it to the application data model—through simple drag and drop or definition of data controls via the mobile-forms application designer 34. The mobile forms application data for a specific application instance can then be used to populate the template that is ready for printing or faxing. The paper form data superimposition recognition allows a designer to automatically build a forms application for a given forms solution using a scanned version of an existing paper-based form. The model and DI can automatically be generated using the paper-based form. In some embodiments, the paper form data superimposition recognition requires the designer to: (1) review the form and change the input fields to other types of form controls (e.g., text box changed to a date picker or a signature control); (2) define groups of repeated line items; etc.

[0040] The administration client 42 is adapted to allow an end-user administrator to setup the rights provided to a specific user or device, the groups the user or device belongs to, the content available to the user or device, the domains the user or device is able to access, etc. The administration client 42 is particularly useful in embodiments where a number of company's content and forms are located on the same policy-based mobile content engine 22. The end-user administrator can then use the administration client 42 to allow access to the company's content only to, for example, company employees. The administration client 42 transmits access rights to the policy-based mobile content engine 22 that then can limit the access to the content based on the user or device information of the user device trying to access the various content.

[0041] Typically, when a mobile form application is developed utilizing the mobile-forms application designer 34, the user information, groups, and access rights are generated as well. However, as the access rights change over time, the end-user administrator can utilize the administration client 42 to adjust the access rights, users, or groups accordingly. This allows the end-user's IT department to manage their content and resources in a secure, desirable, and efficient manner.

[0042] One or more enterprise content sources 46 are in communication with the policy-based mobile content engine 22. The one or more enterprise content sources 46 may also communicate with the mobile-forms application designer 34 or the mobile-forms application

client 18. The one or more enterprise content sources 46 are integrated directly with the policy-based mobile content engine 22, the mobile-forms application designer 34, and the mobile-forms application client 18 via a plurality of connectors.

[0043] The policy-based mobile content engine 22 can access the content and information stored on the one or more enterprise content sources 46 and transmit it to the various user devices based on the policies defined by the mobile-forms application-definition files 14. The mobile-forms application client 18 can utilize the one or more enterprise content sources 46 for pushing or receiving forms as XML files. Additionally, the mobile-forms application designer 34 can utilize the content contained with the one or more enterprise content sources 46 as a starting point for designing the mobile-forms application definition files 14.

[0044] Referring also to FIG. 2, a mobile-forms based content management network 60 is illustrated, according to one embodiment of the present invention. The content management network 60 allows the communication of the mobile-forms application client 18 with the policy-based mobile content engine 22 to transport the mobile-forms application-definition files 14 and all form data instances to and from a mobile device 64. The mobile-forms application client 18 is primarily comprised of a forms rendering engine that can present a user interface 68 as defined by in the mobile-forms application-definition files 14. The mobile-forms application-definition files 14 describe the user interface(s) 68 using the mobile extensible forms markup language that the forms rendering engine(s) interprets when displaying the user interface 68.

[0045] The mobile-forms application client 18 is available on a wide variety of OS-enabled mobile devices both as a native application 72 ("Thick Client") and as browser-enabled application 76 ("Thin Client"). It should be noted that even the browser-enabled applications are optimized to address the constraints of the devices they are operating on. The mobile-forms application client 18 communicates with the policy-based mobile content engine 22 via a client Application Programming Interface (API) to transport the mobile-forms application-definition files 14 and all form data instances 80 (associated XML data and content) to and from the mobile device.

[0046] As illustrated in FIG. 2, the policy-based mobile content engine 22, via the transport engine 26, delivers and receives the form data instances that are viewed and updated in the mobile-forms application client 18 (via the forms rendering engine) on a variety of devices 64, 72. Both "thick-client" 72 and "thin-client" 76 versions of the mobile-forms application client

18 leverage the transport engine 26 to communicate with the policy-based mobile content server 22 over intermittently connected networks 84 (sometimes online, sometimes offline). The communication consists mainly of delivering an instance of mobile form data, as well as mobile-forms application-definition files 14 to the mobile-forms application client 18 that determine how the mobile form data should be presented to the user. When the user updates the mobile form data instances 80, using the mobile-forms application client 18, they are communicated back to the policy-based mobile content engine 22 via the transport engine 26. Any changes to any instances are first persisted to a file prior to transporting them to the policy-base mobile content engine 22. This is done to ensure the user can safely keep working even if they are currently disconnected, to keep historical data on the device (if specified in the mobile forms application definition), and to provide a backup capability in case of device failure including but not limited to power failure such as no more battery power left.

[0047] Referring also to FIG. 3, the integration of the BPEP 22a with the policy-based mobile content engine 22 is further illustrated, according to one embodiment. A business process workflow is defined in one or more mobile-forms application-definition files 14 that are processed in the policy-based mobile content engine 22 via the BPEP 22a, according to one embodiment. The BPEP 22a is a component of the policy-based mobile content engine 22 that processes mobile forms applications and forms definitions. The mobile-forms application-definition files 14 used by the BPEP 22a can be defined by the non-technical form author using the mobile-forms application designer 34. When utilizing the mobile-forms application designer 34 the form author defines the states, workflow, and composition of the form data instance, the conditions that define the next state to process (e.g., if the technician requires new parts then go to state 'Y'), and the actions to be processed on a given state in the form's data instance life cycle.

[0048] For example, the following sample actions are supported by the mobile-forms application designer 34 and are capable of being interpreted by the BPEP 22a and enforced by the policy-based mobile content engine 22: content publication (e.g., add/move/copy/delete document or form data) to an existing/new network folder or other services (This action takes into account the user's access permissions to the document or form data on the targeted destination prior to publishing the content.); content auditing (auditing of user, device, and content information updated via the policy-based mobile content engine 22); content distribution

via email, fax, SMS, print and content push via the policy-based mobile content engine 22; content notification via email, fax, SMS, SNMP, SMPP, print, and/or other external web services; content transformation that may contain any other previously defined actions (It is possible to transform the data prior to distributing it via email (e.g., make it a viewable HTML document)); content validation (Some targeted devices might not support local validation against an XML schema. Therefore, the validation can be defined as an action and cause the document to be rerouted to the sender.); and network management (This action can require the sender to publish associated attachments to the data instance on a specific network type (e.g., EDGE/GPRS, UMTS, CDMA 1x, W-CDMA, WiFi, 802.11a/b/g, Bluetooth, LAN, cradle, etc.).).

[0049] According to one embodiment, the communication protocol of the content management system 10 utilizes HTTP(S) as the preferred protocol to transport all form data instance and attachments to the Policy-based Mobile Content Engine. The content management system 10 may utilize, as the preferred protocol to distribute and notify other internal or external resources (e.g., users, other machines, etc.), HTTP/HTTPS, SyncML, ActiveSync, SOAP, SMTP, FTP, SMS, SNMP, SMPP, RMI, IIOP, etc. Other communication protocols can be utilized without nullifying the key attributes of the above-described implementation. For example, web extensions such as SOAP and .NET can also be utilized, as well as proprietary communication protocols. The policy-based mobile content engine 22 may also act as an authorizing proxy for each of these protocols that allows the mobile-forms application client 18 to communicate in real time with one or more enterprise content sources 46 hosted behind the enterprise firewall. For example, a drop down list in a mobile form could be dynamically generated by a SOAP request to an enterprise content source 46. The policy-based mobile content engine 22 would apply appropriate policies both before and after routing the SOAP request from the mobile-forms application client 18 onto the enterprise content source 46.

[0050] The content management system 10 may utilize Secure Socket Layer (SSL) to encrypt all communication between the clients, other internal and external resources, and the policy-based mobile content engine 22. Other encryption techniques can be utilized without nullifying the key attributes of the invention. For example, a VPN tunnel could be used to secure the connection between the mobile-forms application client 18 and the policy-based mobile content engine 22. Similarly, an s-mime technique could also be adopted where the target

application is e-mail. Furthermore, the forms designer can specify that the data captured as an XML document on the mobile device may be encrypted using a public or secret-key cryptosystem (e.g., Kerberos, PKI, etc.) to properly secure the content on the mobile device if the device was stolen or lost, or if the policy-based mobile content engine 22 was compromised.

[0051] The content management system 10 enables existing authentication such as existing LDAP and RADIUS servers (local or remote, outside or behind the firewall with support for "single sign on" schemas) among others, to be used by the policy-based mobile content engine 22 to authenticate users of the mobile-forms application client 18, the mobile-application management client 30, and the administration client 42. The policy-based mobile content engine 22 can either automatically detect the required authentication or the policy-based mobile content engine 22 can be told by a system administrator to do so. Authorization providers are used to determine it the client is authorized based on their access permissions determined, but not limited to, the client's role and/or group access permission on the accessed resource (e.g. updating or creating a forms data instance).

[0052] The mobile-forms application designer 34 provides the end-user with custom-built form applications available on a thick or thin client. It also enables the forms designer to define all aspects of the mobile-forms application-definition files 14, target mobile devices, associate a test environment where the mobile-forms application-definition files 14 can be tested, associate business workflow, form navigation, behavior, data capture and define how the mobile forms applications can be procured and how they can be distributed, updated, or revoked from privileged users.

[0053] The content management system 10 provides superior end user, network, and client performance in several different ways. First, data compression may be used both in downloading newly dispatched and uploading updated form data instances. Furthermore, the policy-based mobile content engine 22 determines when file attachments associated with the mobile form application data instance should be delivered using both the type of network and attachment size. Additionally, the content management system 10 supports external model updates (e.g., customer list, price list, inventory list, etc.). These types of lists typically consist of a large amount of data that should only be updated at given times or when network availability permits. For more time critical updates to the list, byte level differencing and data compression can be used to update the end-users list with the changes rather than the updated list. This can reduce the network data

consumption by over 80% depending on the changes made to the list. Byte level differencing is done by transmitting only the changes between the old list and the new list (byte level differences) and by applying those changes as an update to the old list on the mobile device to create the new list on the mobile device. It can also be used to update an attachment to a form data instance.

[0054] The content management system 10 provides superior availability to mobile workers by enabling offline form filling when confined to areas with restricted network connectivity and by enabling online, near real time, updates of form data to the server. Further, the content management system 10 helps to ensure that forms application and associated resources (e.g., external lists) are pushed as mandatory items. The content management system 10 controls delivery of captured data instances and forms application on a device based on, but not limited to, network connectivity, time, etc. Near real time or scheduled updates to a mobile-forms application-definition file is enabled by, for example, using byte level differencing and data compression to reduce the size of the markup transported to the mobile device. The content management system 10 further enables automatic calculations, comparisons, enforced fields, data input limitations, mandatory fields, contextual form behavior, read-only and pre-filling of form data, thus assisting in speeding up data capture and business process completion.

[0055] As discussed above, the content management system for mobile forms applications 10 utilizes the mobile forms application markup language. The mobile forms application markup language can be utilized to define a number of enhanced form controls. For example, the mobile forms application markup language can define controls for: viewing the definition of a mobile-forms application-definition file 14 to better group controls and maximize display area of mobile devices with limited viewing area; providing new appearances for repeat line item controls; providing controls to view attachments; providing attributes to determine how an attachment is attached to the data instance (e.g., as a base 64 encoded, binary, or as a URI); providing support to display images; providing support to display links allowing form-view navigation or web page launch; providing a trigger with a background image; providing a toolbar with menu items used as a trigger or a submit XForms element; providing a header definition that allows the grouping of repeated controls used on different views; providing a footer definition that allows the grouping of repeated controls used on different views; and providing toolbar, header, and footer references used in a form-view definition to maximize limited resources on given devices (e.g.,

PPC). These controls can also be bound to dynamic real-time requests that are routed to enterprise content sources 46, via the policy-based mobile content engine 22.

[0056] Turning now to FIG. 4, a process for creating a mobile forms application, transmitting the mobile forms application, and receiving data via the mobile forms application is illustrated, according to one embodiment of the present invention. By utilizing the mobile-forms application designer 34 (FIG. 1), a non-technical user can define a mobile-forms application-definition file 14 (FIG. 1) at step 110. The mobile-forms application-definition file 14 defines the data model, form navigation, form validation, behavior, look and feel for the form application, and the various processing states that a form document will transition through. A mobile policy is also defined which specifies the rules and policies about routing, distribution, notification / alerts, devices, authorization, etc. All of these are created using a wizard-based, point-and-click interface, which reqoires no coding, scripting or programming on the part of the designer. There are also special tools for defining form based user interfaces that end-users can used to interact with application data, as well as special tools for defining format translations to import and export application data from XML into other formats (HTML, PDF, SQL, CSV, ASCII, etc.) including sending to a printer or fax. And there is a tool for importing, exporting, creating and editing XML schemas that define the structure of the data supported by the mobile-forms application-definition client 18. The mobile-forms application-definition file 14 is then stored to a hard disk.

[0057] The application data model, process states, folder structure, user groups, mobile policies, format translations, and user interfaces are all defined in XML-based mobile-forms application-definition files 14 that are generated onto the policy-based mobile content engine 22 at step 120. The policy-based mobile content engine 22 serves as a gateway between mobile forms applications and existing business processes, enterprise content sources, and applications.

[0058] The policy-based mobile content engine 22 automatically or manually can be used to create and set up folder structures at step 120a and to create user groups at step 120b. At step 120c, the mobile-forms application-definition file 14 is actually transferred to the policy-based mobile content engine 22. Information contained in the mobile-forms application-definition file 14 is used to define a folder structure in the policy-based mobile content engine 22, which will store the content associated with each application, and to define the user groups in the policy-

based mobile content engine 22, that will be allowed to access application data and content during the various processing states of an application instance.

[0059] The policy-based mobile content engine 22 generates a plurality of search and tracking fields at step 120d that allow a forms manager to look for and monitor the mobile forms applications that have been provided (and deployed) by the policy-based content management engine 22. At step 120e, the policy-based content management engine 22 generates client installation packages for installing the mobile form application onto the user devices. Routing and deployment policies are determined at step 120f by the policy-based content management engine 22 for the mobile form application based on the mobile-forms application-definition file 14. The policy-based content management engine 22 then generates a user's extensible-markup-language file at step 120g.

[0060] The mobile forms application created by the mobile-forms application designer 34, is deployed to the user devices at step 130 by the policy-based mobile content engine 22 (FIG. 1) and its associated transport engine 26 (FIG. 1). The deployment activates the mobile forms application such that the application and associated files, user lists, etc. will be pushed down to the user's mobile devices 64 (FIG. 2). Alternatively, the deployment may be accomplished by generating a media card (e.g., a SD card, mini-SD, etc.) along with user configuration files. The media card may then be utilized to automatically and intelligently install the mobile forms application and configuration files onto an OS-enabled user device. The deployment process manages both forms application upgrades as well as data migration that may be required for existing form instances persistent on the policy-based mobile content engine 22 and mobile devices.

[0061] The mobile-forms application client 18 (FIG. 1) is available on a wide variety of user devices (PC, Laptop, Tablet, PDA, Blackberry, Smartphone, Browser-based thin-client, etc.) that allows end-users to interact with application data and content. The mobile-application management client 30 (FIG. 1) is also available which allows managers to create, assign, and monitor application instances. Document translators 38 (FIG. 1) are used to view and print application data content, as well as transform it for use by other systems.

[0062] The policies of the mobile content engine are applied in response to any content management event (including, but not limited to reconcile requests from clients, new or updated files, files assigned to users, etc.). Policies are able to leverage whatever information is available

to the content management engine time in deciding what actions should occur (type of network, content or state of the files being transferred, users involved etc.). In particular, when a relevant state change is detected by the mobile application client 18 on a mobile device 64 (FIG. 2), the policy-based mobile content engine 22 is notified, and the policies for the particular mobile-forms application-definition file 14 are enforced at step 140. The state change may be, for example, the creation or modification of a form data instance 80 (FIG. 2) on the mobile device 64. The mobile-application management client 30 can be utilized at step 150 to create new form data instances and assign them to users (both actions will result in content management events that trigger the appropriate policies for the mobile forms application). Further, at step 150, the mobile-application management client 30 can be utilized to track the status of all data instances (e.g., what state they are in, who they are assigned to) using the search and tracking fields generated at step 120d.

[0063] Based on the policies relevant to the state change, the new or modified data instance can be transferred between the policy-based mobile content engine 22 and the user devices at step 160. This information can further be transferred between the policy-based mobile content engine 22 and the other user devices within the particular user group. The user or other users are then capable of interacting with the application data and content at step 170 once that information has been pushed to their user device by the policy-based mobile content engine 22.

[0064] This scenario is much more effective compared to other solutions that use data replication to synchronize databases on mobile devices with a central server database. First, such databases quickly become too big in practice given the limited capabilities of mobile devices. Second, a lot of unnecessary information is moved back and forth. Policy-driven mobile forms applications are designed to minimize the exchange of data wirelessly (use right network at the right time, compression, byte-level differencing, check-point restart, caching and queuing of requests, automatic and manual client/server interactions, etc.).

[0065] While the present invention has been described with reference to one or more particular embodiments, those skilled in the art will recognize that many changes may be made thereto without departing from the spirit and scope of the present invention. Each of these embodiments and obvious variations thereof is contemplated as falling within the scope of the claimed invention, which is set forth in the following claims.

WHAT IS CLAIMED IS:

1. A system for capturing data via an extensible markup language form, comprising:

a policy-based mobile content engine adapted to process a plurality of mobile-forms application definitions from one or more mobile-forms application definition files, the policy-based mobile content engine being adapted to translate the plurality of mobile-forms application definitions into policies and actions, the policy-based mobile content engine being adapted to enforce the policies and actions that have been translated;

a mobile-forms application client having a plurality of rendering engines targeted for one or more mobile user device, the rendering engines utilizing a forms application definition markup language to render form controls and to process the forms-based application, the mobile-forms application client being operable on the one or more mobile user device and being adapted to capture the data, as one or more form data instances, both online or offline as an extensible-markup-language document; and

a transport engine adapted to transport mobile-forms applications, definition files, and the captured data through a transport layer between the policy-based mobile content engine and the mobile-forms application client.

2. The system of claim 1, wherein the mobile-forms application client is further adapted to capture and attach a wide variety of multi-media content to the captured data.

3. The system of claim 1, wherein the plurality of rendering engines of the mobile-forms application client is adapted to encode the captured data as an extensible-markup-language form data instance.

4. The system of claim 1, wherein the plurality of rendering engines of the mobile-forms application client is adapted to reference the inputted data to an opaque object.

5. The system of claim 1, wherein the management and distribution of the captured data is controlled by one or more policy translated from the plurality of mobile-forms application definitions.

6. The system of claim 1, wherein the rendered form controls are linked to and interact with one or more input devices provided on the mobile user device, the one

or more input devices allowing for data capture and assisting with navigation of the forms-based application.

7. The system of claim 1, wherein the policy-based mobile content engine routes the one or more mobile-forms application-definition files to the mobile-forms application client via the transport engine.

8. The system of claim 1, wherein the policy-based mobile content engine sends notifications as one or more data field within the mobile-forms application definition files is updated.

9. The system of claim 1, wherein the policy-based mobile content engine supports multiple security domains in a hosted environment that enables mobile forms applications, folder structures, user groups, user authentication, policies, and form data instances to be partitioned and kept wholly separate by security domain.

10. The system of claim 1, wherein the transport engine utilizes data compression to transmit the mobile-forms application definition files and the captured data through the transport layer between the policy-based mobile content engine and the mobile-forms application client.

11. The system of claim 1, wherein the transport engine utilizes byte-level differencing when retransmitting or updating large files that are part of the mobile-forms application through the transport layer between the policy-based mobile content engine and the mobile-forms application client.

12. The system of claim 1, wherein the transport engine utilizes check-point restarting when transmit the mobile-forms application definition files and the captured data through the transport layer between the policy-based mobile content engine and the mobile-forms application client.

13. The system of claim 1, wherein the transport engine uses caching and queuing of requests for transmitting the mobile-forms application definition files and the captured data through the transport layer between the policy-based mobile content engine and the mobile-forms application client.

14. The system of claim 1, wherein the transport engine is able to support communication between the mobile-forms application client and the policy-based mobile content engine both inside and outside of a corporate firewall.

15. The system of claim 1, wherein the transport engine is able to maintain a secure and robust user session between the mobile-forms application client and the policy-based mobile content engine over an intermittently connected network, via file caching, partial file transmission support, and a robust synchronization protocol.

16. The system of claim 1, wherein the rendered form controls are linked to and interact with one or more enterprise content sources in real-time, a request to the one or more enterprise content sources being communicated either directly or via the policy-based mobile content engine.

17. A method for defining and enforcing routing rules to define a business process workflow, comprising:

defining, via a mobile-forms application designer, a mobile-forms application-definition file that defines a mobile forms application by providing,

(i) a mobile forms application definition markup language,

(ii) an extensible-markup-language-based policy model that applies to one or more data instances that are to be captured,

(iii) routing information specifying one or more targeted mobile user devices to deploy the mobile-forms application-definition file to, and

(iv) a means of distribution of the forms-based application to targeted mobile users devices;

determining the routing rules for the business process workflow by reading, via a business process engine proxy, the mobile-forms application-definition file for the specified routing information and associated extensible-markup-language-based policy model; and

enforcing, via a policy-based content management engine, the routing rules determined based on the defined and read mobile-forms application-definition file,

wherein the deployment, form interaction, routing, and management of the mobile forms application is automatically supported by reading, deploying, and enforcing the mobile-forms application-definition file.

18. The method of claim 17, wherein the extensible-markup-language-based policy model specifies a business process workflow including,

(i) definition of state attributes in terms of information contained in a mobile-forms application instance or information available at run time in the policy-based mobile content engine,

(ii) events triggered by a change to a state of the mobile forms application or requests to the policy-based mobile content engine,

(iii) conditional evaluation and responses to events, and

(iv) actions that can be processed either directly or via the policy-based mobile content engine, the actions including changing the state of the mobile-forms application client.

19. The method of claim 17 further comprising, allowing a manager to track the progress of a work request relative to the business process workflow by utilizing a mobile application manager client, the business process engine proxy, and the policy-based content management engine.

20. The method of claim 17 further comprising, sending dynamic alerts and notifications associated with a tracked business process workflow and other events.

21. The method of claim 17, wherein the mobile forms application designer is adapted to modify the mobile-forms application-definition file.

22. The method of claim 17, wherein the mobile forms application designer is adapted to modify the extensible-markup-language-based policy model.

23. The method of claim 17, wherein the mobile forms application designer is adapted to test and package a mobile-forms application-definition file and the mobile-forms application-definition file's dependencies.

24. The method of claim 17, wherein the routing information specifying one or more targeted mobile user devices specifies one or more groups of users.

25. The method of claim 17, wherein the mobile-forms application-definition file is a self-extractable packaged file.

26. The method of claim 17 further comprising, updating the mobile-forms application-definition file and providing the updated mobile-forms application-definition file to the mobile user device, via the policy-based content management engine and an associated transport engine.

27. The method of claim 26, wherein the updated mobile-forms application-definition file is provided to the mobile user device utilizing wireless network connectivity.

28. The method of claim 26, wherein a form instance data definition modification can trigger data migration of existing form data instances persistent on the policy-based content management engine and the mobile user devices to validate against a new forms instance data definition via the business process workflow.

29. The method of claim 17 further comprising, mapping, via one or more translator, the mobile forms application from the extensible forms language into a format preferred by a user.

30. The method of claim 17 further comprising, mapping, via one or more translator, the mobile forms application from the extensible forms language into a format appropriate for the mobile user device the mobile forms application is deployed on.

31. A method for recognizing data superimposed on a paper form comprising:

scanning a paper based form to create a paper-based form template;

capturing the location of a form data instance element overlaid on the paper-based form template;

capturing the size of a form data instance element overlaid on the paper-based form template;

creating an input field based on the location and size of the form data instance element;

linking the paper-based form template to an application data model; and

populating the paper-based form template with mobile-forms application data for a specific data instance in the input field.

32. The method of claim 31, wherein the input field can be changed from a generic input field to a form controlled field.

33. The method of claim 32, wherein the form controlled field is a date picker.

34. The method of claim 32, wherein the form controlled field is a signature control.

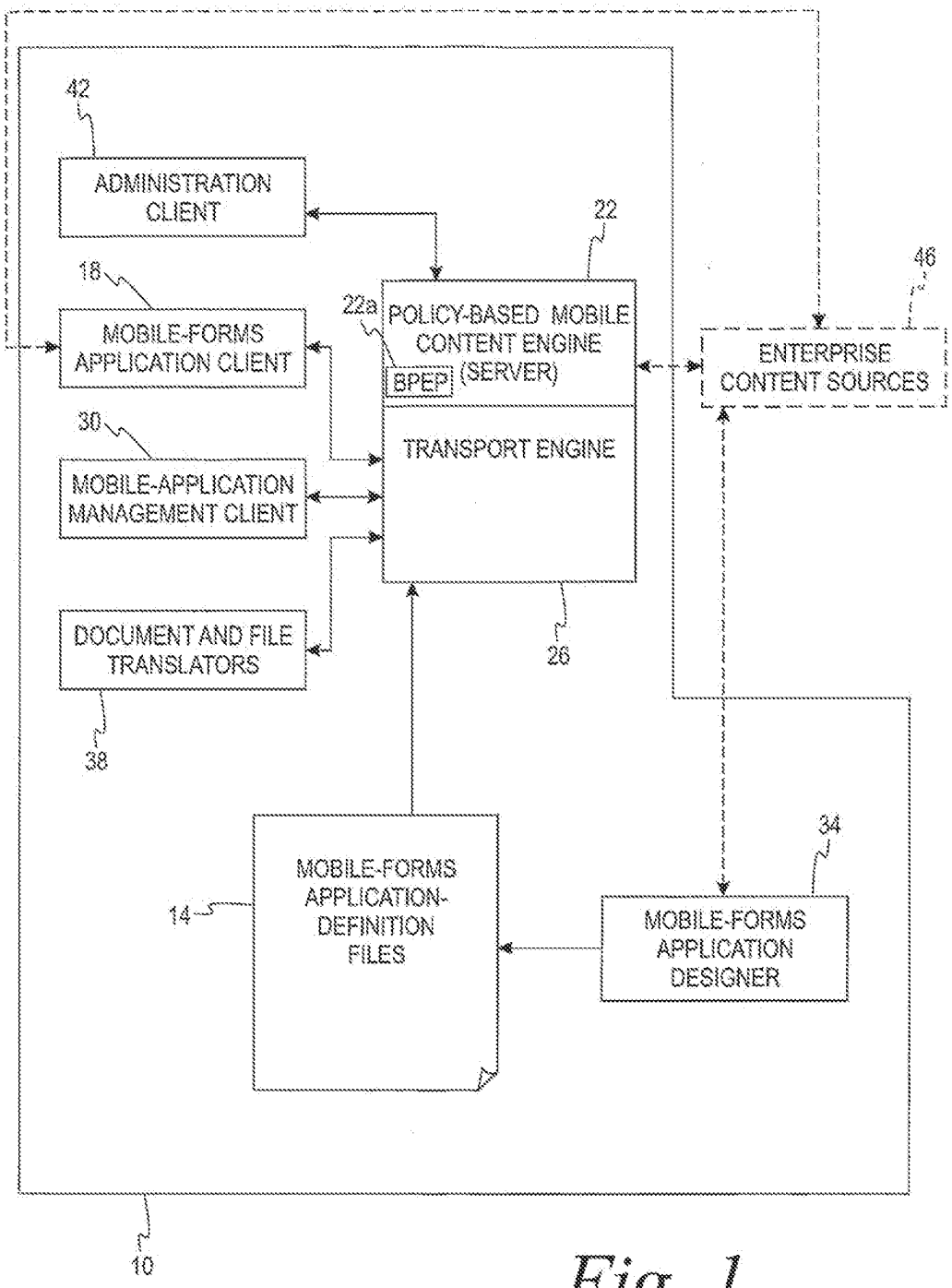

42
ADMINISTRATION CLIENT
22
46
18
MOBILE-FORMS APPLICATION CLIENT
22a
POLICY-BASED MOBILE CONTENT ENGINE (SERVER)
BPEP
ENTERPRISE CONTENT SOURCES
30
MOBILE-APPLICATION MANAGEMENT CLIENT
TRANSPORT ENGINE
DOCUMENT AND FILE TRANSLATORS
26
38
34
14
MOBILE-FORMS APPLICATION-DEFINITION FILES
MOBILE-FORMS APPLICATION DESIGNER
10

Fig. 1

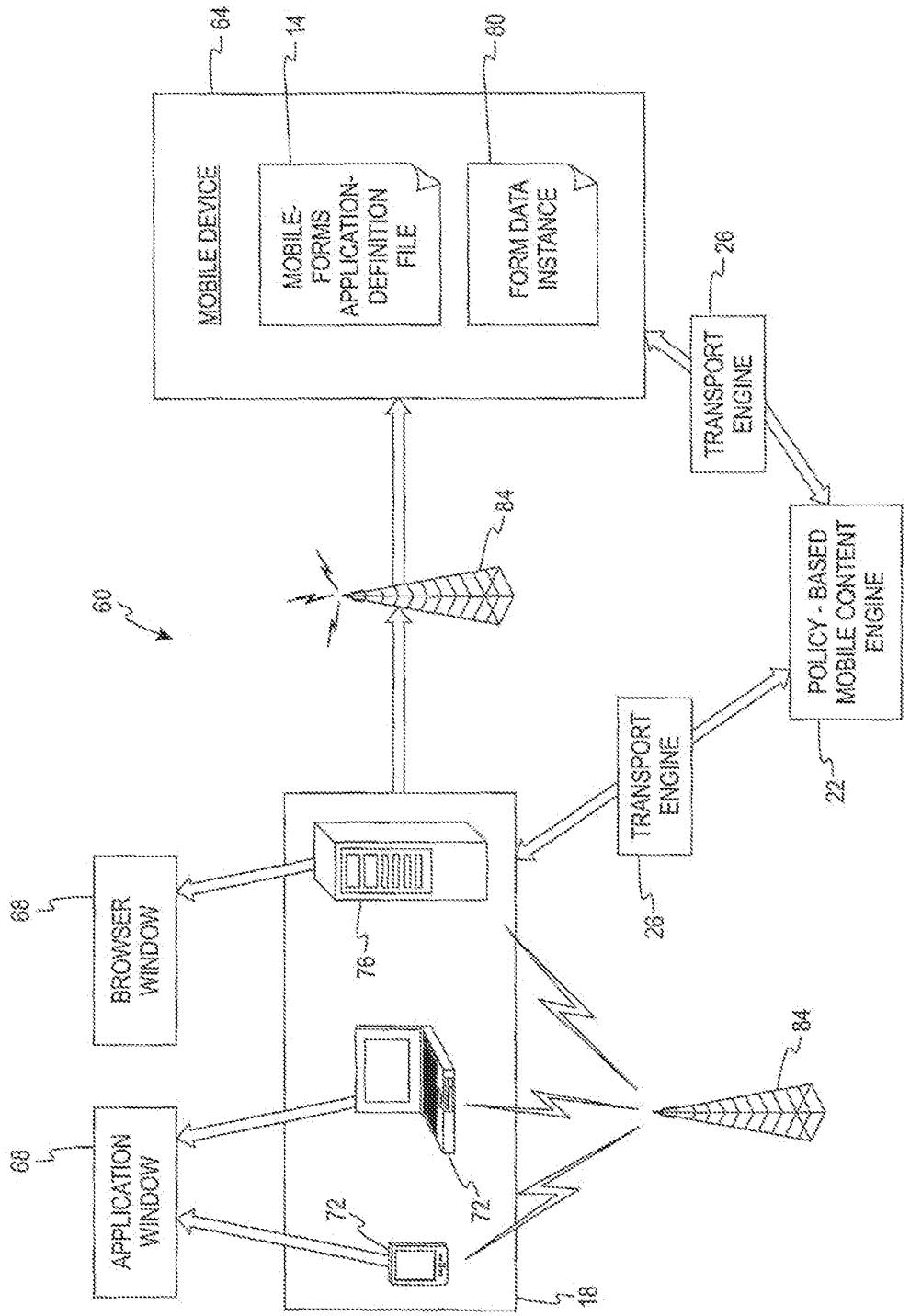

64
14
60
MOBILE DEVICE
MOBILE-FORMS APPLICATION-DEFINITION FILE
FORM DATA INSTANCE
26
TRANSPORT ENGINE
84
60
POLICY - BASED MOBILE CONTENT ENGINE
22
TRANSPORT ENGINE
28
68
BROWSER WINDOW
76
68
APPLICATION WINDOW
72
72
84
18

Fig. 2

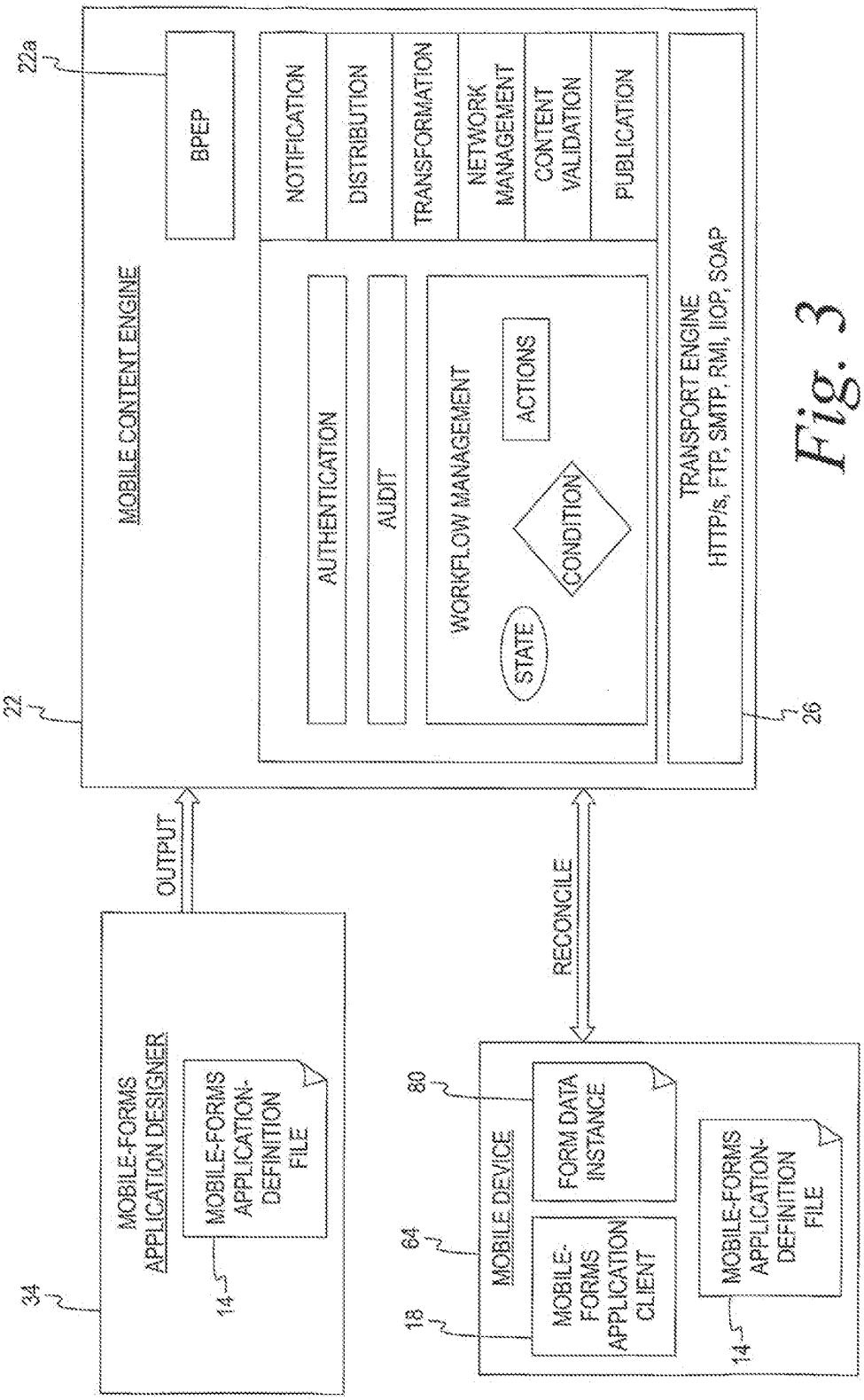

22a
MOBILE CONTENT ENGINE
BPEP
NOTIFICATION
DISTRIBUTION
TRANSFORMATION
NETWORK MANAGEMENT
CONTENT VALIDATION
PUBLICATION
AUTHENTICATION
AUDIT
WORKFLOW MANAGEMENT
ACTIONS
STATE
CONDITION
TRANSPORT ENGINE
HTTP/s, FTP, SMTP, RMI, IIOP, SOAP
22
26
OUTPUT
RECONCILE
MOBILE-FORMS APPLICATION DESIGNER
MOBILE-FORMS APPLICATION-DEFINITION FILE
34
14
80
64
18
MOBILE DEVICE
MOBILE-FORMS APPLICATION CLIENT
FORM DATA INSTANCE
MOBILE-FORMS APPLICATION-DEFINITION FILE
14

Fig. 3

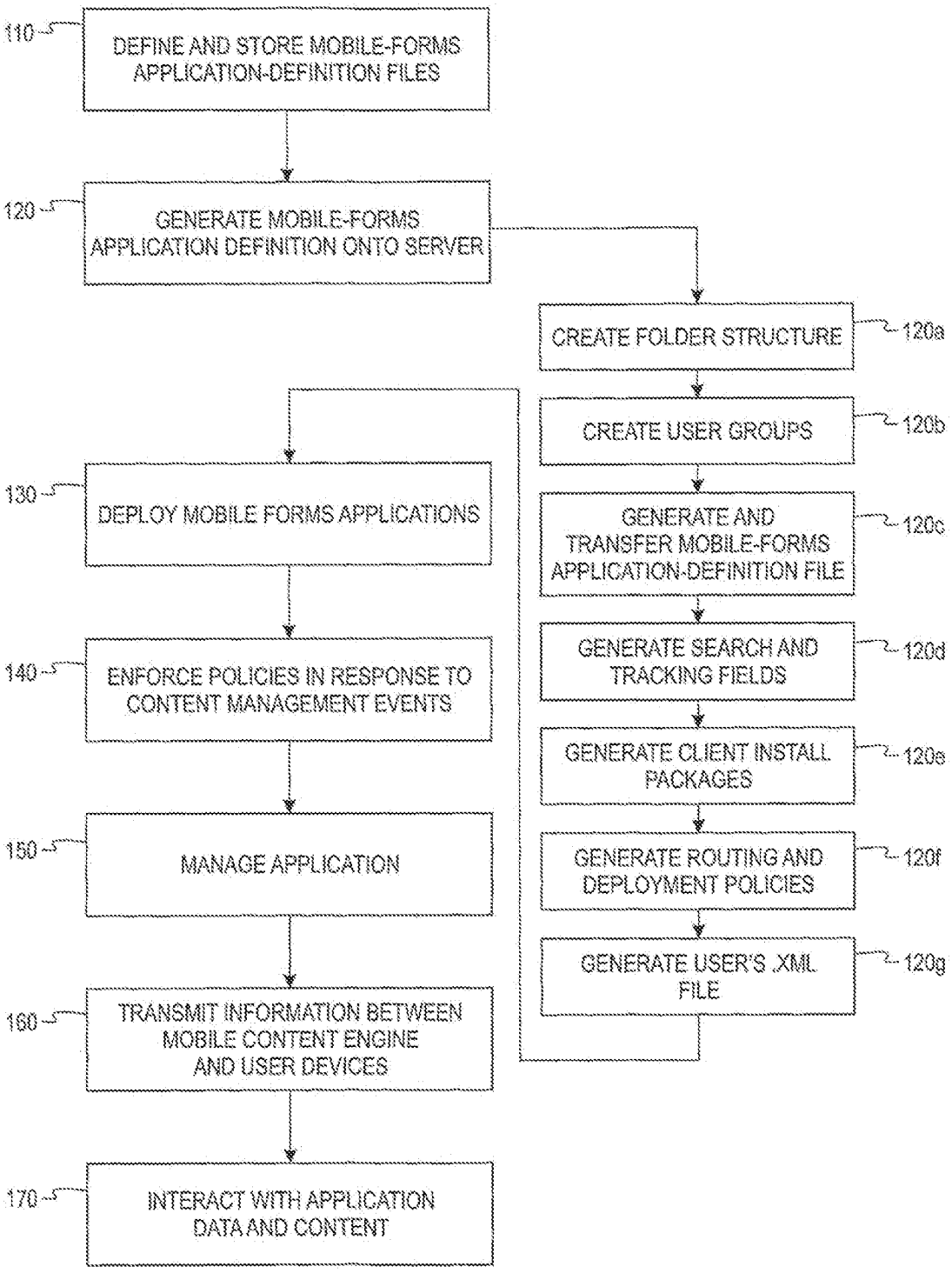

110
DEFINE AND STORE MOBILE-FORMS APPLICATION-DEFINITION FILES
120
GENERATE MOBILE-FORMS APPLICATION DEFINITION ONTO SERVER
CREATE FOLDER STRUCTURE
120a
CREATE USER GROUPS
120b
GENERATE AND TRANSFER MOBILE-FORMS APPLICATION-DEFINITION FILE
120c
GENERATE SEARCH AND TRACKING FIELDS
120d
GENERATE CLIENT INSTALL PACKAGES
120e
GENERATE ROUTING AND DEPLOYMENT POLICIES
120f
GENERATE USER'S .XML FILE
120g
130
DEPLOY MOBILE FORMS APPLICATIONS
140
ENFORCE POLICIES IN RESPONSE TO CONTENT MANAGEMENT EVENTS
150
MANAGE APPLICATION
160
TRANSMIT INFORMATION BETWEEN MOBILE CONTENT ENGINE AND USER DEVICES
170
INTERACT WITH APPLICATION DATA AND CONTENT

Fig. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2006/000076

A. CLASSIFICATION OF SUBJECT MATTER
IPC: ***G06Q 10/00*** (2006.01), ***H04L 12/16*** (2006.01), ***G06F 17/00*** (2006.01), ***G06K 9/78*** (2006.01), ***G06F 17/20*** (2006.01)
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC: G06Q 10/00; H04L 12/16; G06F 17/00; G06K 9/78; G06F 17/20; (2006.01); G06F 17/00; IPC(7)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)
Delphion, Canadian Patent Database, Google: mobile, wireless, form, document, application, definition file, extensible markup language, electronic/mobile form, paper, scan, template,

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2002/0194219 (Bradley et al.) 19 December 2002 (19-12-2002) see whole document	1-34
Y	US 2003/0220879 (Gaughan et al.) 27 November 2003 (27-11-2003) see whole document	1-30
Y	US 5,034,096 (Beizer) 01 October 1991 (01-10-1991) see whole document	31-34
A	WO 01/61517 (Buisman et al.) 23 August 2001 (23-08-2001) see whole document	31-34

[ ] Further documents are listed in the continuation of Box C. [X] See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier 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
02 June 2006 (02-06-2006)	12 June 2006 (12-06-2006)

Name and mailing address of the ISA/CA	Authorized officer
Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9 Facsimile No.: 001(819)953-2476	Chaza Nasrallah (819) 934-2627

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
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Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
US2002194219	19-12-2002	CA2344074 A1	17-10-2002
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US2003220879	27-11-2003	None	
US5054096	01-10-1991	AT155268T T	15-07-1997
		AU622946 B2	30-04-1992
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		DE68928166D D1	14-08-1997
		DE68928166T T2	16-07-1998
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		ES2017051 A6	16-12-1990
		JP3504545T T	03-10-1991
		WO9004837 A1	03-05-1990
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		AU3818701 A	27-08-2001
		US6867789 B1	15-03-2005
		US2004243641 A1	02-12-2004
		WO0161598 A1	23-08-2001

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Published:
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(54) Title: SYSTEM AND METHOD FOR MANAGING AND MONITORING MOBILE DATA, CONTENT, ACCESS AND USAGE

(57) Abstract: A system, method, and process for managing and monitoring mobile data, content, access, and usage of mobile devices are provided. The described exemplary system, method, and process provide an infrastructure for managing and monitoring various applications and services of mobile devices such as Internet access, voice, messaging, gaming, music, and video.

WO 2008/051379 A2

SYSTEM AND METHOD FOR MANAGING AND MONITORING MOBILE DATA, CONTENT, ACCESS, AND USAGE

BACKGROUND

As the Internet increased in popularity, parents became worried about the content of the websites that their children were accessing. Today, the increasing use of mobile devices (e.g., cell phones, PDAs, pagers, and similar devices) have only further enhanced this and similar apprehensions of parents. Because many mobile devices can provide easy access to an array of applications from almost any location at any time, it has become increasingly difficult for parents to manage and monitor the mobile data, content, access, and usage of their children on their mobile devices. For example, many mobile devices allow users to access numerous applications such as voice (e.g., phone and voicemail), messaging (e.g., SMS /MMS), Internet, gaming, music, and video. Typically, the access to these applications can be easily obtained with the touch of a button. Moreover, each member of a household might have more than one mobile device, which would even further complicate the situation of managing and controlling children's use of their mobile devices.

In the past few years, many efforts have been made to address customers' needs in using mobile devices, but none provides a full solution for the above-stated problem. For example, some service providers offer customers "pay-as-you-go" plans to control use of their mobile devices, where if a customer's prepaid balance falls below a certain threshold, the service provider directs the subscriber to purchase additional time. However, such "pay-as-you-go" plans have limited applicability in the context of prepaid services. Another example is for service providers to provide customers or subscribers with mobile devices, e.g., cell phones, that were made with configurable restrictions, pursuant to which the customers or subscribers can program and personalize the devices. For instance, a parent is able to login to a child's phone to apply usage and phone number restrictions on that particular phone. This solution, again, is restrictive because it requires manual configuration of each of the pre-selected types of mobile devices.

In addition, like many other efforts, this solution fails to address customers' concerns on the content accessible from the mobile devices.

In light of the above, there exists a need to provide customers, such as parents, with an improved comprehensive method and system for managing and monitoring the mobile data, content, access, and usage of their own or their affiliates' mobile devices.

BRIEF DESCRIPTION OF THE DRAWINGS

Reference will be made to the accompanying drawings, which are not necessarily drawn to scale, and wherein:

Fig. 1 illustrates a system for managing and monitoring mobile data, content, access, and usage of mobile devices according to an embodiment.

Fig. 2 illustrates in further detail the components of the system in Fig. 1, including a service provider's network and a customer's access to the network according to an embodiment.

Fig. 3 shows a particular component in the system in Fig. 1, a Deep Inspection Application Control Server and primary application modules comprised thereof, according to an embodiment.

Fig. 4 is a flow chart showing the process algorithm performed by the system in Fig. 1 in managing and monitoring mobile data, content, access, and usage according to an embodiment.

DETAILED DESCRIPTION

Exemplary embodiments will now be described hereinafter with reference to the accompanying drawings, in which exemplary embodiments and examples are shown. Like numbers refer to like elements throughout.

Figs. 1 and 2 provide a high-level overview of an improved system for managing and monitoring mobile data, content, access, and usage of mobile devices according to one embodiment. As shown in Figs. 1 and 2, the management system **104** provides a network-based solution for managing and monitoring mobile data, content, access, and usage of mobile devices. Specifically, the management system **104** can be used to manage mobile data, content, access and usage of a user's mobile device **100** through a service provider's network **102**, or

the general Internet **120** or other wide area network where a service provider's online service applications can be accessed. Each of these components will be described in detail below with reference to Figs. 1 and 2.

As shown in Fig. 2, in operation, the management system **104** may involve a subscriber **122** and a user **124**. The subscriber **122** can be an entity (e.g., corporation) or an individual subscribing to mobile or wireless services from a mobile or wireless service provider (service provider), while a user **124** typically refers to an individual that operates a mobile device associated with a particular subscriber's **122** account. The mobile device operated by a user **124**, illustrated as the user's mobile device **100** in Figs. 1 and 2, can be a cellular phone, PDA, handheld, or any other portable computing device. Usually there is no limit to the number of subscribers **122** or users **124** associated with a specific account. For example, the subscriber **122** can be a parent and the users **124** may include all the children on the same subscribing account. In another instance, the subscriber **122** can be a corporation paying for the mobile or wireless services of its employees, and thus, all those beneficiary employees become the users **124**. On certain occasions, the subscriber **122** and user **124** can be the same entity, i.e., when the mobile service subscribing account has only one person associated therewith. Also, a user **124** may have more than one mobile device associated with an account subscribed to by the subscriber **122**. For instance, a parent may have both a cellular phone and a personal digital assistant (PDA) associated with the same account.

The service provider's network **102** illustrated in Figs. 1 and 2 can be any type of telecommunications networks. The service provider's network **102** may employ various protocols and technologies such as advanced mobile phone systems (AMPS), time division multiple access (TDMA), code division multiple access (CDMA), and global system for mobile communications (GSM). Many of these radio-based networks operate with base stations that initially handle the incoming traffic. The base station function is often divided into two main functional elements: the Base Station Controller (BSC) and the Base Transceiver System (BTS) **126**, as shown in Fig. 2. The BTS **126** consolidates several transceivers at a single location. The BTS **126** may communicate with and pass traffic to the Gateway GPRS Support Nodes (GGSN) **128** or Packet Data Serving

Nodes (PDSN) **128**. The GGSN **128** and PDSN **128** serve as gateways between mobile networks and packet data networks. Once the traffic reaches the service provider's network **102**, the service provider's network **102** can pass the traffic to the management system **104**.

In one embodiment, the management system **104** provides the subscriber **122** with significant control over a user's mobile device **100**, such as limiting the time duration of phone calls, time period of allowed calls, number of usable minutes in a particular time period, content of web-based applications, content and usage of multimedia applications, access to specific categories of videos and games, access to services that require a fee, access to specific websites, and numerous other applications. In another embodiment, the management system **104** is configured to provide a user-friendly programmable interface such that any service provider can integrate the system **104** into its existing systems and network **102** to allow its subscribers **122** to manage and monitor all traffic that passes to the user's mobile device **100**. Alternatively, the management system **104** can be separate from but accessible to a service provider's network **102**. The management system **104** according to an exemplary embodiment is not dependent upon the protocols or technologies employed in a particular service provider's network **102**. In addition, the applicability of management system **104** is not limited to the wireless or mobile context; instead, it can be seamlessly integrated into any wired network to perform similar management functionalities with respect to wireline devices.

Figs. 1 and 2 also provide an architectural view of the management system **104** of one embodiment. Typically, the management system **104** resides on a web server in a computer network, which can be a packet switched network, such as a wide area network (WAN), a local area network (LAN), metropolitan area network (MAN), the Internet, or any other similar types of communication networks. Various protocols can be utilized by these computer networks, including Internet Protocol (IP), Frame Relay (FR), Point-to-Point Protocol (PPP), or any other data protocol. Moreover, the computer network typically contains switching or routing equipment designed to transfer the traffic to different segments or components of the network. The network traffic may be of any type including text, graphics, video, e-mail, multimedia, documents, voice, audio, and any other forms of data.

In operation, the traffic would be passed to the management system **104** by the service provider's network **102**. The architecture of Figs. 1 and 2 is only exemplary and various embodiments can be used with any type of communications system, computer network, protocol, or combination thereof.

Referring to Figs. 1, 2, and 3, a detailed description of each component of the management system **104** according to various embodiments is provided. At a high level, in one embodiment, the management system **104** comprises a Web Account Access Portal **106**, Policy Authentication Server **108**, Policy Database **110**, Deep Inspection Application Control Server **112**, Subscriber Monitoring Device **114**, and Partner Web Portal **116**.

As shown in Figs. 1 and 2, the Web Account Access Portal **106** provides a subscriber **122** with an interface through which the subscriber **122** can manage and monitor the mobile devices associated with the subscriber's account. As such, the Web Account Access Portal **106** is generally embodied by software that is stored by a memory device, such as a server within the management system **104**, and that is configured to provide the interface for providing the subscriber with the requested information and for receiving input from the subscriber as described herein upon execution of the software, such as by a server or the like. The subscriber **122** can access the Web Account Access Portal **106** via a network, such as the Internet **120**, through a device capable of accessing the network, such as a mainframe station, a desktop PC, a laptop PC, a hand held device (e.g., PDA or data acquisition and storage device), or a processing device embodied within another apparatus. Through the network-accessible device, a subscriber **122** may login to the subscriber's account and, for each mobile device associated with the subscriber's account, establish a Policy Profile **111** in the Policy Database **110**. As shown in Figs. 1 and 2, one subscriber may have more than one policy profile **111** when there are multiple mobile devices associated with the subscriber's account. In operation, the subscriber **122** can associate, create, update, modify, delete, and store a Policy Profile **111** for each mobile device associated with the subscriber's account. Typically, a Policy Profile **111** is defined to include various parameters set forth by the subscriber **122** for a specific mobile device. For example, the subscriber **122** can configure the Policy Profile **111** to contain a time period where incoming calls are prohibited, an access limitation that only allows access to video

games with a PG or G rating, or a content limitation that only permits Internet access to educational websites. Through the Web Account Access Portal **106**, the subscriber **122** can also monitor various incoming requests from each user's mobile device **100**, due to, in large part, the ability of the management system **104** to track and provide statistics as well as almost real-time status regarding the data, content, access, and usage of each mobile device. For instance, a subscriber **122** can login to the Web Account Access Portal **106** and view how many minutes were used during a particular time period, what websites were accessed, what websites were attempted to be accessed but for which access was denied, and what types of games were played. In an exemplary embodiment, the Web Account Access Portal **106** is configured to access the Policy Database **110** and communicate with the Subscriber Monitoring Device **114** through a network, such as the Internet **120**. In addition, the Web Account Access Portal **106** may interact with the Partner Web Portal **116** through the service provider's private media intranet **118**, as will be described in detail below.

The Policy Authentication Server **108**, as illustrated in Figs. 1 and 2 is configured to access and retrieve data in the Policy Database **110**, to determine whether a user's mobile device **100** is associated with any Policy Profile **111**. If the Policy Authentication Server **108** identifies a Policy Profile **111** associated with the user's mobile device **110**, the Policy Authentication Server **108** will send instructions to the service provider's network **102** before allowing the traffic to be sent to the user's mobile device **100**, with the instructions specifying that the traffic directed to the user's mobile device **100** should be mirrored to the management system **104** for inspection prior to delivery to the user's mobile device **100**. In inspecting the mirrored traffic, the management system **104** would specifically examine whether the traffic complies with the Policy Profile **111** and then determine whether the traffic is allowed to reach the user's mobile device **100**. Alternatively, if the Policy Authentication Server **108** determines that a user's mobile device **100** is not associated with any Policy Profile **111**, the Policy Authentication Server **108** will instruct the service provider's network **102** to transmit the traffic to the user's mobile device **100** without mirroring the traffic to the management system **104**. In that scenario, the management system **104** does not need to inspect the traffic directed to a user's mobile device **100**. The Policy

Authentication Server **108** queries the Policy Database **110** to determine if a user's mobile device **100** has a Policy Profile **111** associated with it. These queries by the Policy Authentication Server **108** to the Policy Database **110** are generally executed based on information about a user's mobile device **100** contained in layer 2 or layer 3 of the packets (corresponding to the Open Systems Interconnection (OSI) Model) or, in the case of a phone, it can be based on the Mobile Subscriber ISDN (MSISDN) number, although other identifiers of the data packets may be employed.

The Policy Authentication Server **108** typically comprises a processor or other computing device (hereinafter generically referenced as a "processor") that is configured to be able to access to one or more databases stored in a secondary memory or primary memory. Usually the processor is also configured to communicate with external devices using an I/O controller that typically interfaces with a LAN. The memory and/or external devices may be integrated as part of the Policy Authentication Server **108**, or alternatively, reside in different, proximate or remote, locations that are accessible to the Server **108**. For example, the communication between the Server **108** and the remote devices is typically accomplished by routing data from the LAN over a communications facility to a WAN. One or more of the Policy Authentication Servers **108** may be used in exemplary embodiments.

In Figs. 1 and 2, only one Policy Database **110** is illustrated, but again, the Policy Database **110** may include several databases, each of which is configured to store various Policy Profiles **111**. In one embodiment, through various network connections, the data in the Policy Database **110** is made easily accessible to various components of the management system **104**, such as the Web Account Access Portal **106** as described above, the service provider's network **102**, the Policy Authentication Server **108**, and the Deep Inspection Application Control Server **112**.

As will be further illustrated in Fig. 3, the Deep Inspection Application Control Server **112** contains at least one inspection application **113** that is designed and configured to examine data directed to a specific user's mobile device **100** against the associated Policy Profile **111** to determine whether certain content and usage limitations as set forth in the Policy Profile **111** are satisfied. A typical

inspection process works as follows: upon the determination that a Policy Profile **111** is associated with a particular user's mobile device **100**, the Policy Authentication Server **108** will retrieve a copy of Policy Profile **111** from the Policy Database **110** and transmit the Policy Profile **111** to the Deep Inspection Application Control Server **112**. In response to the received data traffic and Policy Profile **111**, the Deep Inspection Application Control Server **112** will select and execute a particular inspection application **113** that is designed to inspect the data traffic against the Policy Profile **111**. If the traffic does not comply with the Policy Profile **111** associated with the user's mobile device **100**, the Deep Inspection Application Control Server **112** will then inform the Authentication Server **130** of the noncompliance. In response, the Authentication Server **130** would start several protective actions, including (1) providing a redirect message to the user's mobile device **100**, in the form of a text message to the mobile device that provides the customer service contact number of the service provider's network **102** that the user **100** can contact in order to identify the reason for the failure of a specific service request, (2) prohibiting the user's mobile device **100** from accessing to the requested service or application, and (3) updating the information in the Subscriber Monitoring Device **114**, such as the activity history of the user's mobile device **100** to record the access attempts and any denials. In practice, the traffic directed to a particular user's mobile device **100** may be identified by the Deep Inspection Application Control Server **112** and the inspection application **113** based on various identifiers, such as the MAC address (e.g., layer 2 information), the IP address (e.g., layer 3 information), the MSISDN number, or any other traffic identifiers.

The Deep Inspection Application Control Server **112** also typically comprises a processor or other computing device (hereinafter generically referenced as a "processor") that is configured to be able to access to one or more memory device. Usually the processor is also configured to communicate with external devices using an I/O controller that typically interfaces with a LAN. The memory and/or external devices may be integrated as part of the Deep Inspection Application Control Server **112**, or alternatively, reside in different, proximate or remote, locations that are accessible to the Server **112**. For example, the communication between the Server **112** and the remote devices is typically

accomplished by routing data from the LAN over a communications facility to a WAN. One or more of the Deep Inspection Application Control Servers **112** may be used in exemplary embodiments.

In another embodiment, the Deep Inspection Application Control Server **112** is also configured to transmit data (e.g., the content and usage statistics) regarding each user's mobile device **100** for updating the information in the Subscriber Monitoring Device **114**. As a result, a subscriber **122** is able to monitor the traffic of each user's mobile device **100** associated with the subscriber's **122** account. Reversely, the Deep Inspection Application Control Server **112** can query the Subscriber Monitoring Device **114** to obtain statistics and information regarding previous activity (e.g., the number of minutes used to date) of a user's mobile device **100**.

Depending on the specific inspection functions (i.e., what service parameters to inspect), more than one inspection application **113** may be implemented and stored on the Deep Inspection Application Control Server **112**. For example, Fig. 3 shows several exemplary inspection applications **113**, including, and not limited to, an application for inspecting the time duration permitted for a single call, an application for inspecting the time period of allowed calls, an application for inspecting the number of usable minutes in a particular time period, an application for inspecting the allowable content rating for web-based applications, an application for inspecting the allowable content rating for multimedia applications, an application for inspecting access to specific URLs, and an application for managing numerous other applications and services. As a person of ordinary skill may appreciate, in operation, the inspection application **113** may be varied, customized and implemented to tailor specific customer needs. In inspecting the traffic directed to a user's mobile device **100** for compliance with its Policy Profile **111**, the inspection application **113** typically examines whether certain pre-defined thresholds or requirements in the Policy Profile **111**, such as usage or content limitations, are satisfied in the inspected traffic.

The Subscriber Monitoring Device **114**, depicted in Figs. 1 and 2, is typically embodied by a computing device, such as a personal computer, operating under software control to enable a subscriber to track statistics as well as almost real-time information regarding the content, access, and usage of each mobile

device associated with a subscriber's account. In operation, the Subscriber Monitoring Device **114** receives statistical or real-time data from the Deep Inspection Application Control Server **112** and saves the received data in one or more databases that are accessible to other web servers and portals, such as the Web Account Access Portal **106** shown in Figs. 1 and 2. Through the communication between the Web Account Access Portal **106** and the database(s) associated with the Subscriber Monitoring Device **114**, a subscriber **122** may submit inquiries and receive answers about statistics as well as almost real-time information regarding the content, access, and usage of each mobile device associated with the subscriber's account. Alternatively, the data in those database(s) associated with the Subscriber Monitoring Device **114** can be uploaded to the Web Account Access Portal **106** for a subscriber **122** to search and view. For instance, a subscriber **122** can view the number of minutes used during a particular time period, the websites accessed, the websites to which access was denied and the games played.

Figs. 1 and 2 also illustrate a Partner Web Portal **116** that provides an interface through which a service provider may provide its users with easy access to a series of media services, such as video, music, entertainment, and games for a fee or on a complimentary basis. In practice, the Partner Web Portal **116** is generally embodied by software that is stored by a memory device and that is configured to provide the aforementioned interface upon its execution, such as by a media server that is configured to provide services such as video, music, entertainment, and games to a user's mobile device **100**. In one embodiment, the media server of the Partner Web Portal **116** is configured to be connected to a service provider's private media intranet **118**, and further, to the service provider's network **102**. Under this configuration, the media server of the Partner Web Portal **116** is able to communicate with various web servers and portals such as the Web Account Access Portal **106**. As a result, a subscriber **122** is able to, by logging onto the Web Account Access Portal **106**, pre-define and configure what media services and applications can be allowed for each user's mobile device **100** associated with the subscriber's account. For future inspection purposes, such pre-definition and configuration is to be stored in the Policy Profile **111** associated with the user's mobile device **100**.

The management system **104** is capable of managing and monitoring the mobile data, content, access, usage and other information concerning different users' mobile devices associated with a subscriber's account. For further illustration of the system's functionalities, the following exemplary services and applications will be described.

In one embodiment, the management system **104** can manage and monitor the duration of phone calls or other services and applications. For example, a subscriber **122** can configure the Policy Profile **111** associated with a user's mobile device **100** to limit the duration of phone calls, games, or Internet access to two minutes per session during a specified time period, e.g., from 12:30 PM to 6:00 AM. By setting such time limitations, the subscriber **122** may discourage unnecessary lengthy use of phone services, especially during an expected busy time period. This service can be monitored by the management system **104** that performs a process of inspecting layer 2 or layer 3 of data packets. Specifically, time stamps on the data packets would be examined to determine whether a call exceeds the time duration as defined in the Policy Profile **111**. If so, the active call will be inactivated or terminated, preferably, with a warning message to the user.

In another embodiment, the management system **104** provides a scheduling function that allows a subscriber **122** to set a time period where access to the Internet, games, music, or incoming phone calls should be denied on a user's mobile device **100**. For example, through this scheduler function, parents can set the time limitation, e.g., between 12:30 PM and 6:00 AM, to their children's use of mobile devices. In operation, a subscriber **122** includes the time limitation in the Policy Profile **111**. When the data packets are received, the management system **104** would first inspect the time stamps at layer 2 or layer 3 of the data packets or the MSISDN number of each incoming phone call, then verify the time information with the control settings in the Policy Profile **111**, and finally decide whether to block or allow the data session. However if a call is being received by or originated from numbers within the subscriber's account, these calls will be permitted.

Moreover, the management system **104** can provide the subscriber **122** with the ability to set usage limits on various applications and services. For example, the subscriber **122** can limit the number of MMS/SMS messages or picture

messages to 175 messages for a specific time period. Because the Subscriber Monitoring Device **114** tracks statistics regarding the data, content, access, and usage of each mobile device, the Deep Inspection Application Control Server **112** can send queries to the Subscriber Monitoring Device **114** to obtain the statistics and information regarding previous activity, e.g., the total number of messages sent during the specified period. As a result, the Deep Inspection Application Control Server **112** can enforce the messaging limitation contained in the Policy Profile **111** with accuracy.

The management system **104** can also provide a subscriber **122** with the ability to control users' access to various web-based applications from their mobile devices. With the increasing access to the Internet from mobile devices, such capability has become significantly useful, especially for parents to prevent their children from accessing or downloading specific categories of videos and games. In one exemplary embodiment, the management system **104** can monitor and prevent access to specific websites by, for example, searching for key words within the text, image names, or URL of each webpage. Alternatively, the Partner Web Portal **116** is configured to allow the management system **104** to prevent certain applications and services from reaching a user's mobile device **100**. Under this alternative configuration, the service provider can assign each service and application (e.g., games, videos, music, chat rooms, and media based applications) a rating. For example, each service or application could be assigned a rating such as G, PG, Y7, R15, R18, R21, and XXX. Using the rating information, a subscriber **122** can set the allowable rating level for each mobile device and prevent access to any applications or services on the Partner Web Portal **116** that fall below the allowed rating for the user **124**. As stated above, all the restrictions to the web related content, access, usage of a user's mobile device will be pre-defined and stored in the Policy Profile **111** associated with the user's mobile device.

The services and functions provided by the management system **104** are not limited to the above-illustrated examples. Instead, many alternative applications and services may be offered according to various exemplary embodiments.

Referring to Fig. 4, an exemplary process performed by the management system **104** in monitoring, controlling and managing data, content, usage of users'

mobile devices will be described. For easy illustration, a parent-child scenario is used in the following process, but embodiments are not limited to the illustration, and can apply in various other contexts where mobile phone use needs to be monitored.

Before the process begins, a parent establishes an account with a service provider for wireless or mobile services. The parent further establishes his child as a user **124** on the account. Thus, the parent is now a subscriber **122**, and his child is now a user **124**. The subscriber **122** is provided with credentials (i.e., user name and password) to obtain access to the Web Account Access Portal **106**.

As shown in Step **136**, the subscriber **122** logs onto the Web Account Access Portal **106** to define various controls for his child's **124** mobile device ("user's mobile device **100**"), e.g., usage, duration, scheduling, application-based activities, and multimedia applications. Such pre-defined controlling information will be saved in a Policy Profile **111** that is associated with the user's mobile device **100** in the Policy Database **110**. The Policy Profile **111** can be updated whenever the subscriber **122** changes the control instructions on the use of users' mobile devices associated with the subscriber's account, as shown in Step **138**.

When the user **124** needs to use a service or application that requires access to the service provider's network **102** and attempts to initiate a data session, in Step **140**, the user's mobile device **100** originates a data session request with the service provider's network **102**. In Step **142**, the Authentication Server **130** receives an authentication message from the GGSN/PDSN **128** to have the user's mobile device **100** authenticated before permitting the data session setup. Then in Step **144**, the Authentication Server **130** determines the authenticity of the user's mobile device **100** by sending queries to the Sub Policy Database **132** to determine whether the user's mobile device **100** is valid or registered. If the user's mobile device **100** is valid or registered, the Authentication Server **130** will send a request to the Policy Authentication Server **108** to identify whether a Policy Profile **111** is associated with the user's mobile device **100** as shown in Step **146**.

In Step **148a**, if no Policy Profile **111** is associated with the user's mobile device **100**, the Authentication Server **130** will instruct the service provider's network **102** to transmit the data from the High Speed Gateway/Router **134** to the user's mobile device **100** without any additional inspection by the Deep Inspection

Application Control Server **112**. Alternatively, if the user's mobile device **100** is associated with a Policy Profile **111**, the Authentication Server **130** will instruct the High Speed Gateway/Router **134** to mirror the traffic directed to the user's mobile device **100** to the Deep Inspection Application Control Server **112** for inspection before passing the data packets to the user's mobile device **100** in Step **148b**. In this regard, the management system **104** would permit the service provider's network **102** to transmit data from the High Speed Gateway/Router **134** to the user's mobile device **100** if it complies with the Policy Profile **111**.

In preparation for performance of the inspection, the Deep Inspection Application Control Server **112** may be updated in Step **150** in accordance with the Policy Database **110** to reflect any updates in the Policy Profile **111** associated with the user's mobile device **100**. In Step **154**, the High Speed Gateway/Router **134** inspects all data packets and mirrors the packets tied to a Policy Profile **111** to the Deep Inspection Application Control Server **112** based on the IP address of the user's mobile device **100**. If the user's mobile device **100** does not have a Policy Profile **111** associated with it, its traffic passes from the High Speed Gateway/Router **134** without inspection by the management system **104** as noted above.

In response to receiving packets tied to a Policy Profile **111**, specific categories of the inspection applications **113** that are available to the Deep Inspection Application Control Server **112** that are to be controlled in the Policy Profile **111** would be triggered and executed by the Deep Inspection Application Control Server **112** in Step **160**. In Step **162**, based on the IP addresses, the activated inspection applications **113** inspect the traffic for usage and content compliance with the Policy Profile **111** associated with the user's mobile device **100**. Depending on the application or service, this inspection can be done from layer 2 to layer 7. If the traffic does not comply with the Policy Profile **111**, the Deep Inspection Application Control Server **112** signals the Authentication Server **130**, and in response, the Authentication Server **130** will, as shown in Step **164**, perform an authentication process, including the steps of: (1) providing a redirect message to the user's mobile device **100**, (2) preventing access to the requested site, games portal, videos, etc., and (3) sending updates to the Subscriber Monitoring Device **114** to update the activity history for the user's mobile

device **100**. In Step **166**, the Subscriber Monitoring Device **114** tracks the activity statistics of each user's mobile device **100** based on updates from the Deep Inspection Application Control Server **112**. In Step **168**, the Subscriber Monitoring Device **114** will send updates on the activity statistics to the Web Account Access Portal **106** so that the subscriber **122** may view the status of users' mobile devices in almost real time.

As described above, exemplary embodiments may take the form of a computer program product on a computer-readable storage medium having computer-readable program instructions (e.g., computer software) embodied in the storage medium. Any suitable computer-readable storage medium may be utilized including hard disks, CD-ROMs, optical storage devices, or magnetic storage devices.

Exemplary embodiments have been described above with reference to block diagrams and a flowchart illustrations of methods, apparatuses (i.e., systems) and computer program products. It will be understood that each block of the block diagrams and flowchart illustrations, and combinations of blocks in the block diagrams and flowchart illustrations, respectively, can be implemented by various means including computer program instructions. These computer program instructions may be loaded onto a general purpose computer, special purpose computer, or other programmable data processing apparatus to produce a machine, such that the instructions which execute on the computer or other programmable data processing apparatus create a means for implementing the functions specified in the flowchart block or blocks.

These computer program instructions may also be stored in a computer-readable memory that can direct a computer or other programmable data processing apparatus to function in a particular manner, such that the instructions stored in the computer-readable memory produce an article of manufacture including computer-readable instructions for implementing the function specified in the flowchart block or blocks. The computer program instructions may also be loaded onto a computer or other programmable data processing apparatus to cause a series of operational steps to be performed on the computer or other programmable apparatus to produce a computer-implemented process such that the

instructions that execute on the computer or other programmable apparatus provide steps for implementing the functions specified in the flowchart block or blocks.

In the preceding specification, various embodiments of the claimed invention have been described. It will, however, be evident that various modifications and changes may be made thereunto without departing from the broader spirit and scope of the invention as set forth in the claims that follow. The specification and drawings are accordingly to be regarded in an illustrative rather than restrictive sense.

THAT WHICH IS CLAIMED:

1. A system comprising:

a web account access portal that provides an interface to a subscriber enabling the subscriber to configure a policy profile for association with at least one mobile device;

a policy profile database that contains at least one policy profile associated with at least one mobile device; and

a deep inspection application control server that includes at least one inspection application that inspects data requested from a user's mobile device for compliance with the policy profile associated with the user's mobile device.

2. The system of claim 1 wherein the web account access portal updates the policy profile database with a policy profile associated with a user's mobile device according to the configuration set by the subscriber.

3. The system of claim 1 further comprising:

a subscriber monitoring device wherein the deep inspection application control server updates the subscriber monitoring device with information regarding the data requested from the user's mobile device.

4. The system of claim 3 wherein the subscriber monitoring device records information about the data requested by a user's mobile device and further allows a subscriber to view this information through the web account access portal via a interface

5. The system of claim 1 further comprising:

a partner web portal that is provided by a service provider from the service provider's own network wherein the partner web portal includes at least one media server from which a user's mobile device may request services according to the policy profile associated with the user's mobile device.

6. The system of claim 1 further comprising:

a policy authentication server that is enabled to make requests to the policy profile database to have the policy profile database determine if a policy profile is associated with a user's mobile device and wherein the policy authentication server is further operable to take action in response to the replies received from the policy profile database.

7. A process comprising:

receiving a data request from a user's mobile device;

determining if the user's mobile device has an associated policy profile; and

in response to determining that the user's mobile device has a policy profile associated with it, sending a copy of the data directed to the user's mobile device to an inspection application for inspection of the data according to the policy profile and only allowing the data complying with the policy profile to be sent the user's mobile device.

8. The process of claim 7 further comprising, in response to determining that the user's mobile device does not have a policy profile associated with it, allowing all data requested by the user's mobile device to be transmitted to the user's mobile device without inspecting the data.

9. The process of claim 7 further comprising:

providing a web account access portal to a subscriber via a interface wherein a subscriber can configure a policy profile and associate the policy profile with a user's mobile device.

10. The process of claim 9 wherein the web account access portal includes sending a request to a policy profile database to store the policy profile configured by a subscriber.

11. The process of claim 7 further comprising:

selecting one or more inspection applications to be associated with the user's mobile device based upon the associated policy profile; and

examining the data sent to a user's mobile device in accordance with the selected inspection application(s) for compliance with the policy profile associated with the user's mobile device and only allowing the data complying with the policy profile to be sent the user's mobile device.

12. The process of claim 11 wherein examining the data includes sending a message to the user's mobile device if the selected inspection applications determine that the data does not comply with the policy profile associated with the user's mobile device and preventing access to the data if the data does not comply with the policy profile associated with the user's mobile device.

13. The process of claim 7 further comprising:

monitoring the data requests from the user's mobile device; and

recording the information about the data requested from the user's mobile device.

14. The process of claim 13 further comprising providing information about the data requested from the user's mobile device to a portal for viewing by a subscriber.

15. A computer program product comprising a computer-readable storage medium having computer-readable instructions stored therein, the computer-readable instructions comprising:

first instructions configured to allow a user to configure a policy profile and associate the policy profile with a user's mobile device;

second instructions configured to store the policy profile;

third instructions configured to receive a request for data from a user's mobile device;

fourth instructions configured to determine if the user's mobile device has an associated policy profile; and

fifth instructions configured, in response to a determination that the user's mobile device has an associated policy profile, to send a copy of the data to an inspection application for inspection of the data according to the policy profile and

only allowing the data that complies with the policy profile to be sent to the user's mobile device; and

16. The computer program product of claim 15 further comprising sixth instructions configured, in response to a determination that the user's mobile device does not have a policy profile associated with user's mobile device, to allow all data to pass to the user's mobile device without inspecting the data.

17. The computer program product of claim 15 further comprising sixth instructions configured to send a message to the user's mobile device if the data request does not comply with the policy profile associated with the user's mobile device.

18. The computer program product of claim 15 further comprising:

sixth instructions configured to select one or more inspection applications to be associated with the user's mobile device based upon the associated policy profile; and

seventh instructions configured to examine the data sent to a user's mobile device in accordance with the selected inspection application(s) for compliance with the policy profile associated with the user's mobile device and to only allow the data complying with the policy profile to be sent the user's mobile device.

19. An apparatus comprising:

a server configured to receive a data request from a user's mobile device, said server comprising a processor configured to:

determine if the user's mobile device has an associated policy profile;

send a copy of the data directed to the user's mobile device to an inspection application for inspection of the data according to the policy profile; and

only allow the data complying with the policy profile to be sent the user's mobile device in response to determining that the user's mobile device has a policy profile associated with it.

20. The apparatus of claim 19 wherein the processor is further configured, in response to determining that the user's mobile device does not have a policy profile associated with it, to allow all data requested by the user's mobile device to be transmitted to the user's mobile device without inspecting the data.

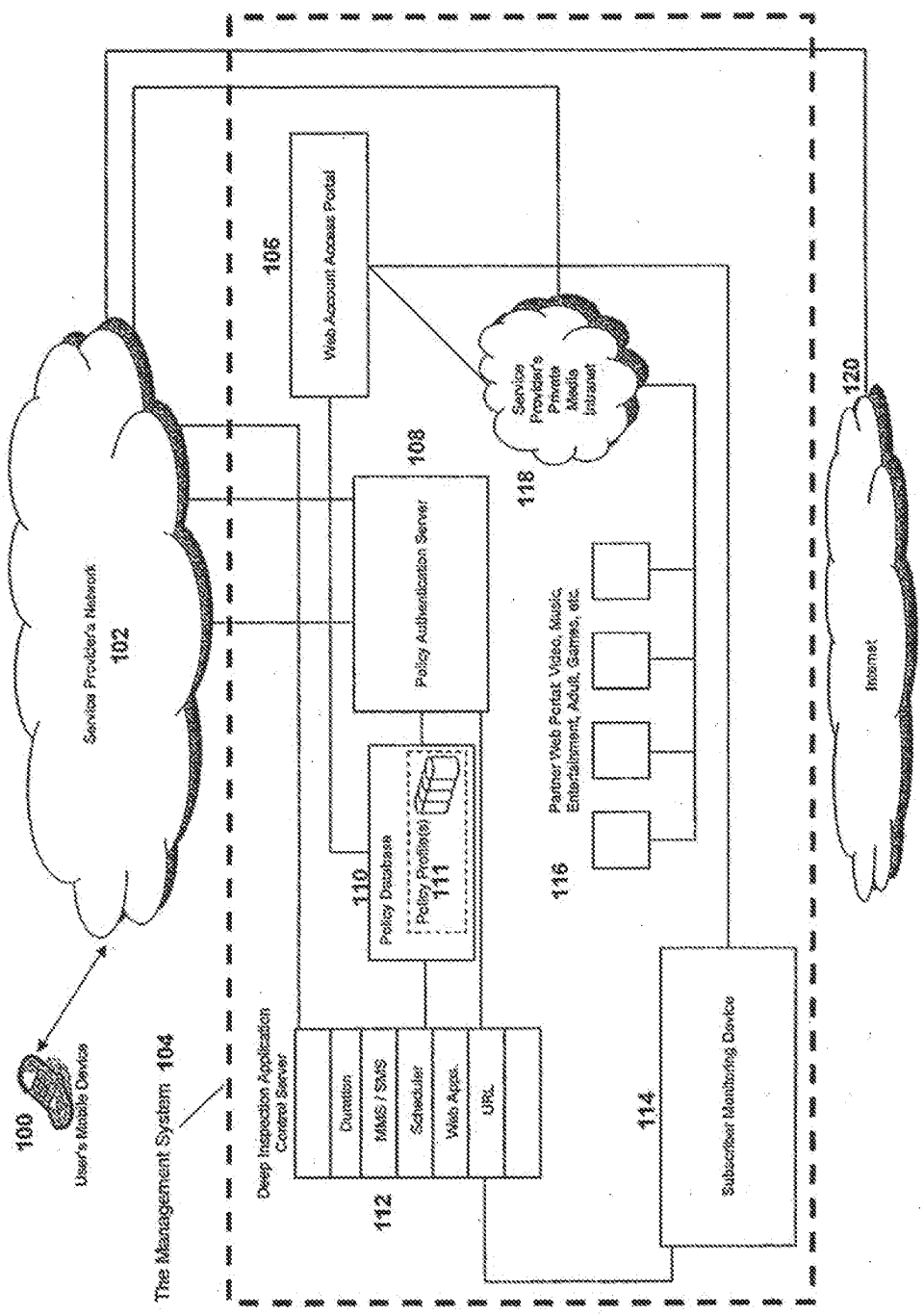
21. The apparatus of claim 19 wherein the processor is further configured to:

monitor the data requests from the user's mobile device; and

record the information about the data requested from the user's mobile device.

22. The apparatus of claim 21 wherein the processor is further configured to provide information about the data requested from the user's mobile device to a portal for viewing by a subscriber.

Fig. 1


Service Provider's Network
102
User's Mobile Device
100
The Management System 104
Deep Inspection Application Control Server
Duration
MMS / SMS
Scheduler
Web Apps
URL
112
Policy Database
Policy Profile(s)
111
110
Policy Authentication Server
108
Web Account Access Portal
106
Service Provider's Private Media Intranet
118
Partner Web Portal: Video, Music, Entertainment, Adult, Games, etc.
116
Subscriber Monitoring Device
114
Internet
120

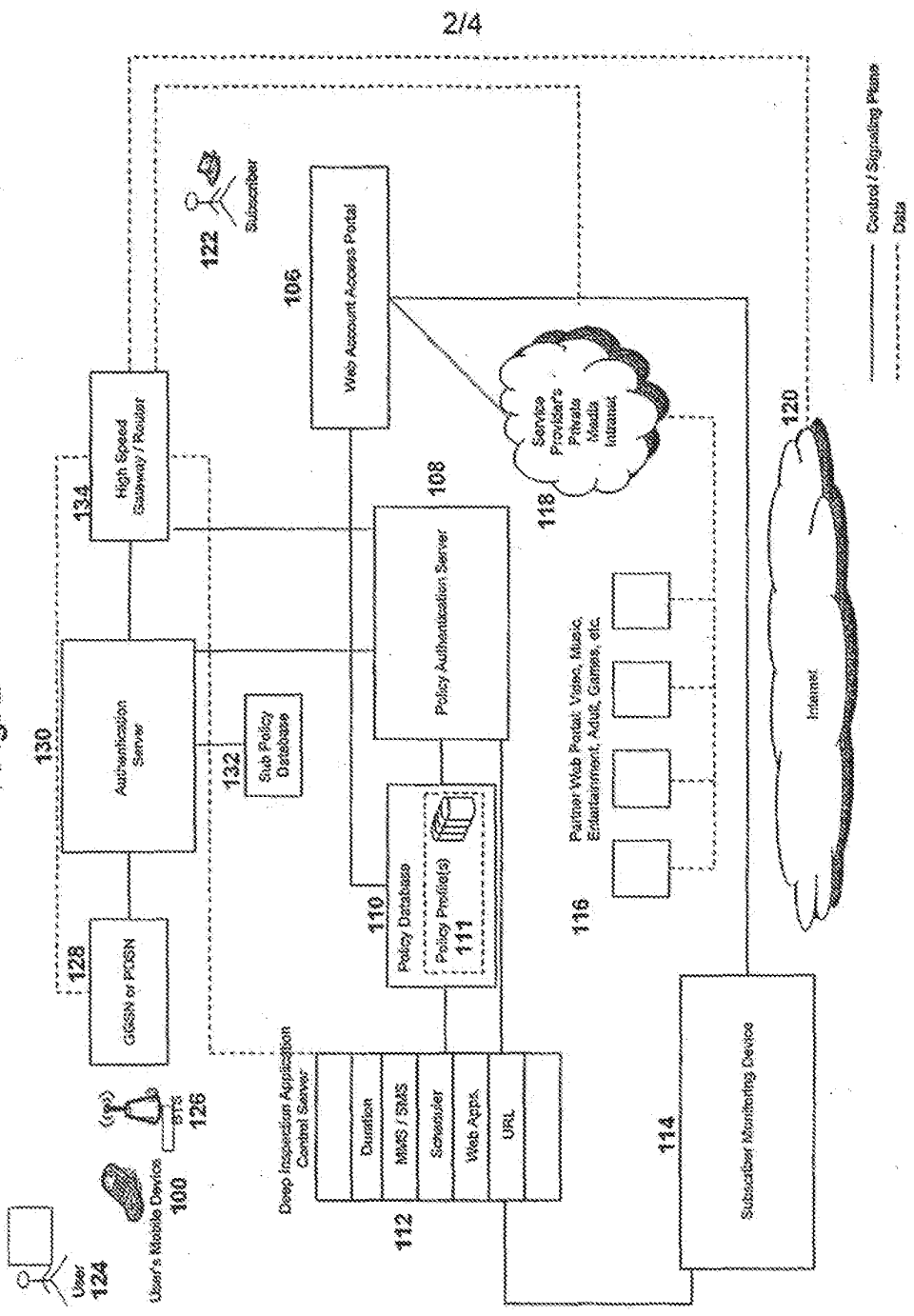

Control / Signaling Plane
Data
Subscriber
122
Web Account Access Portal
106
High Speed Gateway / Router
134
Service Provider's Private Media Intranet
118
108
Policy Authentication Server
120
Authentication Server
130
Sub Policy Database
132
Internet
Partner Web Portal: Video, Music, Entertainment, Adult, Games, etc.
116
Policy Database
110
Policy Profile(s)
111
GSM/3G or PCSN
128
Deep Inspection Application Control Server
Duration
MMS / SMS
Screensaver
Web Apps
URL
112
Subscriber Monitoring Device
114
BTS
126
User's Mobile Device
100
User
124

Fig. 2

Fig. 3

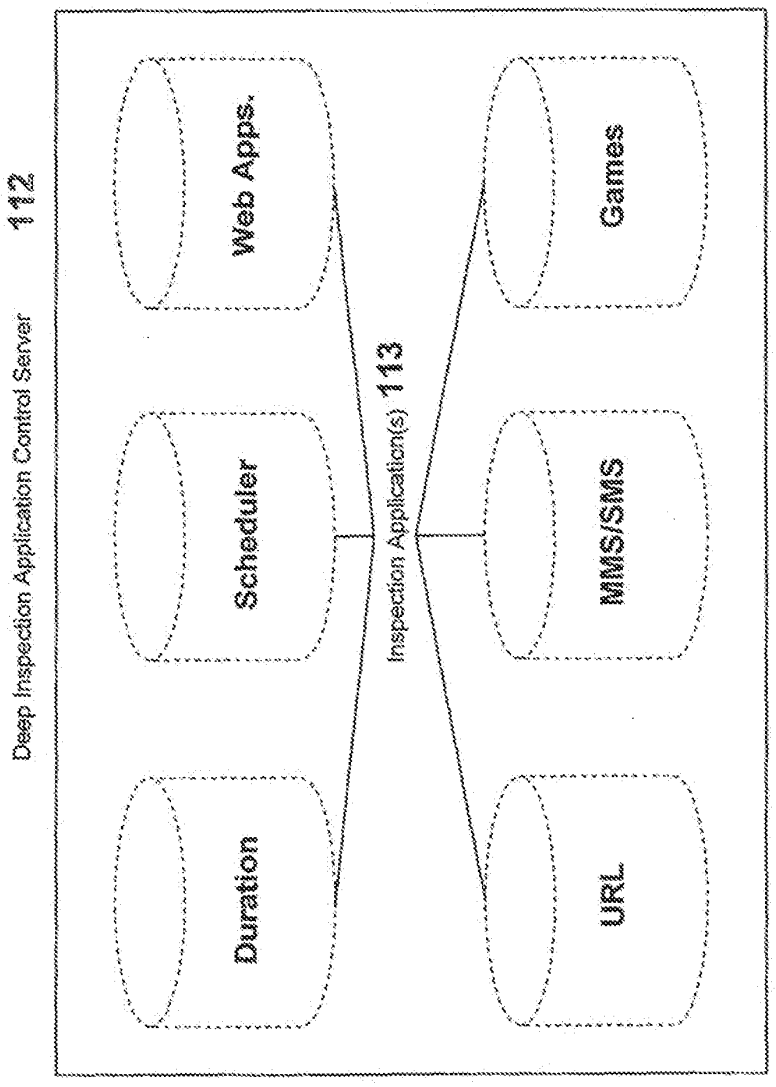
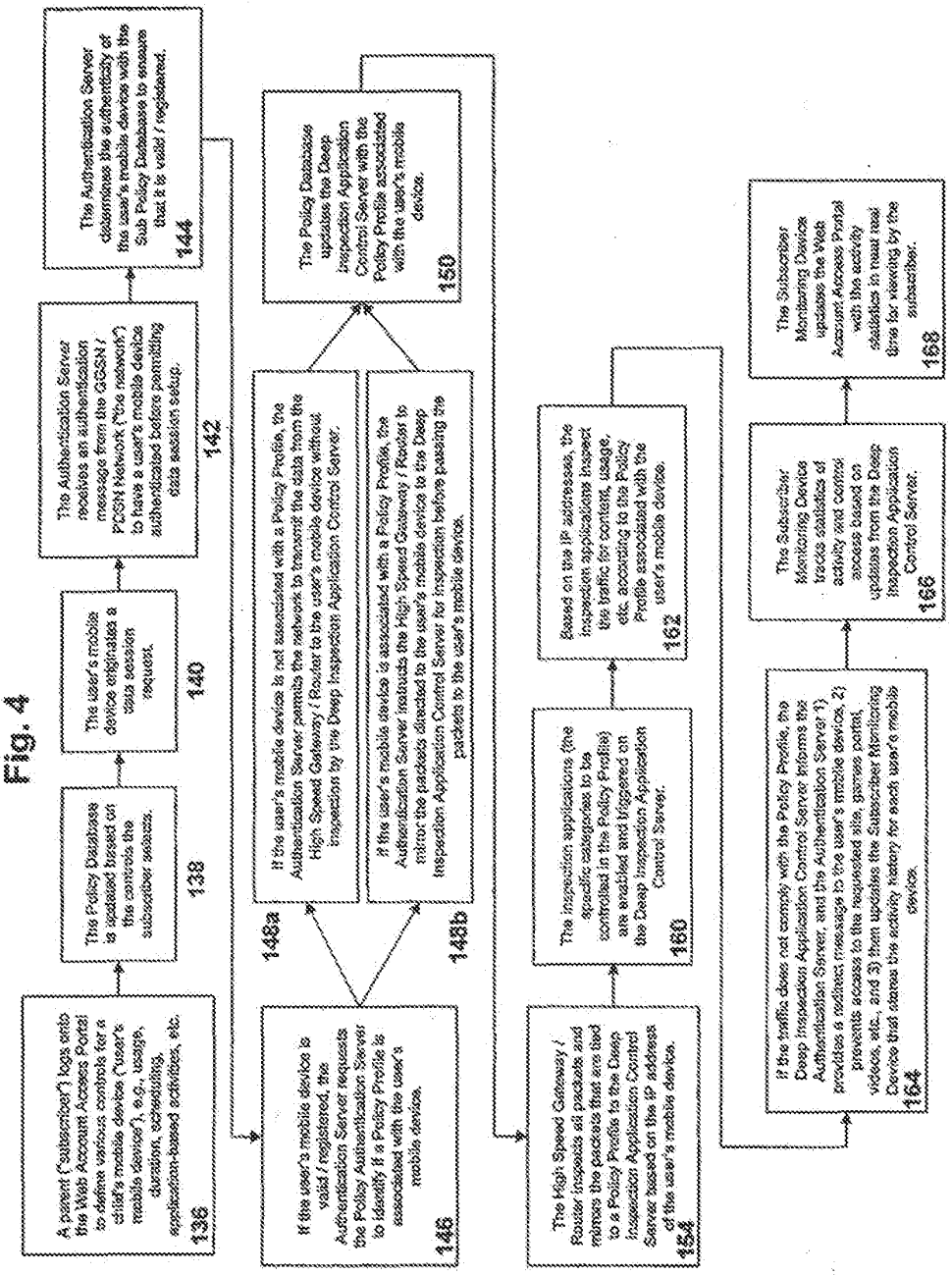

Deep Inspection Application Control Server 112
Inspection Application(s) 113
Web Apps.
Scheduler
Duration
Games
MMS/SMS
URL

Fig. 4


A parent ("subscriber") logs into the Web Account Access Portal to define various controls for a child's mobile device ("user's mobile device"), e.g., usage, duration, scheduling, application-based activities, etc.
136
The Policy Database is updated based on the controls the subscriber selects.
138
The user's mobile device originates a data session request.
140
The Authentication Server receives an authentication message from the GGSN / PCSN Network ("the network") to have a user's mobile device authenticated before permitting data session setup.
142
The Authentication Server determines the authenticity of the user's mobile device with the Sub Policy Database to assure that it is valid / registered.
144
If the user's mobile device is valid / registered, the Authentication Server requests the Policy Authentication Server to identify if a Policy Profile is associated with the user's mobile device.
146
148a
If the user's mobile device is not associated with a Policy Profile, the Authentication Server permits the network to transmit the data from the High Speed Gateway / Router to the user's mobile device without inspection by the Deep Inspection Application Control Server.
148b
If the user's mobile device is associated with a Policy Profile, the Authentication Server instructs the High Speed Gateway / Router to mirror the packets directed to the user's mobile device to the Deep Inspection Application Control Server for inspection before passing the packets to the user's mobile device.
150
The Policy Database updates the Deep Inspection Application Control Server with the Policy Profile associated with the user's mobile device.
The High Speed Gateway / Router inspects all packets and mirrors the packets that are tied to a Policy Profile to the Deep Inspection Application Control Server based on the IP address of the user's mobile device.
154
The inspection applications (the specific categories to be controlled in the Policy Profile) are enabled and triggered on the Deep Inspection Application Control Server.
160
Based on the IP addresses, the inspection applications inspect the traffic for content, usage, etc. according to the Policy Profile associated with the user's mobile device.
162
If the traffic does not comply with the Policy Profile, the Deep Inspection Application Control Server informs the Authentication Server, and the Authentication Server 1) provides a redirect message to the user's mobile device, 2) prevents access to the requested site, games portal, videos, etc., and 3) then updates the Subscriber Monitoring Device that stores the activity history for each user's mobile device.
164
The Subscriber Monitoring Device tracks statistics of activity and control access based on updates from the Deep Inspection Application Control Server.
166
The Subscriber Monitoring Device updates the Web Account Access Portal with the activity statistics in near real time for viewing by the subscriber.
168

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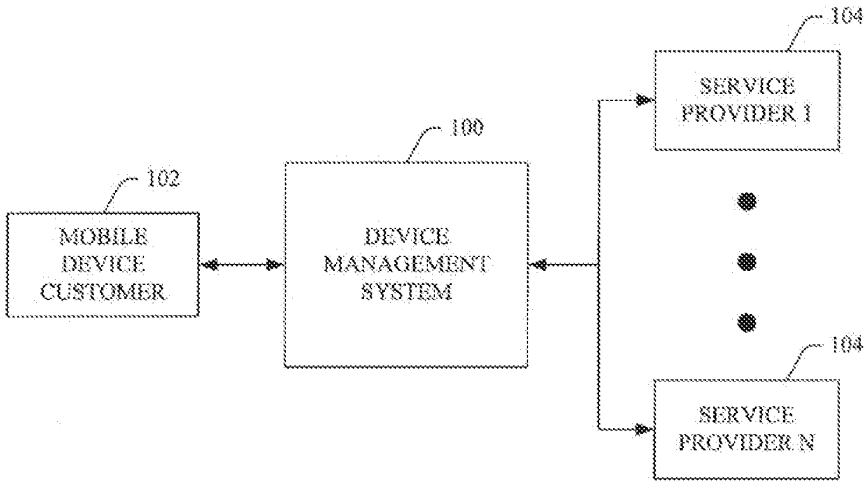
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[Continued on next page]

(54) Title: SYSTEM AND METHOD FOR MANAGING MOBILE DEVICES AND SERVICES



(57) Abstract: The mobile device management system provides for administration of mobile devices associated with a customer and supported by multiple service providers or carriers. The system provides a central, customized interface for management of mobile devices. The system aggregates customer policies, service plan information from various service providers and specific end user information to enable management of mobile devices. Management functions include procurement, expense management, billing and invoicing, support and monitoring of mobile devices associated with the customer. This system and method for managing mobile devices and services keeps the customers mobile workforce connected while reducing the total cost of ownership.

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BACKGROUND OF THE INVENTION

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. provisional Application Serial No. 60/871,653, entitled, "System and Method for Managing Mobile Devices and Services," filed on December 22, 2006.

RELATED ART

[0002] Mobile communications and wireless connectivity are affordable to the vast majority of the population. Mobile devices have become an essential, ubiquitous element of today's business environment. Customers expect to be able to quickly reach the person they are calling, even when that person is not, for example, at their desk. Employers rely on being able to communicate with their employees at all times during the work day and often outside of traditional business hours as well.

[0003] Many companies therefore provide cell phones or wireless devices to their employees as part of their employment package. However, the large number of cell phone service providers, the myriad of service offerings and package deals now available, and the constant stream of new wireless devices coming from cell phone manufacturers have made it increasingly difficult for companies to do this effectively. As used herein, the term "service provider" refers to an entity or organization that provides support for mobile devices, such as a wireless carrier that operates a network for mobile phones.

[0004] More often than not, there is not a single mobile device and service plan that would serve all employees adequately. Rather, individual employees have widely varying needs based upon their individual job requirements and personal preferences. One employee may require only a basic cell phone. Other employees may require PDAs, wirelessly

equipped laptops, pagers, or combinations of devices depending on their individual needs. Some companies have employees that travel internationally and therefore it might be in the company's best interest to use a service provider whose network is compatible with the International GSM standard. Other companies might save money by forgoing international or nationwide coverage and use only a local reseller's network.

[0005] For budgetary reasons, employers often restrict employees to a particular subset of phones, such as those provided free with service plan commitments. Employees pay extra to upgrade to an enhanced phone with a camera, mp3 player, or other desired feature. For network compatibility reasons, employees may be restricted to certain service providers or phones, for example those compatible with the company's Good Technology® or Microsoft Exchange® email platforms.

[0006] Employees differ in their typical usage patterns. Some employees require only a simple voice plan, while others may require a data plan, text messaging, or even push-to-talk capability. A company can purchase bulk minutes to be shared among employees, or it may be more cost effective to purchase individual plans with a larger number of minutes and unlimited data usage for designated high usage employees. Billing is also an important consideration, as offices and business units may require individualized billing for employees in their groups. Breaking apart bills or inflexible billing that does not allow employees to easily move from one group to another as they are promoted or transferred can create unnecessary financial difficulties. Consequently, management of mobile devices, service plans and related issues quickly becomes a complex, costly, and time-consuming issue for many organizations.

SUMMARY

[0007] The following summary is intended to provide a simple overview as well as to provide a basic understanding of the subject matter described herein. It is not intended to describe or limit the scope of the claimed subject matter. Furthermore, this summary is not intended to describe critical or key elements of the claimed subject matter. Additional aspects and embodiments are described below in the detailed description.

[0008] The subject matter described herein is directed to methods and systems for facilitating mobile device management. The device management system provides for centralized administration of mobile devices for a mobile device customer. In particular, the

system provides for managing large numbers of mobile devices supported by multiple service providers with varying service plans. Service provider data, such as available service plans, devices, offers, discounts, and the like, is utilized in conjunction with customer data to manage procurement, allocation, distribution, support and/or billing for mobile devices for mobile device customers and end users of the mobile devices.

[0009] In certain embodiments, the system includes a procurement component that obtains mobile devices from a plurality of service providers in accordance with customer policies. In particular, end users utilize a customizable user interface to place orders and track shipment of mobile devices. In another embodiment, the procurement component complies with customer approval processes, obtaining appropriate authorizations prior to procurement of mobile devices.

[00010] In other embodiments, the device management system includes a billing component that aggregates invoicing and usage information from multiple service providers and allocates costs in accordance with customer policies. In an embodiment, costs are allocated based upon customer business unit. In another embodiment, costs are allocated both to the customer and to individual users as a function of service plan or function.

BRIEF DESCRIPTION OF THE DRAWINGS

[00011] The claimed subject matter is described with reference to the accompanying drawings. In the drawings, like reference numbers indicate identical or functionally similar elements. Additionally, the left-most digit(s) of a reference number identifies the drawing in which the reference number first appears.

[00012] FIG. 1 is block diagram of a system that manages mobile devices in accordance with an aspect of the subject matter described herein.

[00013] FIG. 2 is a block diagram of another embodiment of a system that manages mobile devices in accordance with an aspect of the subject matter described herein.

[00014] FIG. 3 is a block diagram of another embodiment of a system that manages mobile devices illustrating system inputs and output in accordance with an aspect of the subject matter described herein.

[00015] FIG. 4 is a detailed block diagram of the procurement component in accordance with an aspect of the subject matter described herein.

[00016] FIG. 5 is an exemplary methodology for managing a mobile device orders in accordance with an aspect of the subject matter described herein.

[00017] FIG. 6 is an exemplary methodology for updating the asset data store in accordance with an aspect of the subject matter described herein.

[00018] FIG. 7 is a detailed block diagram of an exemplary asset component in accordance with an aspect of the subject matter described herein.

[00019] FIG. 8 is an exemplary methodology for optimizing mobile device management in accordance with an aspect of the subject matter described herein.

[00020] FIG. 9 is an exemplary methodology for optimizing mobile device management in accordance with an aspect of the subject matter described herein.

[00021] FIG. 10 is a detailed block diagram of an exemplary support component in accordance with an aspect of the subject matter described herein.

[00022] FIG. 11 is a flowchart illustrating an exemplary methodology for providing support for mobile devices in accordance with an aspect of the subject matter described herein.

[00023] FIG. 12 is a flowchart illustrating an exemplary methodology for monitoring support in accordance with an aspect of the subject matter described herein.

[00024] FIG. 13 is a detailed block diagram of an exemplary billing component in accordance with an aspect of the subject matter described herein.

[00025] FIG. 14 is a flowchart depicting an exemplary methodology for transforming service provider information in accordance with an aspect of the subject matter described herein.

[00026] FIG. 15 is a flowchart depicting an exemplary methodology for processing service provider invoices in accordance with an aspect of the subject matter described herein.

[00027] FIG. 16 is a flowchart that depicts an exemplary methodology for configuring the device management system for a customer in accordance with an aspect of the subject matter described herein.

[00028] FIG. 17 is a flowchart depicting an exemplary methodology for configuring the user interface for a customer in accordance with an aspect of the subject matter described herein.

DETAILED DESCRIPTION

[00029] As described above managing mobile devices is a complex problem for many organizations. Service providers typically offer multiple service plans and device options, which vary in the type of services provided, usage rates, coverage areas, device requirements and capabilities, and other features. Large organizations or organizations with diverse needs may select multiple service plans offered by one or more carriers in order to meet the needs of its employee end users. In particular, an organization may elect to utilize multiple carriers, selecting different carriers for distinct regional offices, for individual functions, based upon user preference, corporate Information Technology (IT) policy, or any other criteria. Additionally, organizations frequently offer a specific set of paid services for one category of employees, agents, or other persons or entities designated to receive mobile devices and services (*e.g.*, technical support, upper level management or sales people), collectively referred to as end users, but offer more limited services to other categories of end users. Management of mobile devices, service plans and related issues quickly becomes a complex, costly, and time-consuming issue for organizations.

[00030] Turning now to FIG. 1, an exemplary device management system 100 that provides for centralized administration of mobile devices for one or more customers 102 is illustrated. As used herein, the term "exemplary" indicates a sample or example. It is not indicative of preference over other aspects or embodiments. The term "mobile device" refers to cellular phone, PDA, laptop, wireless data card, smart phone, or any other device capable of wireless communication. Also, as used herein, the term "customer" indicates an entity, business, organization or other logical group of mobile device end users. In addition, the term "customer entity" and "customer" are used interchangeably herein. Typically, mobile device customers 102 utilize the device management system 100 to manage mobile device services obtained from multiple service providers. A single customer 102 is illustrated in

FIG. 1 for simplicity; however, in another embodiment, the system 100 is capable of supporting multiple customers 102, and a single customer 102 may also comprise multiple organizations, for example, a subsidiary and parent or a group of affiliated companies with a common IT support and procurement organization.

[00031] In an embodiment, the device management system 100 adapts or customizes to conform to customer policies. As used herein, the term "customer policy" is a procedure, practice, strategy, business process, goal or business requirement of a customer 102. Customers 102 provide information regarding internal policies or procedures related to mobile devices, such as requirements for distribution of mobile devices, acceptable use of such devices, billing requirements, end user requirements, provisioning procedures, support procedures and requirements, and the like. The provided information is utilized or incorporated into the device management system 100 to ensure that mobile devices are managed in accordance with the needs and standards of the customer 102. In another embodiment, the device management system 100 supports multiple customers 102, where the policies obtained from customers 102 are used to adapt the device management system 100 for particular customers 102, resulting in each customer 102 receiving customized service provided by a unique combination of one or more service providers 104.

[00032] The device management system 100 obtains service provider data or information from one or more service providers 104. In one embodiment, the service provider data includes information regarding available service plans, devices, offers, discounts, and the like. Such information is utilized in conjunction with customer data to manage allocation, distribution, support and/or billing for mobile devices for customers 102 and other end users. In an embodiment, the service provider information includes information specific to a particular customer 102 that is predicated on specific sonic volumes. For example, a discounted rate negotiated by the customer 102. In addition, service provider information applicable to multiple customers 102 is reused, where the device management system 100 supports multiple customers 102. The service provider information also includes usage and billing data associated with the customer's 102 mobile devices and services. As used herein the terms "wireless devices" or "mobile devices," unless explicitly stated otherwise, includes both the mobile device hardware (*e.g.*, the mobile phone) and the service plan associated with that mobile device hardware. Such service provider information is utilized in administration, billing and optimization of mobile devices for customers 102.

[00033] In an embodiment, the device management system 100 is supported by a third party operator, which provides a single interface through which customers 102 manage mobile devices associated with multiple service providers. Customers 102 communicate with the device management system 100 using various modes of communication, such as voicemail, help desk, email, an Internet website, mobile device portal, or other user interface 202 (see Fig. 2). In one embodiment, the device management system 100 serves as a single point of contact for all mobile device issues, eliminating the necessity of determining the appropriate contact for various problems or issues.

[00034] The device management system can be implemented in a client-server model computing environment (*e.g.*, two-tier or multi-tier model). In particular, customers and service providers can correspond to clients, where the device management system corresponds to a server. Possible communications can be in the form of data packets transmitted among the clients and servers.

[00035] Referring now to FIG. 2, a more detailed block diagram of a device management system 100 is illustrated. The device management system 100 includes a user interface 202 with which customers 102 can access and direct mobile device management. In an embodiment, the user interface 202 is customized based upon the customer 102 and/or the particular end user or class of end user (*e.g.*, administrator, executive, sales personnel) utilizing the user interface 202. Using the login information or user credentials, the user interface 202 filters or hide options, ensuring that only those tools, features, and options available to a particular end user, as determined based upon customer data describing customer policies and practices and relevant service provider data.

[00036] In an embodiment, the user interface 202 is provided as a web application or set of applications accessible *via* a network, such as the Internet. The user interface 202 acts as a web portal that provides customers 102 and end users with a central location to access information related to multiple service providers 104 as well as multiple tools for use in procuring, billing, and managing mobile devices and can be customized to include customer branding. The content of the user interface 202 is adaptable based upon customer policies or practices. In an embodiment, the user interface 202 presents users with customer specific text, such as an Acceptable Use Policy (AUP) or response to frequently asked questions (FAQs). In addition to the text presented, the user interface 202, in some embodiments, is adapted to present or collect data from users as a function of customer policies and practices.

For example, a customer can define a policy describing a requirement that a particular category of end user, such as salesperson, always get a mobile device with wireless e-mail capabilities. In which case, when an end user who is a salesperson logs on to the system, the user interface 102 will only provide mobile device options with wireless e-mail capability. Although the user interface 202 is illustrated as a single component, the interface can be implemented as one or more distinct interfaces. For example, separate interfaces may be maintained for procurement and asset management.

[00037] In an embodiment, the device management system 100 includes a customer data store 204 that maintains information related to the procedures, policies and practices of one or more customers 102. This information allows the user interface 202 and other components to provide functionality specific to particular customers 102. As used herein, the term "data store" refers to any collection of data (*e.g.*, a database, collection of files or cache). In particular, the customer data store 204 maintains data such as particular device or service provider options available to the customer 102, and customer billing address and/or delivery addresses. Other service provider information can include, contact information, such as service provider representatives.

[00038] In certain embodiments, the customer data store 204 maintains organizational information as well as end user information for one or more customers 102. End user information is any data related to a customer's end users, including, but not limited to, end user position, password, access permissions, location, business unit, department, an exhaustive audit trail for the user account including moves, adds, changes, and deletes (MACDs). Organizational information includes information regarding business units, individual end users, positions, departments or any other information related to the structure or management of the organization. Such organizational information in some embodiments is utilized to provide customized functionality, ensuring that end users are provided with the appropriate access and options. For example, a salesperson ordering a new cell phone is limited to the specific devices and service plans for which sales personnel are authorized. At the same time, end users that are members of the accounting department are granted access *via* the user interface 202 to functions that provide for generation of reports, data and/or statistics related to cell phone usage throughout the customer 102 or a business unit or other business organizational component associated with the customer 102. The detailed customer information maintained in the customer data store 204 facilitates the device management

system 100 to tailor access, functionality and reports while optimizing mobile device use while minimizing costs within the constraints of the customer's IT policies and procedures.

[00039] The device management system 100 includes a service provider data store 206 that maintains service provider information associated with multiple service providers 104. Service provider information includes, among other details, details of specific service plans and mobile devices offered by the service providers 104. For example, service plans vary in function offered (*e.g.*, data access, voice, voicemail, text messaging, mobile data services, and email), fee policies (*e.g.*, fixed fee, limited usage, overage charges), coverage area, calling plans, calling restrictions, and the like. In addition, service provider information includes fees, rates, discounts and the like. In an embodiment, service provider information includes service plan, mobile device, billing or other options specific to one or more customers 102. For example, a customer 102 may negotiate with the service provider 104 for better rates based upon, for example, the number of end users, volume of calls made, or data transmitted or number of mobile devices.

[00040] An aggregation component 208 utilizes service provider data obtained from the service provider data store 206 combined with customer data obtained from the customer data store 204 to facilitate administration of mobile devices for customers 102. As used herein, the term "component" includes hardware, software, firmware or any combination thereof. For example, a component may be, but is not limited to being, a process running on a processor, or alternatively, the processor itself. Further, a component can be localized in a single computer or server, or distributed among two or more computers. The aggregation component 208 coordinates customer policies reflected in the customer data and service plan specifications obtained from multiple service providers 104 to assist the customer 102 in administering distribution, cost allocation, support and monitoring of mobile devices for end users associated with the customer 102. In another embodiment, the aggregation component 208 also utilizes end user data, such as end user position, location, business unit, department, an exhaustive audit trail for the user account including moves, adds, changes, and deletes (MACDs), as well as any other relevant end user information for administration of mobile devices. The aggregated service provider, customer data and end user data is useful for a number of functions that facilitate management of mobile devices, including, but not limited to, procurement of mobile devices, billing or invoicing for such devices and associated services, tracking mobile devices within a customer's organization and/or providing support for mobile devices.

[00041] In one embodiment, the device management system 100 includes a procurement component 210 that coordinates mobile device orders provisioning and distribution. Customers 102 access the procurement component 210 *via* the user interface 202 to place for orders for mobile devices and to track shipments of such devices. The procurement component 210 utilizes customer 102 and service provider 104 specific information to control device ordering, ensuring that mobile device selections are consistent with customer policies and service provider service plans. For example, the procurement component 210 utilizes customer data from the customer data store 204 to ensure that only those mobile devices or service plans approved by the customer 102 in accordance with customer's wireless policy are presented for selection by a user. The procurement component 210 utilizes provider service plan pricing that has been negotiated with the service providers 104.

[00042] In another embodiment, the procurement component 210 is customized based upon the specific individual or end user utilizing the procurement component 210. As described above, the procurement component 210 provides different mobile device options based in part upon the characteristics of the end user, such as end user data. For example, customer policies may provide for different mobile devices or service plans based upon characteristics of the end user, such as position within the organization, business unit, length of service and the like. In another embodiment, end users that act as mobile device system administrators for the customer 102 may have access to additional functions in the device management system 100, such as monitoring mobile device distribution across business units or approval of order requests or have their contact details forwarded to a service provider 104 as the designated contact. Other end users may be limited to narrower functions, such as ordering a device for their personnel use, or reviewing use and history unique to themselves.

[00043] In other embodiments, the procurement component 210 and user interface 202 ensure that a customer specific procurement process is followed in ordering mobile devices, as specified in customer data reflecting the customer's policies and procedures. For example, a customer 102 requires approval or authorization by specific individuals or departments before orders for mobile devices or services are placed with a service provider 104. Based upon customer data maintained in the customer data store 204, the procurement component 210 determines the appropriate individual, department or email address to contact for approval prior to placing the order with the appropriate service provider. In this manner, the device management system 100 is able to generate, follow, and administer the business

process necessary to comply with IT policy and procedures. In a further embodiment, the procurement process is specific to the particular end user ordering a mobile device. For example, the manager of the end user may be required to approve the order. Alternatively, certain end users (*e.g.*, executives) may not be required to obtain approval.

[00044] In another embodiment, the device management system 100 includes an asset component 212 that provides for monitoring and managing mobile device assets of customers 102. By accessing the asset component 212 *via* the user interface 202, selected end users obtain information regarding distribution and use of mobile devices for the customer 102. The asset component 212 is also used to generate reports indicating exceptional use characteristics, usage statistics, distribution characteristics and the like for both individual users and in the aggregate for groups of end users.

[00045] The asset component 212 accesses data maintained in an asset data store 214 to analyze, process and provide data to end users. In an embodiment, the asset data store 214 maintains information regarding the customer's mobile devices, including, but not limited to, information regarding employees that currently have access to specific assets, length of time employees have had assets, business unit and/or title of the employee holding the asset, billing and usage data, and the like. In another embodiment, package slips, invoices or any other forms associated with a mobile device are stored in the asset data store 214. In yet another embodiment, the asset data store includes data regarding mobile device connection cards and accessories (*e.g.*, ear buds, Bluetooth accessories and the like). The asset data store 214 maintains such data for mobile devices or assets obtained from multiple service providers 104. Collection of such data at a central location facilitates analysis and optimization of utility and use of mobile devices, while controlling or minimizing costs.

[00046] In a further embodiment, the device management system 100 includes a billing component 216 that directs billing and invoicing for mobile devices. Invoices and/or usage data from one or more service providers 104 is obtained by the device management system 100 and stored in the service provider data store 206. In one embodiment, the billing component 216 utilizes the aggregate information maintained in the service provider data store 206 to generate invoices. Invoice and/or usage data from multiple service providers 104 can be combined, separated based upon business unit, service type (*e.g.*, voice & data) or any other criteria useful to the customer 102. For example, employees may be billed for certain portions of their mobile device expenses (*e.g.*, personal phone calls, additional functions). In

an embodiment, customer policies define generation of separate invoices based upon aggregated information from multiple service providers. In addition, end users may utilize the billing component 216 to view, sort and analyze billing and usage patterns. In another embodiment, the billing component 216 is capable of automatically paying service provider invoices.

[00047] In still another embodiment, the device management system 100 includes a support component 218 that manages provision of support for mobile device users and/or administrators. Support may include responses to end user or administrator questions, reporting and correction of technical problems with a mobile device or service, and even replacement mobile devices. The support component 218 provides a central source to obtain support for mobile devices provided by multiple service providers 104. In particular, users can access the support component 218 *via* the user interface 202, which may include a web site or application, a help desk, or any other means of communication.

[00048] Turning now to FIG. 3, another embodiment of the device management system 100 is illustrated, depicting inputs 302 and outputs 304 of the device management system 100. The illustrated inputs 302 and outputs 304 are merely exemplary; additional inputs 302 and outputs 304 can be provided to the system 100 and/or generated by the system 100. Inputs 302 are communicated to the device management system 100 using a variety of methods, such as *via* a network (*e.g.*, the Internet), over a telephone system, text messaging or using any other suitable means of communication or transfer of information.

[00049] In an embodiment, inputs 302 to the device management system 100 include wireless orders or mobile device orders 306. In particular, end users associated with a customer 102 utilize the device management system 100 to order mobile devices, such as cell phones or service plans. In particular, end users utilize the user interface 202 to access the procurement component 210 and select from available options. In another embodiment, only options available to the particular end user are displayed. End users access the user interface 202 utilizing identifiers and/or passwords that identify and authorize user access. Based upon information retrieved from the customer data store 204 regarding the particular end user or user traits (*e.g.*, business unit, position in the company, etc.), the user is provided with a customized list of mobile device and service plan options. Available options are also determined based upon available service plans of various service providers 104. In another embodiment, the set of available options are reduced by filtering available options by the

customer policy for an end user with the characteristics of the end user accessing the user interface 202. In still another embodiment, the set of available options presented to the end user is ordered based upon criteria such as total ownership cost for the customer 102. In an embodiment, the mobile device options presented to an end user by the user interface 202 are based upon customer data, service provider and end user data.

[00050] In response to the mobile device order 306, the user receives a communication 308 approving or denying the mobile device order. As discussed above, in certain embodiments, the procurement component 210 utilizes customer practices and policies, including customer approval procedures required for procurement of a mobile device, to review, oversee, and approve the procurement of mobile devices. The procurement component 210 retrieves information regarding the particular customer 102 and/or end user from the customer data store 204. Based upon the retrieved customer policies and authorization or denial from an appropriate party, the approval or denial communication 308 is communicated to the end user. In one embodiment, the denial communication is accompanied by a request for additional information and includes a link or form for the end user to submit or input such additional information. For example, approval can be delivered via email, voicemail, or any other suitable means of communication. If the order is approved, the end user may be provided with a confirmation notice 310 once the order is placed with the appropriate service provider 104.

[00051] In another embodiment, the device management system 100 receives a bulk mobile asset load 312 as input 302. During initial setup or customization of the device management system 100 for a customer 102, mobile device records are processed in bulk or batches and added to the asset data store 214. The bulk mobile asset load 312 data may require reformatting or merely a customized mapping or input filter to sort the data to the appropriate fields with the asset data store 214 and can be provided as an electronic file or set of files. The information is parsed and transformed into the device management systems 100 standard format by the asset component 212. The reformatted data is then stored within the asset data store 214. As additional mobile devices are added by the procurement component 210, the data related to the new mobile devices is stored in the asset data store 214. Contemporaneous to loading of mobile device information, customer policies, procedures, organizational information and other data related to the customer 102 is uploaded or entered into the customer data store 204.

[00052] In other embodiments, end users obtain or receive mobile asset management reports 314 that provide customers 102, users and administrators with data regarding distribution and usage of mobile devices by the customer 102 and the customer's end users. The information can be presented in a variety of formats to assist customer 102 in monitoring and managing mobile devices. In an embodiment, reports 314 describing asset distribution and usage are generated periodically or dynamically at the request of an administrator or end user. The reports 314 can be used to optimize utility of mobile device distribution and can be distributed through email, traditional hard copy or using any other suitable method of communication.

[00053] In still another embodiment, customer administrators obtain or receive asset exception reports 316. These exception reports 316 describe instances of usage that may be particularly useful in optimizing mobile device use and minimizing mobile device fees. For example, exception reports 316 can list mobile devices or end users incurring the largest roaming charges or exceeding minute limitations. In yet another embodiment, the exception reports 316 provide details of usage of the mobile device by an end user that is potentially indicative of a violation of the customer 102 IT policy or Acceptable User Policy. In an embodiment, reports are customized based upon customer policies specified in the customer data store 204. Such reports can be automatically generated and sent to a predetermined customer email address and/or generated upon request. Exception reports 316 are described in further detail below.

[00054] The device management system 100 also receives reports of support incidents 318. Support incidents include updates to mobile devices, such as moves, adds, changes, deletions (MACDs), as well as, failure, malfunction, theft or loss of a mobile device. The user interface 202 can include a call center or electronic voice phone system that receives communications reporting support incidents. Reports of support incidents are utilized by the support component 218 to provide assistance to users. In an embodiment, replacement mobile devices are supplied to users experiencing mobile device difficulties. In addition, reports of support incidents are tracked, analyzed and used generate support reports 320. In particular, data related to failure of particular devices is maintained in the asset data store 214. Information regarding mobile device failures and end user problems, as well as responses to such problems, is output in support tracking reports 320.

[00055] The device management system 100 receives usage records or billing data and call detail records 322. In particular, usage data from multiple service providers 104 is received and entered into the system 100. This information is maintained in the service provider data store 206 and utilized by the billing component 216 to allocate, monitor, control, or direct billing. In one embodiment, the billing component 216 generates invoices as a function of the provided billing data and call detail records. The invoices can be customized based upon individual customer practices and procedures. For example, costs may be grouped by business unit, rather than by service provider. Additionally, distinct services from a single carrier can be invoiced separately or multiple carrier invoices can be consolidated into one invoice.

[00056] The billing component 216 generates one or more reports reflecting billing and usage information. For example, a cost allocation report 324, detailing mobile device expenses, allocates costs by business unit, service provider 104, employee or end user classification or characteristic or any other useful category. In addition, the billing component 216 can generate a call usage detail report 326 providing customers 102 with detailed information regarding use of mobile devices. Such reports can be formatted or organized in any manner useful for the customer 102 and may be customized based upon customer policies. In addition, the billing component 216 generates custom invoices 328 based upon customer policies.

[00057] Referring to now FIG. 4, a detailed block diagram of an embodiment of the procurement component 210 is illustrated. The procurement component 210 provides end users with a tool for obtaining mobile devices and services from one or more service providers 104. The procurement component 210 coordinates placement mobile device orders, processing and authorizing of such orders, as well as monitoring shipment and provisioning of mobile devices. In particular, end users interact with the procurement component *via* the customizable procurement user interface 400. As described above, the procurement user interface 400 can be implemented as a stand-alone user interface, or as a part of a general interface 202 to the device management system 100.

[00058] In an embodiment, the procurement user interface 400 is available *via* a network, such as the Internet. In another embodiment, a graphical user interface (GUI) is provided, allowing users to select from available mobile device and service options. Options are displayed based upon customer policies and service provider data, such as available

service plans. In particular, the service plans selected by the customer from one or more service providers affect available options presented to end users. In addition, options presented to individual users vary based upon the user characteristics or traits, including, but not limited to, user business unit, user position within the company or any other relevant characteristic. In an embodiment, the procurement user interface 400 utilizes customer-specific information or policies expressed in the asset data store 214 to provide customized options.

[00059] The procurement component 210 includes an order component 402 that manages placement orders of mobile devices. In particular, the procurement component 210 receives information from the procurement user interface 400 regarding selected options and generates one or more order to be communicated to service providers. When configured, the order component 402 can automatically submit secure email orders or requests to the appropriate service provider or service providers.

[00060] In another embodiment, the procurement component 210 includes an authorization component 404 that verifies or obtains authorization for an order generated by an end user. Many customers require authorization by specific employees or departments prior to purchase of equipment. The authorization component 404 utilizes the specific authorization procedures of the particular customer 102 with which the user is associated to authorize the purchase order. The authorization process is expressed as a customer policy described in the customer data store. In an exemplary approval process, the authorization component 404 notifies a particular individual or department (*e.g.*, an information technology (IT) department) of the customer 102 with authority to approve orders. In another embodiment, the individual with authority to approve orders varies based upon the particular user placing the order. For example, the customer 102 may require approval of the manager of the user. End user information and customer hierarchy or organization information maintained in the customer data store are used to identify the individual with authority to approve the order. In one embodiment, the authorization component 404 sends an email or other electronic notice to the appropriate authority. In another embodiment, the authorization component 404 generates the appropriate customer forms and sends an electronic or hard copy of the forms to the relevant authorities. Approval or denial can be communicated *via* a response to an email request, *via* the procurement user interface 400, or using any other mode of communication.

[00061] Once approved, the order is communicated to the appropriate service provider. In an embodiment, the procurement component 210 also includes a tracking component 406 that monitors filling and delivery of the ordered equipment. The tracking component 406 obtains status information regarding the progress and/or estimated date and time of delivery of the mobile device. In addition, the tracking component 406 can track the shipping of the mobile device to the particular user. The tracking component 406 obtains shipping information from the service provider 104 and monitors the progress of the shipment. In an embodiment, the tracking component 406 can notify the user of progress (*e.g.*, time of shipping, estimated delivery date, progress of package) *via* email, voicemail, text message or any other form of communication. In addition, the user can obtain status information from the tracking component 406 through the procurement user interface 400. Once the mobile device and the order completed, information regarding the asset is stored in the asset data store 214 as a part of the inventory of the customer 102.

[00062] With reference to FIGs. 5, 6, 8, 9, 11, 12, 14-17, flowcharts depicting methodologies associated with management of mobile devices are illustrated. For simplicity, the flowcharts are depicted as a series of steps or acts. However, the methodologies are not limited by the number or order of steps depicted in the flowchart and described herein. For example, not all steps may be necessary; the steps may be reordered, or performed concurrently.

[00063] Turning now to Fig. 5, an exemplary methodology for processing a user order is illustrated. At reference number 502, an order is generated by the order component 402 based upon input provided by users through a user interface 202. In an embodiment, orders are generated using customized user interface 202 that ensures that orders comply with customer practices and policies. An order includes data regarding the end user creating the order, the mobile device, including physical device and service plan, requested and the service provider 104 from which the mobile device is to be purchased or supported. In addition, the order can include information such as delivery address, business unit responsible for billing purposes and the like.

[00064] At reference number 504, authorization for the order is requested by the authorization component 404. In an embodiment, the individual order or authorization procedures of the customer 102 determine the authorization process. In particular, customer authorization policies are described in the customer data store and used to control order

processing. For example, an email can be transmitted to the appropriate party (*e.g.*, manager of the requesting user, IT department, and the like) requesting authorization of the order. In an embodiment, the authorization component 404 utilizes the standard requisition form of the company to request authorization of the order. At 506 a determination is made as to whether the order is authorized. If no, at reference number 508, the user who generated the order is notified that the order has not been authorized and will not be processed. The process then terminates.

[00065] If the order is authorized, the service provider104 is notified and provided with the order information at reference number 508. In addition, the end user may be notified of approval and placement of the order. Once the order is placed, the tracking component 406 obtains tracking and/or shipping information from the service provider 104 at reference number 510. Shipping information can include an estimated time to shipment of the mobile device or devices to fill the order, a tracking number used by the delivery service, an estimated date of delivery, and any other information related to delivery of the mobile device(s). At reference number 512, the tracking component 406 tracks or monitors delivery of the mobile device(s). For example, the tracking component 406 retrieves tracking information from the delivery service, provides users with updates regarding status of the order (*e g.*, email specifying date shipped and status in transit) and the like. The order component 402 can update asset data store 214 to reflect the addition of new mobile devices or changes to existing mobile device accounts at reference number 514.

[00066] Turning now to FIG. 6, an exemplary methodology for adding or updating mobile device information in the asset data store 214 in response to completion of an order is illustrated. After an order is placed, and the mobile device delivered to the end user, the asset data store 214 is updated to reflect the new information. The mobile device may be provided to an end user that does not have an existing, associated wireless number. For example, a new employee may be provided with a mobile device assigned a new wireless number. Alternatively, an existing end user may replace an existing mobile device associated with a particular wireless number, with a new mobile device. In which case, the new device is to be associated with the pre-existing wireless number in the asset data store 214. In addition, wireless numbers that have been unused for a period of time, becoming historical records rather than active accounts, may be reissued with the new mobile device.

[00067] At reference number 602, the status of the order is updated upon delivery of the mobile device to the end user and new mobile device information is to be added or updated in the asset data store 214. At reference number 604, the wireless number assigned to the delivered device is compared to mobile device data maintained in the asset data store 214. In an embodiment, the wireless number itself is used as an identifier for a mobile device. If the mobile device is a replacement for an existing device, the wireless number will already exist within the asset data store 214.

[00068] At reference number 606, a determination is made as to whether the wireless number already exists within the asset data store 214. If no, the mobile device is added as a new record to the asset data store 214 at reference number 608, and the process ends with addition of the new mobile device record. However, if the wireless number already exists within the asset data store 214, a determination is made as to whether the record associated with the wireless number is a historical record at reference number 610. Wireless numbers and related data associated with a mobile device that is not in active use are maintained by the asset data store 214 as historical records, preserved for use in analysis, comparison and the like. If the status of the wireless number record in the asset data store 214 is that of a historical record, status is updated to active and the new mobile device is added to the asset data store 214 at reference number 608.

[00069] If the wireless number currently exists in the asset data store 214 and is not marked a historical record, then the wireless number is in active use. At reference number 612, a determination is made as to whether the customer 102 indicated in the order matches the customer 102 associated with the wireless number record in the asset data store 214. If no, then the wireless number has been reallocated or transferred from the customer 102 referenced in the asset data store 214 to the customer 102 placing the order. Accordingly, the record in the asset data store 214 is marked as a historical record at reference number 614, since the wireless number is no longer active for that customer. The mobile device is added to the asset data store 214 as a new wireless number record for the customer 102 indicated on the order at reference number 608.

[00070] If the customer 102 indicated on the order matches the customer 102 associated with the wireless number in the asset data store 214, then at reference number 616, a determination is made as to whether the carrier or service provider 104 referenced in the order matches the service provider 104 associated with the wireless number in the asset data

store 214. If the service provider 104 associated with the order does not match the service provider 104 referenced in the asset data store 214, the wireless number has been transferred from one service provider to another. At reference number 614, the wireless number record in the asset data store 214 is marked as a historical record, and the mobile device in the asset data store 214 is added as a new wireless number record associated with a new service provider 104 at reference number 608.

[00071] If the service provider 104 and customer 102 match the information maintained in the asset data store 214 associated with the particular wireless number, then at reference number 618, the wireless number is updated for the new mobile device utilizing information from the order. In this scenario, the physical device has been updated, but there is no need to create a new record since the service provider 104 remains the same.

[00072] FIG. 7 is a detailed block diagram of an exemplary embodiment of the asset component 212. Users interact with the asset component 212 primarily through an asset management user interface 700. As described above, the asset management user interface 700 can be implemented as a stand-alone user interface, or as a part of a general interface 202 to the device management system 100.The asset component 212 provides detailed information regarding the distribution and use of mobile devices through the organization, which is presented *via* the customized asset management user interface 700. In an embodiment, users are identified and granted access to mobile device information in accordance with the customer policies, as specified in the customer data store 204. Access may be limited based upon business unit, or function of the end user within the customer (*e.g.*, administrator or salesperson) For example, upper level managers are likely to be granted significantly wider access than end users in sales departments.

[00073] In an embodiment, the asset component 212 includes a management component 702 that provides users with the ability to monitor and manage mobile devices associated with the customer102. The management component 702 may be accessed *via* the asset management user interface 700 and used to retrieve information regarding one or more mobile devices and/or mobile device usage from the asset data store 214. In another embodiment, the management component 702 has one or more pre-defined queries or data retrieval functions that provide relevant data to users. Data retrieval is limited to assets specific to the customer 102 requesting the data, and may be customized based upon the user requesting the data, business units, organizational hierarchy or other criteria.

[00074] The management component 702 modifies records maintained in the asset data store 214, the customer data store 204 and service provider data store 206. In an embodiment, administrators utilize the management component 702, accessed *via* the asset management user interface 700, to update or correct data in the asset data store 214, customer data store 204 or service provider data store 206. In particular, end user information can change as end users are added, transferred or leave the customer. Similarly, new mobile devices are purchased or leased and existing mobile devices are transferred to other end users or become worn out and are retired. In addition, service plans and customer needs vary over time. Accordingly, end user, mobile device and service provider information maintained in the asset data store, customer data store 214 and service provider data store 206 are updated to reflect these changes.

[00075] In another embodiment, updates or modifications by an end user require approval, similar to the approval process required to procure a mobile device. For example, a disconnect of a mobile device, addition or removal of services (*e.g.*, text messaging or international dialing) or a change in user information (*e.g.*, change in position, employment status, business unit or the like) may require approval of the end user's manager. In such cases, customer policies regarding authorization of modifications to end user or mobile device data are retrieved from the customer data store 204 and the appropriate individual or entity is contacted for approval prior to modification of the data within the asset data store 214, customer data store 204 and/or service provider data store 206.

[00076] In other embodiments, the management component 702 identifies mobile devices at the end of their lifecycles as candidates for retirement. A report is generated listing candidate mobile devices that have been in service greater than specified period of time. An administrator can select from the list of mobile devices for upgrade or replacement. Upon approval by an administrator, end users are notified of a replacement mobile device, which may be obtained *via* the procurement component 210, and are required to return the retired mobile devices. The management component 702 can track the return and recycling or destruction of retired devices.

[00077] The asset component 212 also includes a reporting component 704 that generates one or more reports regarding customer mobile devices. The reports may be based upon usage of devices, billing for mobile devices or any other statistics. The report data may be collected and filtered for specific business units, individuals, or particular functions or

service plans. In an embodiment, the reporting component 704 periodically generates a set of reports, including specific reports directed to executive level end users and mobile device administrators. In another embodiment, the reporting component 704 generates customized reports based upon end user elections input *via* the asset management user interface 700.

[00078] The reporting component 704 provides customers 102 or end users with exception reports 316. Exception reports 316 identify unnecessary or unusual usages, resulting addition or increased service provider charges. In an embodiment, exception reports 316 detail directory assistance charges, equipment charges (*e.g.*, support, replacement or repair fees), and roaming charges. In another embodiments, the exception report 316 lists top users of mobile devices, end users who did not utilize their mobile device at all during the reporting period, and end users that accumulated data charges.

[00079] The asset component 212 includes an optimization component 706 that analyzes data associated with a particular customer 102 and generates recommendations to optimize mobile devices based upon customer policies or strategies. Common strategies include minimization of cost to the customer 102 while maintaining necessary functionality. In an embodiment, the optimization component 706 utilizes the statistics collected by the reporting component 704 to identify likely optimization opportunities.

[00080] In other embodiments, the optimization component 706 identifies opportunities for reducing costs and provides suggestions or recommendations for optimizing mobile device distribution for the customer 102. The optimization component 706 details the particular steps to minimize cost while maintaining functionality. For example, the optimization component 706 can identify users with the highest overages (*e.g.*, minutes in excess of the amount allotted by the service plan) and recommend switching such users to a service plan without a maximum number of minutes. Similarly, users who consistently utilize only a fraction of the available minutes can be identified for transfer to a service plan with reduced minutes. The optimization component 706 can periodically analyze customer statistics. Alternatively, users can request optimization recommendations at any time, *via* the asset management user interface 700.

[00081] The optimization component 706 is customizable and may be trainable. In an embodiment, frequency of optimization as well as particular statistics for analysis and other features are customizable for the particular customer. In addition, the suggestions or possible optimizations are based upon the particular characteristics of the customer 102. For example,

optimizations are based upon standard market offers or deals negotiated by the customer 102 with particular service providers and other customer policies.

[00082] In an embodiment, the optimization component 706 includes or consists of artificial intelligence or knowledge or rule-based components, methodologies or mechanisms. For example, the optimization component uses vector machines, neural networks, expert systems, Bayesian belief networks, fuzzy logic, data fusion engines, classifiers or the like. Accordingly, the optimization component is adaptive over time and may become more efficient in identifying opportunities and generating recommendations.

[00083] Referring now to FIG. 8, an exemplary methodology for optimizing mobile devices for a customer is illustrated. At reference number 802, one or more exception reports 316 are generated. Such reports identify mobile devices operating outside normal bounds, or mobile devices operating at the extremes. For example, exception reports identify such as the most and least used mobile devices and functions. In an embodiment, exception reports 316 are based upon the most recent billing and usage data. In a further embodiment, historic information regarding billing and usage is obtained, averaged and used to identify exceptions. In yet another embodiment, a weighted average of the most recent billing and usage data as well as historical billing and usage data is utilized.

[00084] At reference number 804, the exception reports 316 are exported to either the customer 102, or the customer data store 204. These exception reports 316 are maintained in summary files at reference number 806. At reference number 808, the exception reports 316 and summaries are analyzed to determine defects that indicate possible opportunities for optimization. In an embodiment, analysis includes comparison with predetermined standards of usage, utilization or other statistics. Alternatively, the determination is based upon comparison with historical data, average usage and the like.

[00085] Based upon the analysis of charges and identification of defects, a list of defects and associated recommendations for resolving such defects is generated at reference number 810. Recommendations can be customized for the particular customer 102. In particular, the recommendations are based upon the various negotiated plans or options with various service providers. In addition, in certain embodiments, such recommendations are a function of the particular practices and policies of the customer 102, such as options available within business units, and the like. A summary of exceptions and associated

recommendations is produced at reference number 812. The resulting exception and recommendation report is communicated to the customer 102 at reference number 814.

[00086] The customer approves or ignores the various recommendations. At reference number 816, a determination is made as to whether the customer 102 approves of each of the one or more recommendations. For each recommendation not approved, the suggestion is documented for future reference at reference number 818, but not implemented. For each recommendation approved, the approved change in service is submitted to the appropriate service provider 104 at reference number 820. At reference number 822, the changes to the service plans are confirmed. The optimization process can be repeated periodically, (*e.g.*, on a monthly or quarterly basis) or dynamically triggered by an end user.

[00087] Referring now to FIG. 9, a flowchart depicting an exemplary methodology for optimizing mobile device management by reducing costs is illustrated. At reference number 902, billing and/or usage data is obtained from one or more carriers or service providers. The received data is reformatted and combined at reference number 904. The combined data is analyzed to identify potential optimization of various recurring charges.

[00088] Recurring charges are predictable, periodic charges, such as monthly basic cell phone charges. Optimization recommendations to minimize recurring charges based upon actual usage of the services for which monthly charges are accrued are generated. In particular at reference number 906, the optimization component 706 analyzes the combined data to optimize use of minutes for voice communications. For example, a service provider 104 may provide several service plans with different amounts of prepaid minutes. Recommendations for switching between service plans are generated based upon actual use of minutes during the previous period(s). In addition, the optimization component 706 generates recommendations for switching mobile devices between different service providers 104 to minimize overall cost for the customer.

[00089] In another embodiment, recurring charges include base fees for text messages or paging service. At reference number 908, the optimization component 706 optimizes text messaging recurring charges. Service providers 104 may provide different service plans that include various numbers of free text messages before applying additional overage charges for text messaging. Recommendations for switching between service plans are generated based upon if the end-user is utilizing text messaging or if they have incurred overage charges during the previous period. In an embodiment, an operator or administrator utilizes the

optimization component 706 to review exception reports 316 to identify opportunities for reducing costs and/or optimizing use of text messaging. In an additional embodiment, the optimization component 706 generates recommendations for switching mobile devices to different text messaging plans to minimize overall cost for the customer.

[00090] At reference number 910, the optimization component 706 generates recommendations to reduce data usage costs. Many mobile devices provide access to data. For example, many smart phones allow access to email accounts and/or the Internet. Typically, an additional fee is charged for such services. The optimization component 706 evaluates actual usage of the data services to identify opportunities to minimize costs while maintaining useful services. These recurring charges, as well as any other additional recurring charges, are summarized by the optimization component 706 in a summary of recurring cost savings at reference number 912.

[00091] In certain embodiments, the optimization component 706 evaluates variable costs and identifies opportunities to minimize costs. For example, at reference number 914, the optimization component 706 identifies instances where users incurred roaming charges. Many service providers 104 charge an extra fee, referred to as a roaming charge, when a user places or receives a call from outside the network of the service provider. The optimization component 706 identifies instances and trends of roaming charges and evaluates the frequency and amount of such charges. The optimization component 706 then generates recommendations based upon the roaming costs. For example, the recommendation may suggest switching the mobile device to a new service plan that would reduce or eliminate roaming fees.

[00092] The optimization component 706 also identifies directory assistance costs at reference number 916. Directory assistance fees are incurred when users call the service provider 104 or an operator and request a telephone listing. Recommendations to avoid such costs can include training employees who make repeated calls for directory assistance to avoid such calls.

[00093] In another embodiment, the optimization component 706 analyzes the billing and usage data to identify users who did not utilize mobile devices or various mobile device functions in the preceding billing period at reference number 918. Such users may have no need for the device at all, in which case the mobile device can be returned or reassigned. The optimization component 706 may generate a recommendation that the users need for the

mobile device be reevaluated. A summary of the variable costs is produced at reference number 920.

[00094] The optimization component 706 merges the recurring and variable cost summaries and recommendations at reference number 922. The generated summary includes identified, exceptional costs as well as recommendations to minimize such costs. The summary can be a high-level or detailed report depending upon the requirements of the particular customer 102. At reference number 924, the summary is presented to the customer 102. For example, the report may be presented in a live consultation, and/or automatically generated and transmitted *via* email on a regularly basis. Alternatively, a printout may be provided on a periodic basis, such as monthly or quarterly. In another embodiment, an administrator associated with the customer logs into the mobile device management system 100 *via* the Internet and triggers generation of the report. In an embodiment, the report is presented as a static document. Alternatively, the report can be provided using the graphic user interface 202 and allowing users to elect to view detailed, underlying data.

[00095] Based upon the response(s) of the customer, a determination is made as to whether to process one or more of the recommendations at reference number 926. The recommendations which are declined are recorded at reference number 928. These recorded recommendations may be used in future analysis of recommendations. In particular, recommendations that are consistently ignored by customer are devalued, with the result that such recommendations are less likely to be generated in the future.

[00096] At reference number 930, a service change request is submitted to one or more service providers 104 based upon the approved recommendation(s). In an embodiment, the service change request(s) are submitted by an operator or administrator. Alternatively, the service change requests are automatically submitted by the optimization component 706. After submission of the requests, implementation of the requested changes by the service provider 104 is confirmed at reference number 932. This confirmation is provided to the customer at reference number 934. The process then terminates, but may be repeated periodically. For example, optimization may occur on a monthly or quarterly basis.

[00097] FIG. 10 is a block diagram of an exemplary support component 218. The support component 218 manages assistance for users experiencing problems with a mobile device and provides a central location for assistance regardless of the particular service provider 104 that issued or supports the mobile device. In addition, the support component