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(54) **METHOD AND SYSTEM FOR
DISTRIBUTING AND UPDATING
SOFTWARE IN WIRELESS DEVICES**

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(56) **References Cited**

U.S. PATENT DOCUMENTS

4,682,150 A	7/1987	Mathes et al.
4,882,752 A	11/1989	Lindman et al.
5,049,881 A	9/1991	Gibson et al.
5,115,392 A	5/1992	Takamoto et al.
5,126,739 A	6/1992	Whiting et al.
5,159,592 A	10/1992	Perkins

(Continued)

FOREIGN PATENT DOCUMENTS

EP	0666651	8/1995
EP	0684558	11/1995

(Continued)

OTHER PUBLICATIONS

"Rarlabs Download Page", <http://web.archive.org/web/20020603234419/http://www.rarlab.com/download.htm>, Capture
by Wayback Machine on Jun. 3, 2002, (1 pg.).

(Continued)

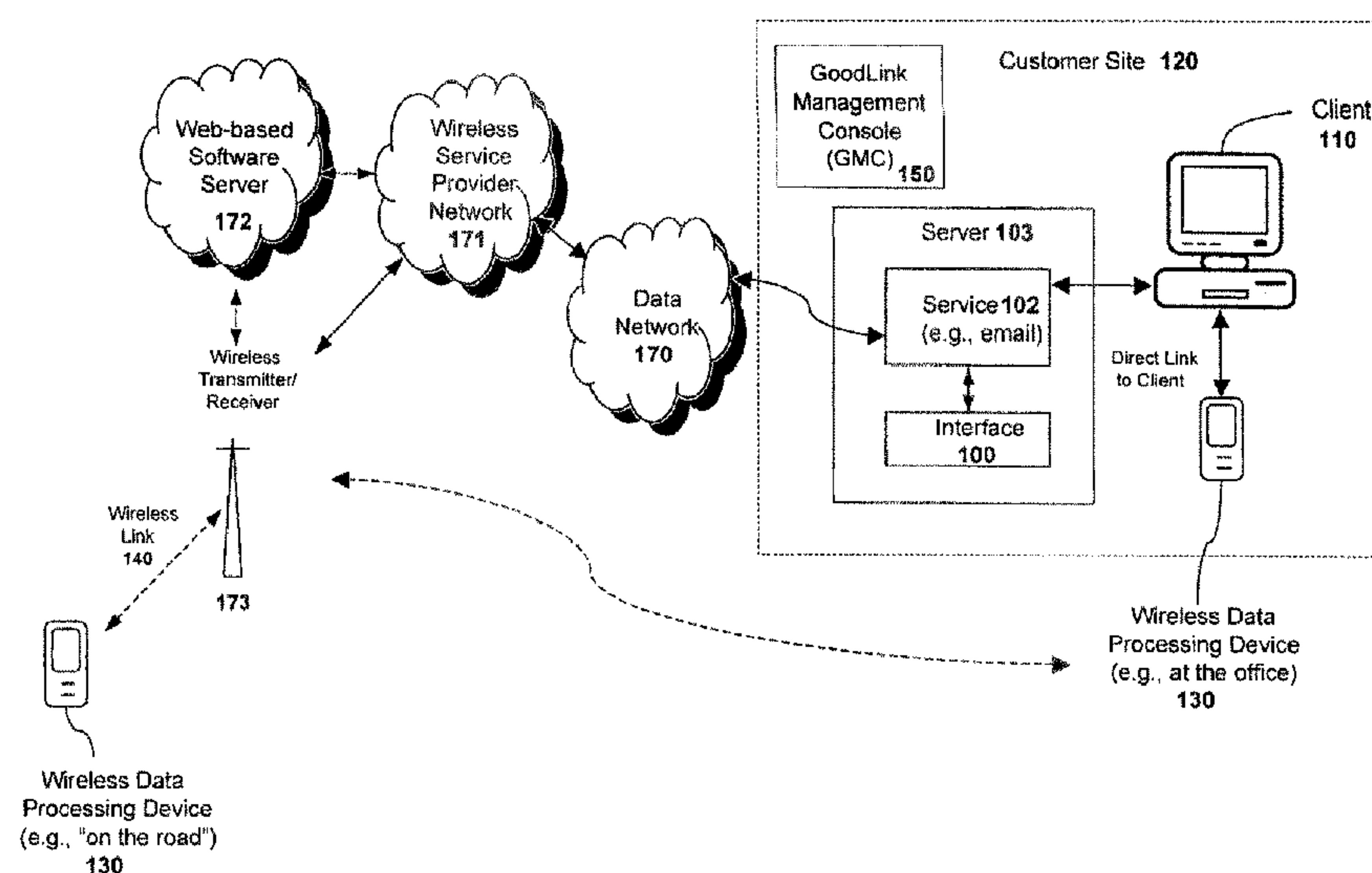
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(57) **ABSTRACT**

A method is disclosed. The method includes receiving an update package from a wireless service provider that includes information indicating that multiple language versions of an update are included in the update package. Based on the information, the method further specifies an update associated with a language from the update package, and transmits the update associated with the language to a wireless device.

33 Claims, 6 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

5,220,501 A	6/1993	Lawlor et al.	6,463,463 B1	10/2002	Godfrey et al.
5,237,614 A	8/1993	Weiss	6,463,464 B1	10/2002	Lazaridis et al.
5,321,840 A	6/1994	Ahlin	6,477,543 B1	11/2002	Huang et al.
5,392,390 A	2/1995	Crozier	6,496,979 B1	12/2002	Chen
5,434,994 A	7/1995	Shaheen et al.	6,505,055 B1	1/2003	Kahn et al.
5,469,161 A	11/1995	Bezek	6,535,892 B1	3/2003	LaRue et al.
5,519,606 A	5/1996	Frid-Nielsen et al.	6,571,245 B2	5/2003	Huang et al.
5,521,597 A	5/1996	Dimitri	6,604,236 B1	8/2003	Draper et al.
5,553,281 A	9/1996	Brown et al.	6,615,253 B1	9/2003	Bowman-Amuah
5,559,800 A	9/1996	Mousseau et al.	6,625,621 B2	9/2003	Tan et al.
5,563,595 A	10/1996	Strohacker	6,636,873 B1	10/2003	Carini et al.
5,613,012 A	3/1997	Hoffman et al.	6,640,244 B1	10/2003	Bowman-Amuah
5,664,207 A	9/1997	Crumpler et al.	6,654,746 B1	11/2003	Wong et al.
5,666,530 A	9/1997	Clark et al.	6,658,167 B1	12/2003	Lee et al.
5,694,546 A	12/1997	Reisman	6,671,757 B1	12/2003	Multer et al.
5,715,387 A	2/1998	Barnstijn et al.	6,675,009 B1	1/2004	Cook
5,721,907 A	2/1998	Pyne	6,694,335 B1	2/2004	Hopmann et al.
5,727,159 A	3/1998	Kikinis	6,697,458 B1	2/2004	Kunjibettu
5,727,202 A	3/1998	Kucala	6,701,378 B1	3/2004	Gilhuly et al.
5,760,716 A	6/1998	Mathews et al.	6,721,019 B2	4/2004	Kono et al.
5,771,010 A	6/1998	Masenas	6,721,787 B1	4/2004	Hiscock
5,787,441 A	7/1998	Beckhardt	6,721,871 B2	4/2004	Piispanen et al.
5,790,974 A	8/1998	Tognazzini	6,735,434 B2	5/2004	Criss et al.
5,793,970 A	8/1998	Fakes et al.	6,757,698 B2	6/2004	McBride et al.
5,802,312 A	9/1998	Lazaridis et al.	6,779,019 B1	8/2004	Mousseau et al.
5,809,415 A	9/1998	Rossmann	6,792,085 B1	9/2004	Rigaldies et al.
5,841,376 A	11/1998	Hayashi	6,829,639 B1	12/2004	Lawson et al.
5,850,517 A	12/1998	Verkler et al.	6,874,037 B1	3/2005	Abram et al.
5,857,201 A	1/1999	Wright et al.	6,901,415 B2	5/2005	Thomas et al.
5,870,610 A	2/1999	Beyda	6,907,243 B1	6/2005	Patel
5,875,329 A	2/1999	Shan	6,931,454 B2	8/2005	Deshpande et al.
5,903,230 A	5/1999	Masenas	6,934,766 B1	8/2005	Russell
5,903,881 A	5/1999	Schrader et al.	6,941,348 B2	9/2005	Petry et al.
5,930,471 A	7/1999	Milewski et al.	6,941,349 B2	9/2005	Godfrey et al.
5,961,590 A	10/1999	Mendez et al.	6,954,789 B2	10/2005	Dietz et al.
5,974,238 A	10/1999	Chase, Jr.	6,973,299 B2	12/2005	Apfel
5,987,464 A	11/1999	Schneider	6,976,263 B2	12/2005	Delaney
5,999,947 A	12/1999	Zollinger et al.	6,983,308 B1	1/2006	Oberhaus
6,003,089 A	12/1999	Shaffer et al.	7,003,776 B2	2/2006	Sutherland
6,006,274 A	12/1999	Hawkins et al.	7,073,137 B2	7/2006	Hassanin et al.
6,023,708 A	2/2000	Mendez et al.	7,085,809 B2	8/2006	Mori et al.
6,034,621 A	3/2000	Kaufman	7,092,699 B1	8/2006	Hefter
6,049,671 A	4/2000	Slivka et al.	7,133,756 B2	11/2006	Jammu et al.
6,052,735 A	4/2000	Ulrich et al.	7,136,934 B2	11/2006	Carter et al.
6,065,017 A	5/2000	Barker	7,139,555 B2	11/2006	Apfel
6,104,392 A	8/2000	Shaw et al.	7,149,813 B2	12/2006	Flanagin et al.
6,111,707 A	8/2000	Buddecke et al.	7,155,483 B1	12/2006	Friend et al.
6,151,606 A	11/2000	Mendez et al.	7,185,082 B1	2/2007	del Val et al.
6,167,448 A	12/2000	Hemphill et al.	7,239,877 B2	7/2007	Corneille et al.
6,182,117 B1	1/2001	Christie et al.	7,257,649 B2	8/2007	Rabbers et al.
6,216,157 B1	4/2001	Vishwanath et al.	7,340,389 B2	3/2008	Vargas
6,218,970 B1	4/2001	Jaquette	7,356,510 B2 *	4/2008	Durand G06F 21/10 705/50
6,219,694 B1	4/2001	Lazaridis et al.	7,467,167 B2	12/2008	Patterson
6,226,618 B1	5/2001	Downs	8,178,040 B2 *	5/2012	Brauer 422/44
6,259,891 B1	7/2001	Allen	8,875,116 B2 *	10/2014	O'Neill et al. 717/168
6,275,848 B1	8/2001	Arnold	2001/0004744 A1	6/2001	Lazaridis et al.
6,279,001 B1	8/2001	DeBettencourt et al.	2001/0005864 A1	6/2001	Mousseau et al.
6,304,881 B1	10/2001	Halim et al.	2001/0010059 A1	7/2001	Burman et al.
6,308,061 B1	10/2001	Criss et al. 455/418	2001/0029178 A1	10/2001	Criss et al.
6,310,889 B1	10/2001	Parsons et al.	2001/0034654 A1	10/2001	Vigil
6,330,618 B1	12/2001	Hawkins et al.	2001/0044835 A1	11/2001	Schober et al.
6,343,299 B1	1/2002	Huang et al.	2001/0046854 A1	11/2001	Henry et al.
6,347,340 B1	2/2002	Coelho et al.	2001/0049263 A1	12/2001	Zhang
6,360,272 B1	3/2002	Lincke et al.	2001/0053688 A1	12/2001	Rignell et al.
6,381,454 B1	4/2002	Tiedemann	2001/0054115 A1	12/2001	Ferguson et al.
6,384,850 B1	5/2002	McNally et al.	2002/0013853 A1	1/2002	Baber et al.
6,393,434 B1	5/2002	Huang et al.	2002/0019225 A1	2/2002	Miyashita
6,396,482 B1	5/2002	Griffin et al.	2002/0032722 A1	3/2002	Baynes et al.
6,401,136 B1	6/2002	Britton et al.	2002/0046286 A1	4/2002	Caldwell et al.
6,425,126 B1	7/2002	Branson et al.	2002/0055355 A1	5/2002	Ikeda
6,430,601 B1	8/2002	Eldridge et al.	2002/0085506 A1	7/2002	Hundscheidt
6,434,613 B1	8/2002	Bertram et al.	2002/0085719 A1	7/2002	Crosbie
6,449,622 B1	9/2002	LaRue et al.	2002/0099772 A1	7/2002	Deshpande
6,457,062 B1	9/2002	Pivowar et al.	2002/0119793 A1	8/2002	Hronek
6,460,055 B1	10/2002	Midgley et al.	2002/0120696 A1	8/2002	Mousseau et al.
			2002/0146240 A1	10/2002	Ogawa et al.
			2002/0155829 A1	10/2002	Proctor
			2002/0160773 A1	10/2002	Gresham et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

2003/0022661	A1	1/2003	Guterman	
2003/0046434	A1	3/2003	Flanagin et al.	
2003/0050046	A1	3/2003	Conneely	
2003/0069842	A1	4/2003	Kight	
2003/0081621	A1	5/2003	Godfrey et al.	
2003/0084165	A1	5/2003	Kjellberg	
2003/0097381	A1	5/2003	Detweiler	
2003/0097490	A1	5/2003	Delaney	
2003/0143991	A1	7/2003	Miner	
2003/0147369	A1	8/2003	Singh	
2003/0182326	A1	9/2003	Patterson	
2004/0002943	A1	1/2004	Merrill	
2004/0003266	A1	1/2004	Moshir	
2004/0034853	A1	2/2004	Gibbons	
2004/0054739	A1	3/2004	Friend et al.	
2004/0068665	A1	4/2004	Fox	
2004/0092255	A1	5/2004	Ji et al.	
2004/0098420	A1	5/2004	Peng	
2004/0098421	A1	5/2004	Peng et al.	707/203
2004/0098715	A1	5/2004	Aghera	
2004/0105423	A1	6/2004	Koehler et al.	
2004/0109436	A1	6/2004	Vargas et al.	
2004/0203693	A1	10/2004	Mehta	
2004/0203941	A1	10/2004	Kaplan	
2004/0214599	A1	10/2004	Ogino	
2004/0246895	A1	12/2004	Feyerabend	
2005/0075115	A1	4/2005	Corneille	
2005/0132357	A1	6/2005	Shell	
2005/0148356	A1	7/2005	Ferguson et al.	
2005/0186952	A1	8/2005	Kitajima	
2005/0216534	A1	9/2005	Ikezawa	
2005/0254458	A1	11/2005	Proctor	
2006/0025123	A1	2/2006	Majmundar et al.	
2006/0043820	A1	3/2006	Nakahara	
2006/0046703	A1	3/2006	Liu	
2006/0073820	A1	4/2006	Craswell et al.	
2006/0106806	A1	5/2006	Sperling et al.	
2006/0129638	A1	6/2006	Deakin	
2006/0206537	A1	9/2006	Chiang	
2006/0217111	A1	9/2006	Marolia et al.	
2006/0229027	A1	10/2006	Wang et al.	
2006/0242621	A1	10/2006	Ye et al.	
2007/0042766	A1	2/2007	Herle	
2007/0083676	A1	4/2007	Rabbers	
2008/0125105	A1	5/2008	Qumei et al.	
2009/0013083	A9	1/2009	Garcia-Luna-Aceves	

FOREIGN PATENT DOCUMENTS

EP	0909037	4/1999
EP	0917077	5/1999
EP	1014629	6/2000
JP	07-182263	7/1995
JP	10-269125	10/1998
JP	11-136365	5/1999
JP	2000148641	5/2000
JP	2001053785	2/2001
JP	2001076040	3/2001
WO	0067158	11/2000
WO	0219626	3/2002

OTHER PUBLICATIONS

Hild, Stefan G. "Mobilizing Applications", IEEE Personal Communications/ 1070-9916/97 (Oct. 1997), 26-34.

Airsoft, Inc., 1996, Powerburst: making remote access work, 9 pp.

Airsoft, Inc., Dec. 1995, Corporate Backgrounder, 5 pp.

Airsoft, Inc., Jun. 21, 1994, AirSoft AirAccess 2.0 Mobile Networking Software: Product Overview and Reviewer's Guide, 11 pp.

Anterior Technology Radiomail Gateway Services, Dec. 1991, Draft Application Program Interface Specification, Version 1.0 (Beta), 7 pp.

Barnstijn: Memo re MailCall and Radiomail integration, Research in Motion, 7 pp, Dec. 6, 1991.

Berners-Lee et al: Hypertext Transfer Protocol—HTTP/1.0, 60 pp, May 1996.

Business Wire, SkyTel and CompuServe team to provide wireless messaging services in countries worldwide; SkyTel adds to e-mail connectivity options it provides for business markets, 3 pp, May 1, 1991.

cc:Mail Inc., 1995, Lotus cc:Mail for the World Wide Web Release 1 Administrator's Guide, 78 pp.

cc:Mail Inc., 1994, Automatic Directory Exchange Release 2: Administrator's Guide, 76 pp.

CompuServe Incorporated, 1988, CompuServe Professional Connection Plus Message Management with Forms, Users Guide, 131 pp.

Crispin: RFC1730—Internet message access protocol—Version 4, Network Working Group, University of Washington, 55 pp. Dec. 1994.

Crocker: RFC 822—Standard for the format of ARPA Internet text messages, 43 pp, 1982.

Dahl, Andrew: Lotus Notes 4 Administrator's Survival Guide, Sams Publishing, pp. 49, 64-66, 1996.

Data Communications, Juicing up remote-node links to the LAN, pp. 108 and 110, Jan. 1996.

developerWorks Lotus, Web team, IBM, The History of Notes and Domino, 22 pp., Nov. 14, 2007.

GloMop Group, GloMop: Global Mobile Computing by Proxy, 12 pp., 1995.

Grous: Creating and Managing a Web Site with Lotus' InterNotes Web Publisher, The View, 17 pp., Sep. 1995.

Infinite Technologies, Administrator's Guide: WebMail Remote e-mail access via the world wide web, Release 1.0, 72 pp., 1996.

Infinite Technologies, User's Guide: Webmail Remote Email Access, 82 pp., 1996.

Infinite Technologies, WebMail Q&A, 5pp., 1996.

Infinite Technologies, Infinite InterChange: remote access to almost any LAN-based e-mail from anywhere, 170 pp., 1997.

Infinite Technologies, Infinite InterChange: remote access to almost any LAN-based e-mail from anywhere, 1 p., 1997.

Infinite Technologies, Introducing WebMail Presentation, 13 pp., 1997.

InfoKomp, WebMail Tech Notes: FYIs, 5 pp., 1996.

Internet Anywhere Consortium, Business Plan of Jul. 1, 1994, Information Technology Research Centre, Mortice Kern Systems Inc., Research in Motion Limited, 48 pp.

Internet Anywhere Consortium, Program Budget and Statement of Work, Information Technology Research Centre, Mortice Kern Systems Inc. Research in Motion Limited, 12 pp., Feb. 21, 1994.

Internet Anywhere Wireless Functional Specification, Research in Motion, Limited, 9 pp., 1994.

Kramer: Remote possibilities; gateways let remote users exchange mail via web browsers, 5 pp., 1999.

Kucharczyk, David: Memo re MailCall and Radiomail Integration, Research in Motion, 2 pp., Dec. 11, 1991.

Lamb et al.: Lotus Notes Network Design for Notes Release 3 and 4, McGraw-Hill, pp. 196-197, 1996.

Lambert: PCMail: A distributed mail system for personal computers, 38 pp., 1988.

Lazaridis: Viking Express document to Richard Kirby, 2pp., Jan. 23, 1992.

Libris Inc.: Libris AirNet Service, Specification Version 0.6b, 172 pp., Sep. 1995.

Lotus Development, Lotus Notes Release 4.5 Administrator's Guide, 748 pp., 1995.

Mathers et al: Lotus Notes Internet Cookbook for Notes Release 4, 37 pp., Feb. 14, 1996.

MKS Internet Anywhere Product Plan, 7.2.3 Release Schedule, 2 pp., 1994.

Mobilib-Plus Developers Kit: User Guide and Reference Manual, Version 2.2, Research in Motion Ltd., 80 pp., Jun. 28, 1993.

MobilLib-Plus Product Brief: Preliminary interface specification for MobilLib-Plus session layer, Research in Motion Limited, 8 pp., Sep. 24, 1991.

Mobitex User's Handbook for the Mobiden AT, Version 1.0, Research in Motion, 66 pp., Apr. 1993.

(56)

References Cited

OTHER PUBLICATIONS

Motorola Inc., Communication Client Guide: AirMobile Wireless Software for Lotus cc:Mail, 48 pp., 1995.

Motorola, AirMobile wireless software for cc:mail: e-mail from anywhere, 2 pp., 1995.

Motorola, Communication Server Guide: AirMobile Wireless Software for Lotus cc:Mail, 46 pp., 1995.

Pyle: A jump start for the top ten R3-toR4 migration consideration, The View, Wellesley Information Services, pp. 3-20, Nov.-Dec. 1995.

RAM Mobile Data, Inc., An Overview of the RAM Mobile Data, Inc. Mobitex Packet Radio Networks including a summary of radio/modern and terminal design requirements and guidelines for application specific software design, Issue 2, 61 pp., Aug. 1990.

Rennie: The Official Guide to Lotus Software: cc:Mail Plain and Simple, Sybex Inc., 293 pp., 1994.

Research in Motion Limited, Wireless Access to the Internet-Preliminary Functional Specification, 12 pp., 1994.

RIM/MKS/ITRC Canarie Partnership: Internet Anywhere Wireless Access to the Internet; PowerPoint slide, 1 pg., 1992.

Wong: Casahl's replic-action: delivering true notes/DMBS integration, The View, pp. 33-50, Jan./Feb. 1996.

* cited by examiner

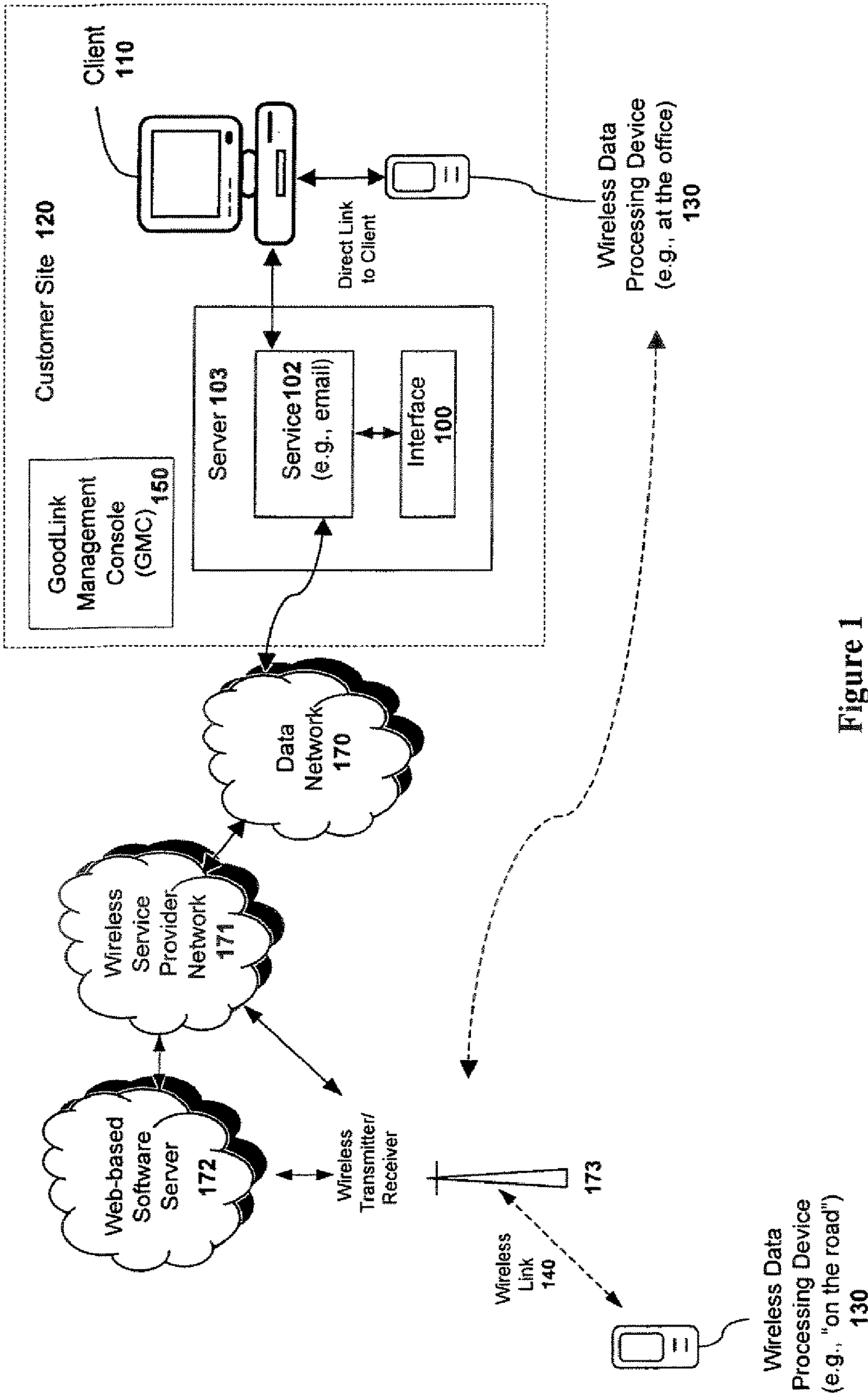
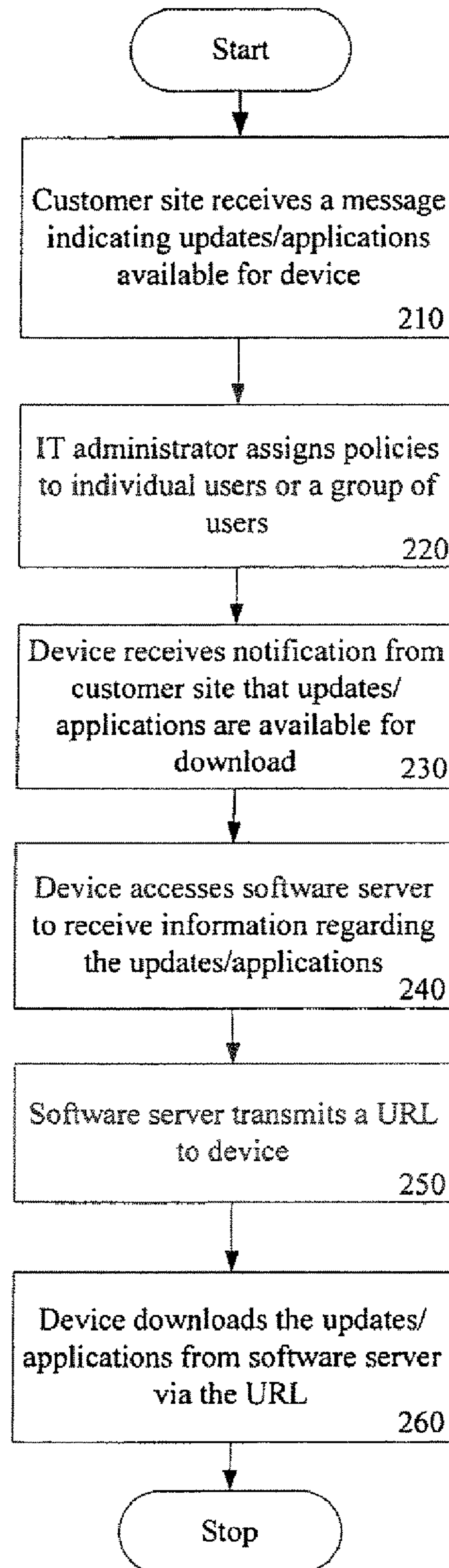


Figure 1

**Figure 2**

Update Package 300

GoodLink Policy 3.2.0 =

{
3.2.1 English,
3.2.2 German,
3.2.3 French,
3.2.4 Italian,
3.2.5 Spanish
}

Figure 3

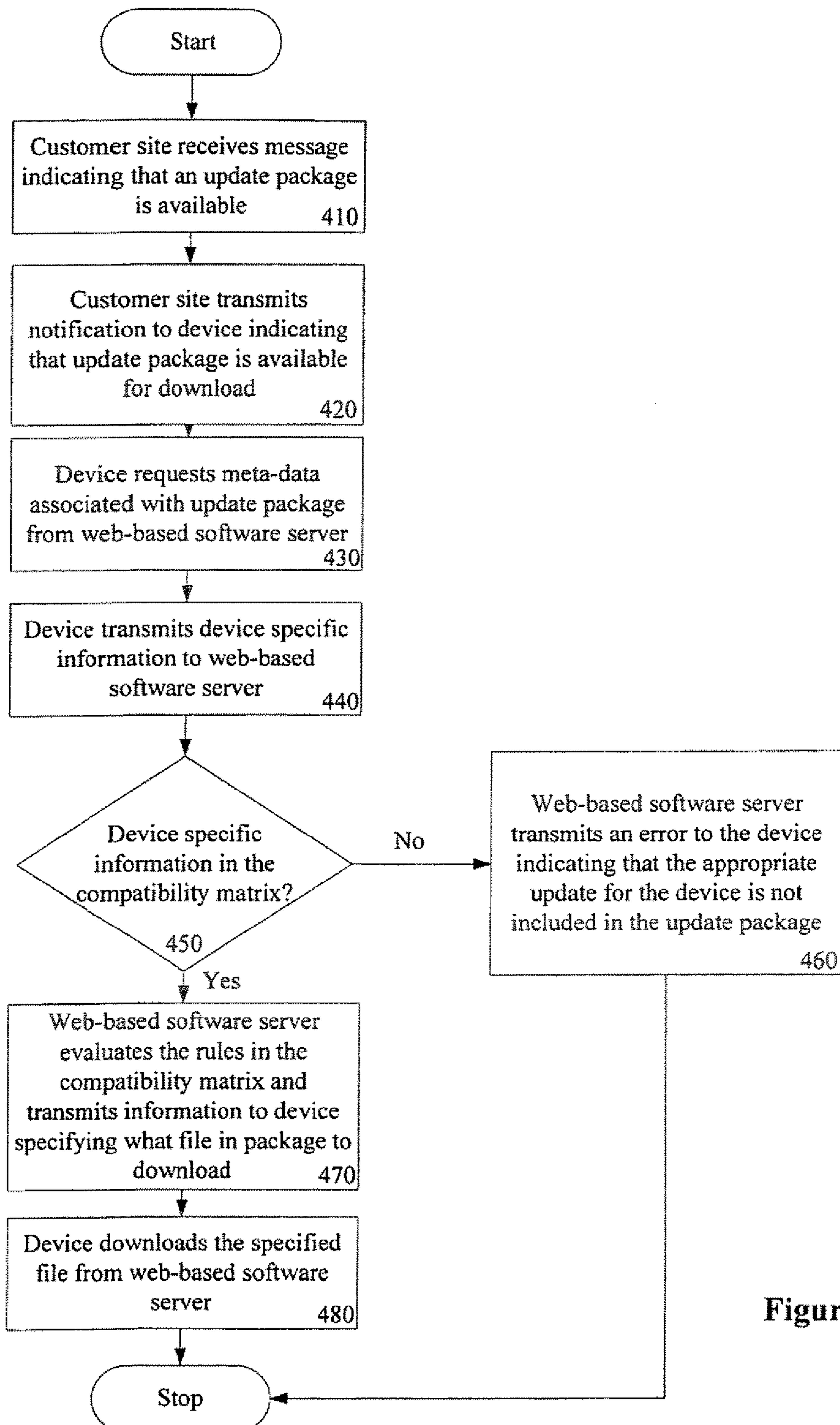


Figure 4

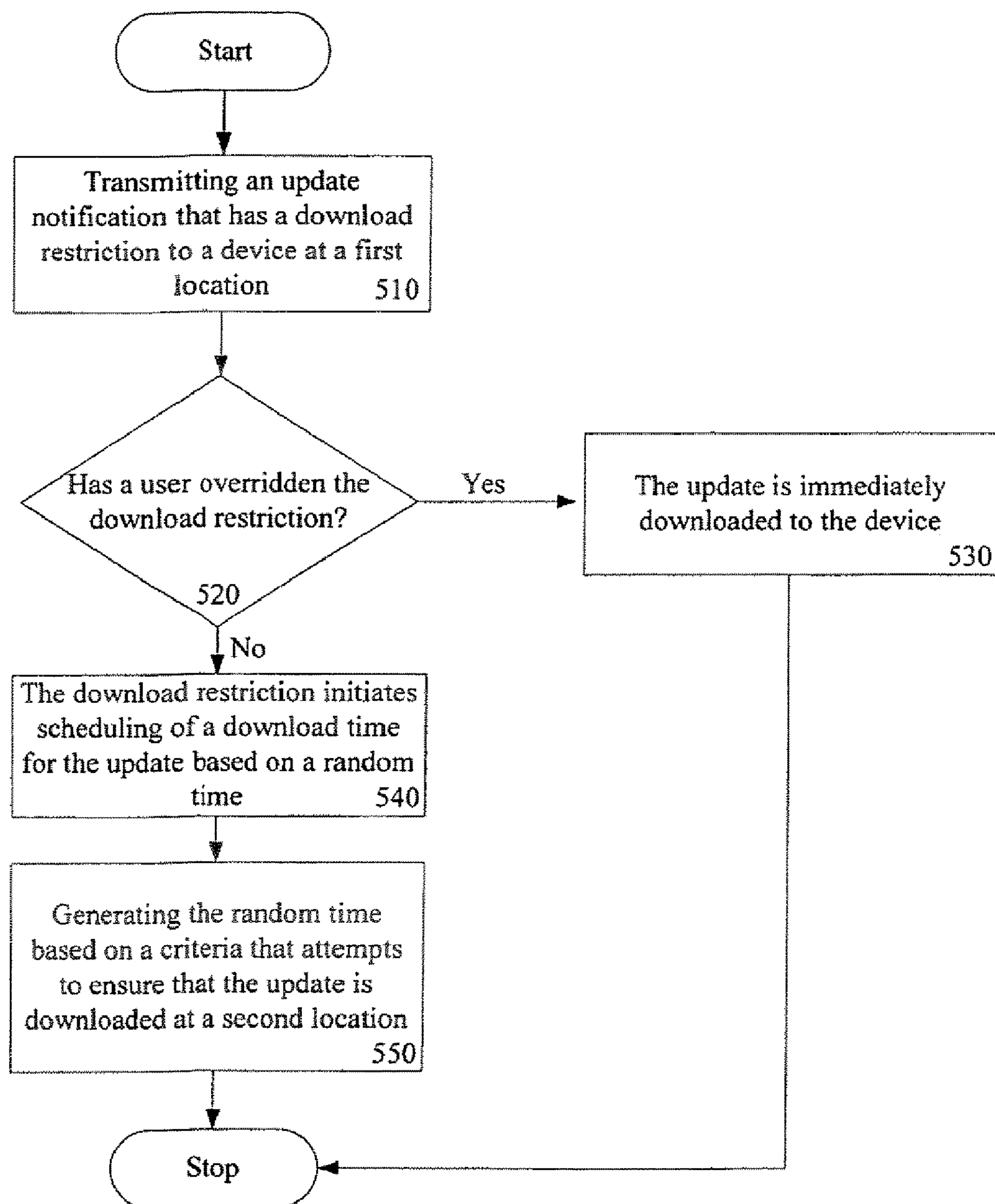


Figure 5

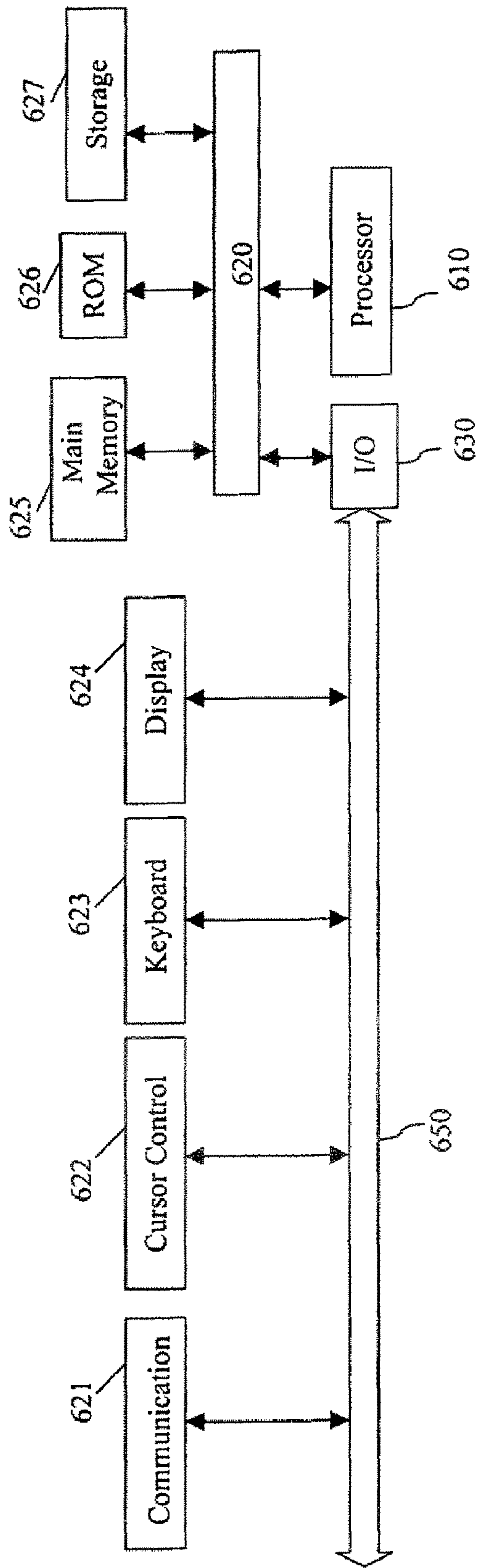


Figure 6

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METHOD AND SYSTEM FOR DISTRIBUTING AND UPDATING SOFTWARE IN WIRELESS DEVICES

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue; a claim printed with strikethrough indicates that the claim was canceled, disclaimed, or held invalid by a prior post-patent action or proceeding.

[The present patent application] *This application is a reissue of U.S. Pat. No. 8,078,157. U.S. Pat. No. 8,078,157* is a [Continuation application claiming priority from] *continuation of U.S. patent application Ser. No. 11/363,582, filed Feb. 27, 2006, now U.S. Pat. No. 7,620,392.*

FIELD OF THE INVENTION

This invention relates generally to the field of wireless networks. More particularly, the invention relates to distributing and updating software in wireless devices.

BACKGROUND

A variety of wireless data processing devices have been introduced over the past several years. These include wireless personal digital assistants ("PDAs") such as the Palm® VIIx handheld, cellular phones equipped with data processing capabilities (e.g., those which include wireless application protocol ("WAP") support), and, more recently, wireless messaging devices such as the Blackberry™ wireless pager developed by Research In Motion ("RIM").™

Currently, in order to distribute software to wireless devices, the devices are cradled and/or connected to a computer system for software to be installed to a wireless device. Additionally, some software to be installed on the device may be language specific, or device specific. In this case software running on a computer system controls what version of the software is to be installed on the wireless device, or users may choose from a set of options provided.

BRIEF DESCRIPTION OF THE DRAWINGS

A better understanding of the present invention can be obtained from the following detailed description in conjunction with the following drawings, in which:

FIG. 1 illustrates one embodiment of a network;

FIG. 2 illustrates one embodiment of a flow diagram for a wireless device downloading updates and/or applications from a web-based software server;

FIG. 3 illustrates one embodiment of an update package;

FIG. 4 illustrates one embodiment of a wireless device receiving an update from an update package;

FIG. 5 illustrates one embodiment of restricting where a device is located when it downloads updates; and

FIG. 6 illustrates one embodiment of a computer system.

DETAILED DESCRIPTION

According to one embodiment a method for updating a wireless device is disclosed. In the following description, for the purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding of the present invention. It will be apparent, however, to one

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skilled in the art that the present invention may be practiced without some of these specific details. In other instances, well-known structures and devices are shown in block diagram form to avoid obscuring the underlying principles of the present invention.

Reference in the specification to "one embodiment" or "an embodiment" means that a particular feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment of the invention. The appearances of the phrase "in one embodiment" in various places in the specification are not necessarily all referring to the same embodiment.

FIG. 1 illustrates one embodiment of a network architecture. A "customer site" 120 is illustrated in FIG. 1 and may be any local-area or wide-area network over which a plurality of servers 103 and clients 110 communicate. For example, customer site 120 may include all servers and clients maintained by a single corporation.

Servers 103 may provide a variety of different messaging and groupware services 102 to network users (e.g., e-mail, instant messaging, calendaring, etc). In one embodiment, these services are provided by Microsoft Exchange.™ However, the underlying principles of the invention are not limited to any particular messaging/groupware platform.

In one embodiment, an interface 100 forwards data objects (e.g., e-mail messages, instant messages, calendar data, etc.) maintained by service 102 to a plurality of wireless data processing devices (represented in FIG. 1 by device 130) via an external data network 170 and/or a wireless service provider network 171. For example, if the service 102 includes an e-mail database, the interface 100 transmits any new e-mails, which arrive in a user's mailbox on the service 102 to the user's wireless data processing device 130 (over the network(s) 170 and/or 171).

Alternatively, or in addition, service 102 may provide the e-mail to the user's local computer (e.g., client 110) upon request (e.g., so that the user will receive the e-mail on his/her device 130 when out of the office and on his/her personal computer 110 when in the office). Conversely, e-mail messages transmitted from the user's wireless data processing device 130 are transmitted to the service 102 via the interface 100.

In one embodiment, interface 100 is a software module adapted to work with the particular service 102. It should be noted, however, that interface 100 may be implemented in hardware or any combination of hardware and software while still complying with the underlying principles of the invention.

In one embodiment, the external data network 170 includes a plurality of databases, servers/clients (not shown) and other networking hardware (e.g., routers, hubs, etc) for transmitting data between the interface 100 and the devices 130. In one embodiment, the interface 100 encapsulates data in one or more packets having an address identifying the devices 130 (e.g., such as a 24-bit Mobitex Access Number ("MAN #")).

The external data network 170 transmits the packets to a wireless service provider network 171, which in turn, transmits the packets (or the data contained therein) over wireless communication link 173 (e.g. cell tower) to the device 130. In one embodiment, the wireless service provider network is a CDMA 2000 network. However, various other network types may be employed (e.g., Mobitex, GPRS, PCS, etc.) while still complying with the underlying principles of the invention.

It should be noted that the network service provider network 171 and the external data network 170 (and asso-

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ciated interface 100) may be owned/operated by the same organization or, alternatively, the owner/operator of the external data network 170 may lease wireless services from the wireless service provider network. The underlying principles of the invention are not limited to any particular service arrangement.

In one embodiment, customer site 120 includes a management console (MC) 150. In a further embodiment, MC 150 is a GoodLink™ management console (GMC) developed by Good Technology®. Further wireless service provider network 171 is connected to a web-based software server 172. In one embodiment, web-based software server 172 is a web-store, which is used to distribute updates and applications to wireless devices (e.g. device 130).

According to one embodiment, updates and/or applications for device 130 are transmitted to web-based software server 172 from wireless service provider network 171, which are available for download by device 130. In one embodiment, the application to be downloaded is GoodLink™ client developed by Good Technology®. In another embodiment, notification of the availability of updates and/or applications is transmitted to customer site 120. At customer site 120, MC 150 allows an administrator to assign software policies for device 130. In one embodiment, the software policies determine which update and/or application notifications device 130 will receive.

Based on the software policies, customer site 120 then transmits a message to device 130 notifying device 130 of the updates and/or applications that are available to be downloaded from web-based software server 172.

FIG. 2 illustrates one embodiment of a flow diagram illustrating the process of device 130 downloading updates and/or applications from web-based software server 172. At process block 210, customer site 120 receives a message indicating that there are updates and/or applications available for device 130 to download. At process block 220, an IT administrator assigns software policies to individual users and/or a group of users (e.g. device 130). In one embodiment, a software policy defines a rule, which uniquely identifies the updates and/or applications.

At process block 230, device 130, based on the software policy, receives notification from customer site 120 that updates and/or applications are available for download. At process block 240, device 130 accesses web-based software server 172 to receive information regarding the updates and/or applications. At process block 250, web-based software server 172 transmits a universal resource locator (URL) to device 130 that indicates the location of the updates and/or applications. At process block 260, device 130 downloads the updates and/or applications from web-based software server 172 via the received URL.

Downloading updates and/or applications from a web-based software server reduces the burden on the bandwidth of a data network by spreading out the time when devices will download an update and/or application is described.

In another embodiment of the present invention a mechanism to distribute multi-language applications and updates in a package format is disclosed. FIG. 3 illustrates one embodiment of an update package 300. Update package 300 includes a similar software update provided in five different languages (i.e. English, German, French, Italian and Spanish). However, other languages and a different number of languages may be used.

In one embodiment, web-based software server 172 decides, based on information received from device 130, which one of the software updates in update package 300

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that device 130 will receive. Accordingly, the device 130 receives the version of the update that corresponds to its specified language.

In one embodiment, update package 300 has a compatibility matrix included with it. This compatibility matrix is included in meta-data associated with update package 300. The compatibility matrix includes information describing the languages supported by update package 300. An IT administrator may use the information to know the content of update package 300.

The following is an example of one embodiment of a compatibility matrix:

```

ComparabilityMatrix =
{
  [locale=EN|GUID=Guid3_2_1]
  [locale=DE|GUID=Guid3_2_2]
  [locale=FR|GUID=Guid3_2_3]
  [locale=IT|GUID=Guid3_2_4]
  [locale=SP|GUID=Guid3_2_5]
}

```

The locale and GUID tags in the compatibility matrix are to identify rules that are associated with each update in update package 300. For example, 'locale=DE' is a rule that identifies that the update is designated for devices with German as the device language.

FIG. 4 illustrates one embodiment of a device 130 receiving an update from update package 300. At process block 410, customer site 120 receives a message indicating that update package 300 is available for device 130. At process block 420, customer site 120 transmits a notification to device 130 indicating that update package 300 is available for device 130 to download.

At process block 430, device 130 requests meta-data associated with update package 300 from web-based software server 172. Device 130 transmits device specific information to web-based software server 172, process block 440. At decision block 450, web-based software server 172 checks the device specific information to determine whether the update associated with the device specific information is included in the compatibility matrix.

If the update associated with the device specific information is not included in the compatibility matrix, web-based software server 172 transmits an error to device 130 indicating that the appropriate update for device 130 is not included in update package 300, process block 460.

If the update associated with the device specific information is included in the compatibility matrix, web-based software server 172 evaluates the rules in the compatibility matrix and transmits information to device 130 specifying to device 130 what file in update package 300 to download, process block 470. At process block 480, device 130 downloads the specified file in update package 300 from web-based software server 172.

Receiving an update from an update package allows an IT administrator to globally deploy an update to all users regardless of their locale or language.

In another embodiment, a mechanism to distribute the load placed on a network is described. For Example, a network (e.g. wireless communication link 173) may only be able to handle a limited number of connections at the same time. In one embodiment, the maximum number of connections that can be supported simultaneously is thirty. However, other values may be used.

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In order to minimize the number of devices downloading an update from a specific cell tower, a download restriction is associated with the updates.

FIG. 5 illustrates one embodiment of restricting where device 130 is located when it downloads updates. At process block 510, an update notification that has a download restriction associated with it is transmitted to device 130 at a first location. In one embodiment, the first location is an office. At decision block 520, it is determined whether a user has overridden the download restriction. If a user has overridden the download restriction the update is immediately downloaded to device 130, process block 530.

If a user has not overridden the download restriction, the download restriction initiates scheduling of a download time for the update based on a random time, process block 540. At process block 550, the random time is generated based on a criteria. The criteria attempts to ensure that device 130 will download the update at a second location (e.g. a house). In one embodiment, the criteria restricts the random time to after 8 pm and before 2 am. However, other time restrictions may be used.

The above-mentioned process effectively alters the location of a device when the download occurs. The benefit is to distribute the load of downloading updates over a range of cell towers.

FIG. 6 illustrates one embodiment of a computer system 600 on which device 130 and or server 103 may be implemented. Computer system 600 includes a system bus 620 for communicating information, and a processor 610 coupled to bus 620 for processing information. According to one embodiment, processor 610 is implemented using one of the multitudes of Motorola ARM family of processors of microprocessors. Nevertheless one of ordinary skill in the art will appreciate that other processors may be used.

Computer system 600 further comprises a random access memory (RAM) or other dynamic storage device 625 (referred to herein as main memory), coupled to bus 620 for storing information and instructions to be executed by processor 610. Main memory 625 also may be used for storing temporary variables or other intermediate information during execution of instructions by processor 610. Computer system 600 also may include a read only memory (ROM) and/or other static storage device 626 coupled to bus 620 for storing static information and instructions used by processor 610.

A data storage device 625 such as a magnetic disk or optical disc and its corresponding drive may also be coupled to computer system 600 for storing information and instructions. Computer system 600 can also be coupled to a second I/O bus 650 via an I/O interface 630. A plurality of I/O devices may be coupled to I/O bus 650, including a display device 624; an input device (e.g., an alphanumeric input device 623 and/or a cursor control device 622).

The communication device 621 is for accessing other computers (servers or clients) via network 170. The communication device 621 may comprise a modem, a network interface card, or other well-known interface device, such as those used for coupling to Ethernet, token ring, or other types of networks.

Embodiments of the invention may include various steps as set forth above. The steps may be embodied in machine-executable instructions. The instructions can be used to cause a general-purpose or special-purpose processor to perform certain steps. Alternatively, these steps may be performed by specific hardware components that contain

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hardwired logic for performing the steps, or by any combination of programmed computer components and custom hardware components.

Elements of the present invention may also be provided as a machine-readable medium for storing the machine-executable instructions. The machine-readable medium may include, but is not limited to, floppy diskettes, optical disks, CD-ROMs, and magneto-optical disks, ROMs, RAMs, EPROMs, EEPROMs, magnetic or optical cards, propagation media or other type of media/machine-readable medium suitable for storing electronic instructions. For example, the present invention may be downloaded as a computer program which may be transferred from a remote computer (e.g., a server) to a requesting computer (e.g., a client) by way of data signals embodied in a carrier wave or other propagation medium via a communication link (e.g., a modem or network connection).

Throughout the foregoing description, for the purposes of explanation, numerous specific details were set forth in order to provide a thorough understanding of the invention. It will be apparent, however, to one skilled in the art that the invention may be practiced without some of these specific details. For example, while illustrated as an interface 100 to a service 102 executed on a server 103 (see FIG. 1); it will be appreciated that the underlying principles of the invention may be implemented on a single client in which the client transmits data over a network. Accordingly, the scope and spirit of the invention should be judged in terms of the claims that follow.

What is claimed is:

1. A method of updating a wireless device, comprising: a wireless device receiving, *at a first location*, a notification indicating that an update package is available for the wireless device, the update package comprising a plurality of versions of an update; the wireless device transmitting, in response to receipt of said notification, device-specific information to a server system, the device-specific information comprising compatibility information relating to the wireless device; the wireless device receiving data specifying a *download* location of a version of the update from the server system, the version having been selected, based on the compatibility information; [and] the wireless device using the received data to access [said] *the* selected version of the update; and *the wireless device receiving, based on a download restriction, at a predetermined location different from the first location, the selected version of the update from the server system.*
2. The method of claim 1, further comprising: *the wireless device* requesting meta-data associated with the update.
3. The method of claim 1, further comprising: the server system determining whether the compatibility information is included in a compatibility matrix associated with the update; and the server system transmitting the data specifying [a] *the download* location of [a] *the* version of the update in response to determining that the compatibility information is included in the compatibility matrix.
4. A non-transitory, machine-readable storage medium having stored thereon [data representing sets of] machine-readable instructions which, when executed by a wireless device, [configure] *cause* the wireless device to *perform a method, the method comprising:* [receive] *receiving, at a first location*, a notification indicating that an update package is available for the

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wireless device, the update package comprising a plurality of versions of an update;

[transmit] *transmitting*, in response to receipt of the notification, device-specific information to a server system, the device-specific information comprising compatibility information relating to the wireless device;

[receive] *receiving* data specifying a *download* location of a version of the update from the server system, the version having been selected, based on the compatibility information; [and]

[use] *using* the received data to access [said] *the* selected version of the update; and

receiving, based on a download restriction, at a predetermined location different from the first location, the selected version of the update from the server system.

5. The machine-readable medium of claim 4, wherein [the sets of instructions, when executed by the wireless device, further cause the wireless device to request] *the method further comprises: requesting* meta-data associated with the update.

6. [A] *The* method according to claim 1, wherein the received data comprises a universal resource locator.

7. [A] *The* method according to claim 1, wherein the plurality of versions relate to a plurality of languages.

8. A method of providing an update to a wireless device, comprising:

sending, to a wireless device *at a first location*, a notification indicating that an update package is available for the wireless device, the update package comprising a plurality of versions of an update;

receiving, from the wireless device, device-specific information comprising compatibility information relating to the wireless device;

selecting, based on the received compatibility information, a version of the update from the plurality of versions; [and]

sending data for receipt at the wireless device, the data specifying a *download* location of the selected version; and

providing, based on a download restriction, the selected version to the wireless device when the wireless device is in a predetermined location, the predetermined location being different than the first location.

9. [A] *The* method according to claim 8, further comprising:

determining whether the compatibility information is included in a compatibility matrix associated with the update; and

transmitting the data specifying [a] *the* download location of [a] *the* version of the update in response to determining that the compatibility information is included in the compatibility matrix.

10. [A] *The* method according to claim 8, wherein the data specifying [a] *the* download location of the selected version comprises a universal resource locator with which the selected version can be downloaded.

11. [A] *The* method according to claim 8, wherein the plurality of versions relates to a plurality of languages.

12. [A] *The* method according to claim 8, further comprising [providing updates to a plurality of wireless devices via a network, wherein the method comprises]: scheduling [the] *a* timing of [provision of updates] *providing the selected version* to the wireless devices so that no more than a predefined number of updates are simultaneously provided via the network.

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[13. A method according to claim 12, further comprising scheduling the provision of the selected version so that the selected version is provided to the wireless device when the wireless device is in a predetermined location.]

14. A server system for providing an update to a wireless device, the server system comprising a processor and [one or more] *a* communications [interfaces] *interface* for communicating with one or more wireless devices, the server system being configured to:

send, to a wireless device *at a first location*, via [said one or more] *the* communications interfaces, a notification indicating that an update package is available for the wireless device, the update package comprising a plurality of versions of an update;

receive, from the wireless device via [said one or more] *the* communications interfaces, device-specific information comprising compatibility information relating to the wireless device;

select, [by] *at* the processor, based on the received compatibility information, a version of the update; [and] send [data], via [said one or more] *the* communications interfaces, for receipt at the wireless device, *data* specifying a *download* location of the selected version; and

provide, based on a download restriction, the selected version to the wireless device when the wireless device is in a predetermined location, the predetermined location being different than the first location.

15. [A] *The* system according to claim 14, further comprising: a *software* server system storing the plurality of versions.

16. [A] *The* system according to claim 14, further comprising: a management console for configuring rules associated with the update.

17. A non-transitory, computer-readable storage medium storing computer readable instructions thereon for execution on a computing system to implement a method of providing an update to a wireless device, the method comprising:

sending, to a wireless device *at a first location*, a notification indicating that an update package is available for the wireless device, the update package comprising a plurality of versions of the update;

receiving, from the wireless device, device-specific information comprising compatibility information relating to the wireless device;

selecting, based on the received compatibility information, a version of the update; [and]

sending data for receipt at the wireless device, *a data* specifying a *download* location of the selected version; and

providing, based on a download restriction, the selected version to the wireless device when the wireless device is in a predetermined location, the predetermined location being different than the first location.

18. A wireless device [configured to], comprising:

a memory comprising computer-executable software;
a communication interface;

a processor in data communication with the memory and the communication interface, the processor being configured to execute the software and cause the wireless device to:

receive, *at a first location*, a notification indicating that an update package is available for the wireless device, the update package comprising a plurality of versions of an update;

transmit, in response to receiving [a said] the notification, device-specific information comprising compatibility information relating to the wireless device to a server system;

receive data specifying a *download* location of a version of the update from the server system, the version having been selected[,] based on the compatibility information; and

use the received data to access said selected version of the update; and

receive, based on a download restriction, at a predetermined location different from the first location, the selected version of the update from the server system.

19. A method of updating a wireless device, comprising:

a wireless device receiving, *at a first location*, a notification indicating that an update package is available for the wireless device, the update package comprising a plurality of versions of an update;

the wireless device transmitting, in response to receipt of said notification, device-specific information to a server system, the device-specific information comprising compatibility information relating to the wireless device;

the wireless device receiving data specifying a *download* location of a version of the update from the server system, the version being associated with the compatibility information; [and]

the wireless device using the received data to access [said] the selected version of the update; and

the wireless device receiving, based on a download restriction, at a predetermined location different from the first location, the selected version of the update from the server system.

20. A method of distributing software, comprising, at a server system comprising memory and one or more processors:

receiving a software package for distribution, the software package having rules associated therewith;

identifying a wireless device to which to provide the software package, based on the rules and device-specific information stored in the memory; and

providing the software package via a wireless network to the identified wireless device when the identified wireless device is at a first location; and

restricting provision of the software package to the identified wireless device, so that the software package is provided to the identified wireless device at a predetermined location, the predetermined location being different than the first location.

21. The method of claim 20, further comprising, at the server system:

providing the software package to each of a plurality of identified wireless devices via a respective connection; and

configuring two or more of the connections so as to restrict simultaneous provision of the software package.

22. The method of claim 21, further comprising, at the server system:

scheduling a time for the provision of the software package to the plurality of identified wireless devices.

23. The method of claim 21, further comprising, at the server system: *setting a random time to provide the software package to the plurality of identified wireless devices.*

24. The method of claim 20, wherein the software package comprises an update package.

25. A server system for distributing software, the server system comprising:

memory comprising executable software and device specific information for each of a plurality of wireless devices; and one or more processors configured to execute the executable software and cause the server system to:

receive a software package for distribution, the software package having rules associated therewith;

identify, at the processor, based on the device specific information and the rules, a wireless device to which to provide the software package;

provide the software package, via a wireless network, to the identified wireless device when the identified wireless device is at a first location; and

restrict provision of the software package to the identified wireless device, so that the software package is provided to the identified wireless device at a predetermined location, the predetermined location being different than the first location.

26. The server system of claim 25, further configured to:

provide the software package to each of a plurality of identified wireless devices via a respective connection; and

configure two or more of the connections so as to restrict simultaneous provision of the software package.

27. The server system of claim 26, further configured to:

schedule a time for the provision of the software package to the plurality of identified wireless devices.

28. The server system of claim 26, further configured to:

set a random time to provide the software package to the plurality of identified wireless devices.

29. The server system of claim 25, wherein the software package comprises an update package.

30. A non-transitory computer-readable storage medium storing computer readable instructions thereon for execution on a computing system to implement a method of distributing software, the method comprising:

receiving a software package for distribution, the software package having rules associated therewith;

identifying a wireless device to which to provide the software package, based on the rules and device-specific information stored in a memory of the computing system;

providing the software package via a wireless network to the identified wireless device when the identified wireless device is at a first location; and

restricting provision of the software package to the identified wireless device, so that the software package is provided to the identified wireless device at a predetermined location, the predetermined location being different than the first location.

31. The non-transitory computer-readable storage medium of claim 30, wherein the method further comprises:

providing the software package to each of a plurality of identified wireless devices via a respective connection; and

configuring two or more of the connections so as to restrict simultaneous provision of the software package.

32. The non-transitory computer-readable storage medium of claim 31, wherein the method further comprising:

scheduling a time for the provision of the software package to the identified plurality of wireless devices.

33. The non-transitory computer-readable storage medium of claim 31, wherein the method further comprises:

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setting a random time to provide the software package to the plurality of identified wireless devices.

34. The non-transitory computer-readable storage medium of claim 30, wherein the software package comprises an update package.

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

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DATED : March 28, 2017
INVENTOR(S) : Sanjiv Maurya, Chih-Yu Chow and Tony Robinson

Page 1 of 1

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

In the Claims

Column 6, Line 13, In Claim 1, delete “update” and insert -- updated --, therefor.

Column 8, Line 11, In Claim 14, delete “interfaces,” and insert -- interface, --, therefor.

Column 8, Line 16, In Claim 14, delete “interfaces,” and insert -- interface, --, therefor.

Column 8, Line 50, In Claim 17, delete “a” and insert -- the --, therefor.

Signed and Sealed this
Eighteenth Day of July, 2017

A handwritten signature in cursive script that reads "Joseph Matal".

Joseph Matal
*Performing the Functions and Duties of the
Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office*