



(12) **United States Patent**
Rao et al.

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(54) **ELECTRONIC DEVICE NETWORK EMPLOYING PROVISIONING TECHNIQUES TO UPDATE FIRMWARE AND/OR SOFTWARE IN ELECTRONIC DEVICES**

5,442,771 A	8/1995	Filepp et al.	395/650
5,479,637 A	12/1995	Lisimaque et al.	395/430
5,579,522 A	11/1996	Christeson et al.	395/652
5,596,738 A	1/1997	Pope	395/430
5,598,534 A	1/1997	Haas	395/200.09
5,608,910 A	3/1997	Shimakura	395/670
5,623,604 A	4/1997	Russell et al.	395/200.1
5,666,293 A	9/1997	Metz et al.	395/200.5

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(Continued)

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FOREIGN PATENT DOCUMENTS

CA 2339923 3/2000

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 589 days.

(Continued)

OTHER PUBLICATIONS

This patent is subject to a terminal disclaimer.

"Focus on OpenView A guide to Hewlett-Packard's Network and Systems Management Platform", Nathan J. Muller, pp. 1-291, CBM Books, published 1995.

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(Continued)

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Related U.S. Application Data

(57) **ABSTRACT**

(60) Provisional application No. 60/453,313, filed on Mar. 10, 2003.

(51) **Int. Cl.**
H04W 4/00 (2009.01)

(52) **U.S. Cl.** **455/551**; 455/417; 455/419; 455/418; 455/414.1; 455/550.1; 709/203; 717/173; 717/170; 717/171

(58) **Field of Classification Search** 455/419, 455/418, 414.4, 420, 451, 417, 550.1, 414.1; 395/662; 709/203; 717/173, 170, 171
See application file for complete search history.

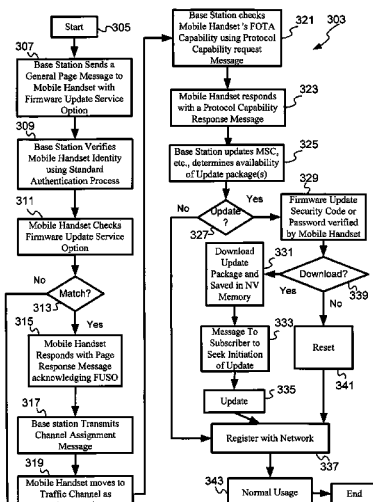
Disclosed herein is a network for managing one of a firmware update service option and a software update service option in electronic devices such as, for example, a mobile handset. The network is capable of determining whether a mobile handset is capable of facilitating firmware updates based upon, for example, firmware update service options (FUSO) and associated FUSO numbers. When a new mobile phone is used for the first time in the electronic device network, an OTAPA process may be employed not only to program number assignment module parameters but also for initiating one of a firmware or software update or for setting flags and parameters that facilitate subsequent firmware or software updates. A mobile handset, may periodically or as necessary, communicate ability to update firmware and/or software to the electronic device network.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,261,055 A 11/1993 Moran et al. 395/275

30 Claims, 4 Drawing Sheets



U.S. PATENT DOCUMENTS

5,752,039	A	5/1998	Tanimura	395/712
5,778,440	A	7/1998	Yiu et al.	711/154
5,790,974	A	8/1998	Tognazzini	701/204
5,878,256	A	3/1999	Bealkowski et al.	395/652
5,960,445	A	9/1999	Tamori et al.	707/203
6,009,497	A	12/1999	Wells et al.	711/103
6,029,065	A *	2/2000	Shah	455/414.4
6,038,636	A	3/2000	Brown, III et al.	711/103
6,047,071	A *	4/2000	Shah	380/273
6,064,814	A	5/2000	Capriles et al.	395/701
6,073,206	A	6/2000	Piwonka et al.	711/102
6,073,214	A	6/2000	Fawcett	711/133
6,088,759	A	7/2000	Hasbun et al.	711/103
6,105,063	A	8/2000	Hayes, Jr.	709/223
6,112,024	A	8/2000	Almond et al.	395/703
6,112,197	A	8/2000	Chatterjee et al.	707/3
6,126,327	A	10/2000	Bi et al.	395/200.51
6,128,695	A	10/2000	Estakhri et al.	711/103
6,144,849	A *	11/2000	Nodoushani et al.	455/419
6,157,559	A	12/2000	Yoo	365/52
6,163,274	A	12/2000	Lindgren	340/825.44
6,198,946	B1	3/2001	Shin et al.	455/561
6,279,153	B1	8/2001	Bi et al.	717/11
6,311,322	B1	10/2001	Ikeda et al.	717/1
6,438,585	B2	8/2002	Mousseau et al.	709/206
6,615,038	B1 *	9/2003	Moles et al.	455/418
6,725,056	B1 *	4/2004	Moles et al.	455/524
2001/0029178	A1	10/2001	Criss et al.	455/419
2001/0047363	A1	11/2001	Peng	707/104.1
2001/0048728	A1	12/2001	Peng	375/354
2002/0028673	A1 *	3/2002	Chang et al.	455/419
2002/0078209	A1	6/2002	Peng	709/227
2002/0116261	A1	8/2002	Moskowitz et al.	705/14
2002/0131404	A1	9/2002	Mehta et al.	370/352

2002/0152005	A1	10/2002	Bagnordi	700/234
2002/0156863	A1	10/2002	Peng	709/217
2002/0157090	A1	10/2002	Anton, Jr.	717/178
2003/0033599	A1	2/2003	Rajaram et al.	717/173
2003/0037075	A1	2/2003	Hannigan et al.	707/500
2003/0061384	A1	3/2003	Nakatani	709/245
2003/0186695	A1 *	10/2003	Bridges et al.	455/432
2004/0031029	A1 *	2/2004	Lee et al.	717/171

FOREIGN PATENT DOCUMENTS

JP	8202626	8/1996
KR	2002-0034228	5/2000
KR	2001-0100328	11/2001

OTHER PUBLICATIONS

- "Client Server computing in mobile environments", J. Jing et al, ACM Computing Surveys, vol. 31, Issue 2, pp. 117-159, ACM Press, Jul. 1999.
- "ESW4: enhanced scheme for WWW computing in wireless communication environments", S. Hadjiefthymiades, et al, ACM SIGCOMM Computer Communication Review, vol. 29, Issue 5, pp. 24-35, ACM Press, Oct. 1999.
- "Introducing quality-of-service and traffic classes in wireless mobile networks", J. Sevanto, et al, Proceedings of the 1st ACM international workshop on Wireless mobile multimedia, pp. 21-29, ACM Press, 1998.
- "Any Network, Any Terminal, Anywhere", A. Fasbender et al, IEEE Personal Communications, Apr. 1999, pp. 22-30, IEEE Press, 1999.
- TIA/EIA/IS-683-A: Over-the-Air Service Provisioning of Mobile Stations in Spread Spectrum Systems; May 1998.
- 3GPP2 C.R1001-A 2.0; Administration of Parameter Value Assignments for cdma2000 Spread Spectrum Standards, Release A; Jul. 14, 2000.

* cited by examiner

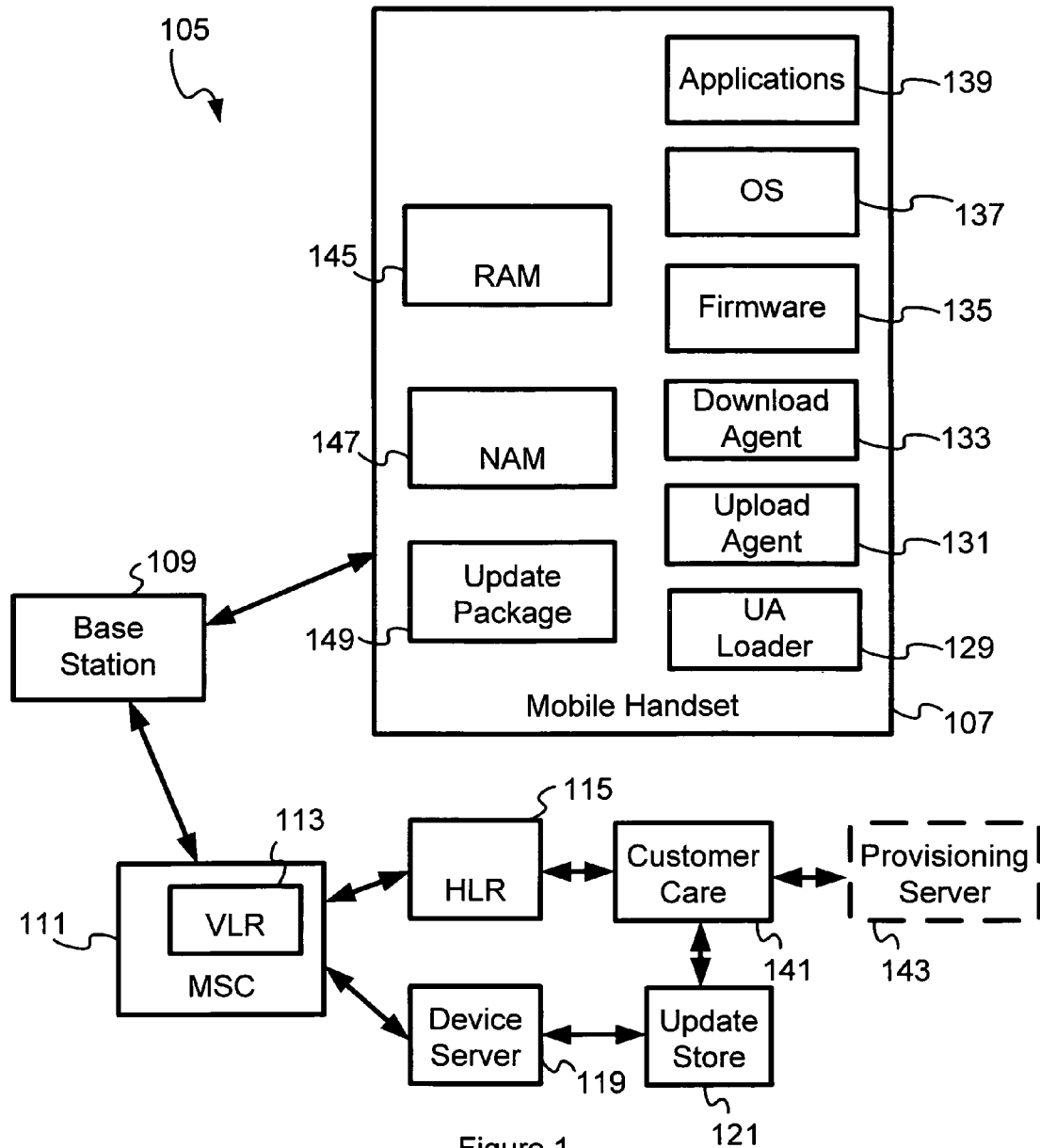


Figure 1

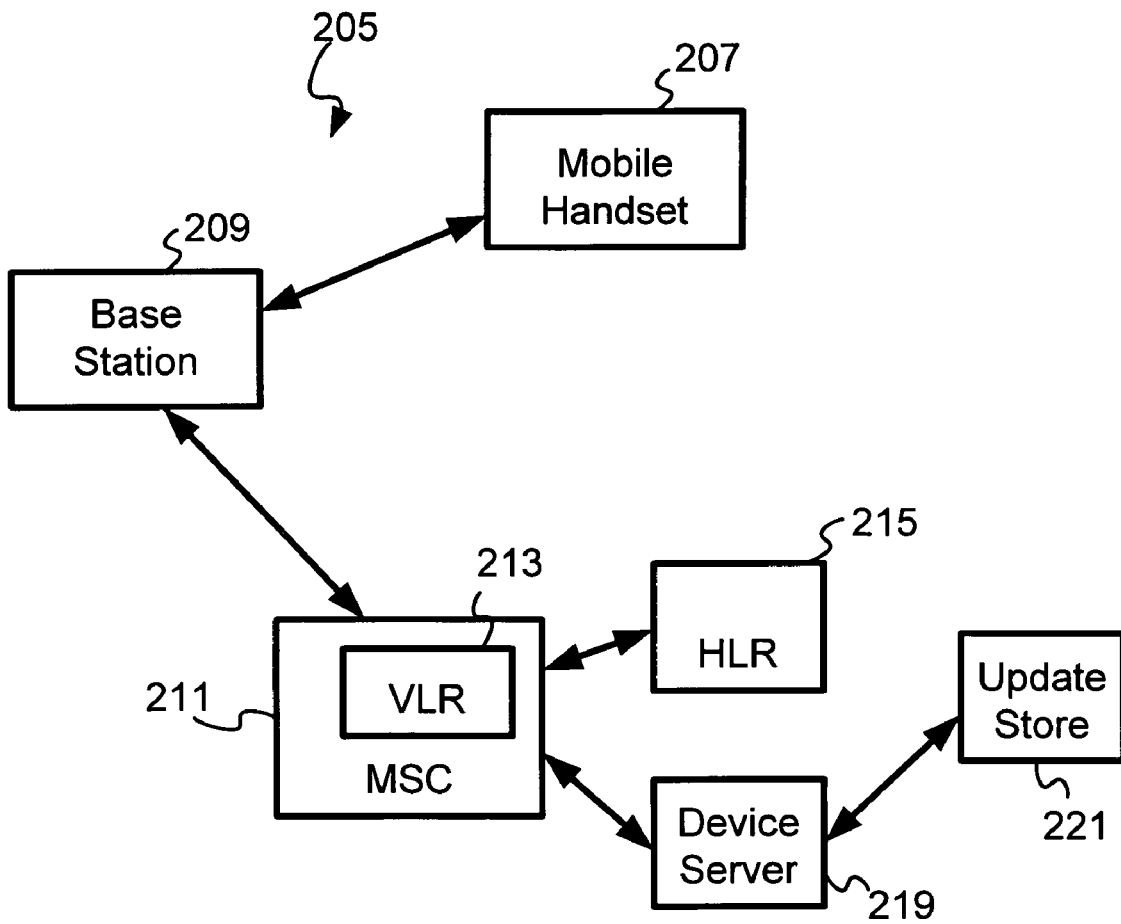


Figure 2

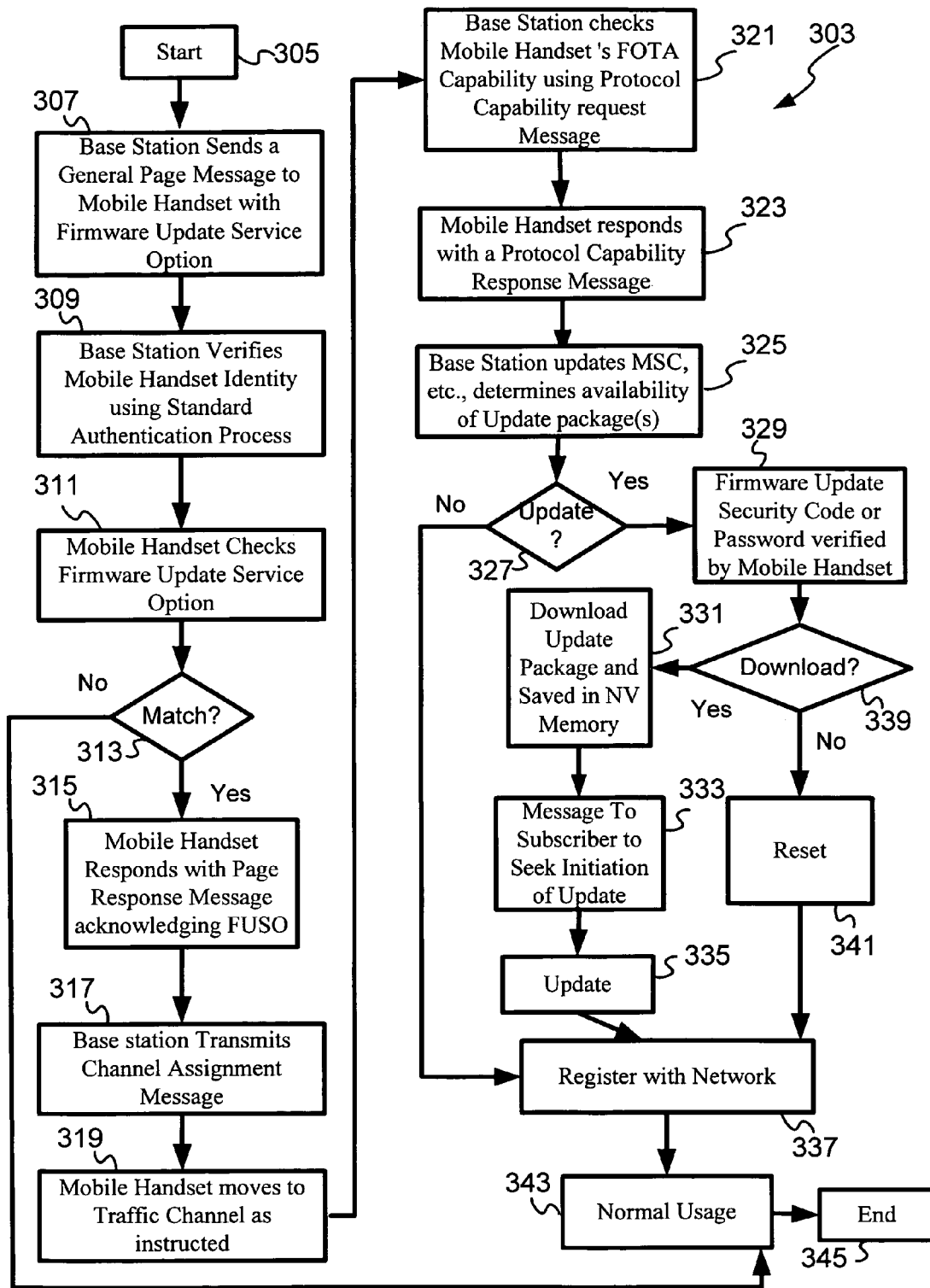


Figure 3

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