



US008751801B2

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

(10) **Patent No.:** **US 8,751,801 B2**  
(45) **Date of Patent:** **Jun. 10, 2014**

(54) **SYSTEM AND METHOD FOR AUTHENTICATING USERS USING TWO OR MORE FACTORS**

9/3231 (2013.01); H04L 63/083 (2013.01); G06Q 20/12 (2013.01); H04L 63/0853 (2013.01); H04L 63/18 (2013.01)

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USPC ..... 713/168; 726/7  
(58) **Field of Classification Search**  
USPC ..... 713/186, 201, 176; 382/125  
See application file for complete search history.

(73) Assignee: **EMC Corporation**, Hopkinton, WA (US)

(56) **References Cited**

(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 2368 days.

U.S. PATENT DOCUMENTS

5,953,700 A \* 9/1999 Kanevsky et al. .... 704/270.1  
6,161,139 A 12/2000 Win et al.

(Continued)

(21) Appl. No.: **11/112,938**

FOREIGN PATENT DOCUMENTS

(22) Filed: **Apr. 22, 2005**

EP 04760929 4/2007  
WO 0118636 3/2001  
WO 0163878 8/2001

(65) **Prior Publication Data**

US 2005/0268107 A1 Dec. 1, 2005

OTHER PUBLICATIONS

Looi, M. ; Enhanced authentication services for Internet systems using mobilenetworks; Publication Date: 2001 vol. 6, on pp. 3468-3472 vol. 6.\*

(Continued)

**Related U.S. Application Data**

(63) Continuation-in-part of application No. 11/050,549, filed on Feb. 3, 2005, now Pat. No. 7,730,321, and a continuation-in-part of application No. 10/435,322, filed on May 9, 2003, now Pat. No. 7,100,049.

Primary Examiner — Philip Chea

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(60) Provisional application No. 60/565,057, filed on Apr. 23, 2004, provisional application No. 60/565,692, filed on Apr. 26, 2004.

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(51) **Int. Cl.**

H04L 9/32 (2006.01)  
H04L 29/06 (2006.01)  
G06F 21/31 (2013.01)  
G06F 21/42 (2013.01)  
G06F 21/35 (2013.01)  
G06Q 20/40 (2012.01)  
G06Q 20/12 (2012.01)

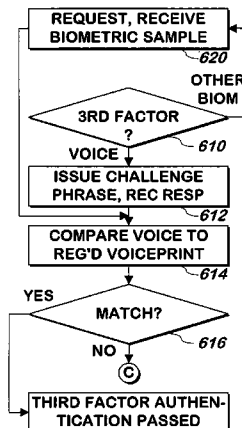
(57) **ABSTRACT**

A method for authenticating a user based on a plurality of authentication factors includes a step of receiving a first authentication factor from a first communication device of the user. The first authentication factor includes a password. The method includes a step of receiving a second authentication factor. The second authentication factor comprises at least one of at least one device identifier of the first communication device of the user and data transmitted to or received from a second communication device of the user. The method also includes a step of authenticating the user based on at least the received plurality of authentication factors.

(52) **U.S. Cl.**

CPC ..... G06F 21/35 (2013.01); H04L 63/0861 (2013.01); G06F 21/31 (2013.01); G06F 21/42 (2013.01); G06Q 20/40145 (2013.01); H04L

**20 Claims, 6 Drawing Sheets**



(56)

**References Cited**

U.S. PATENT DOCUMENTS

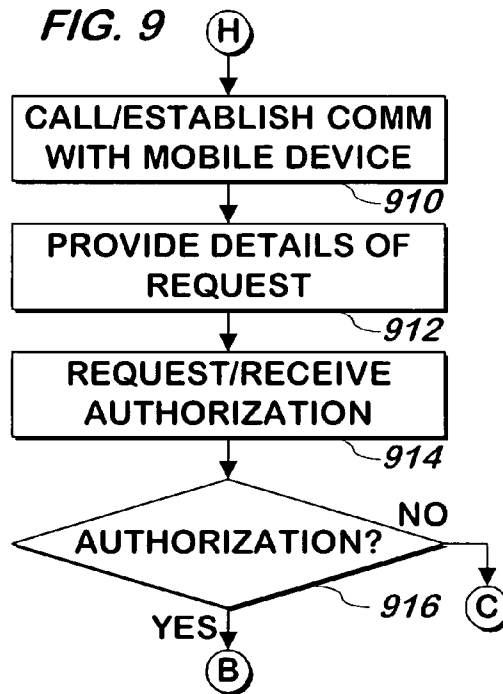
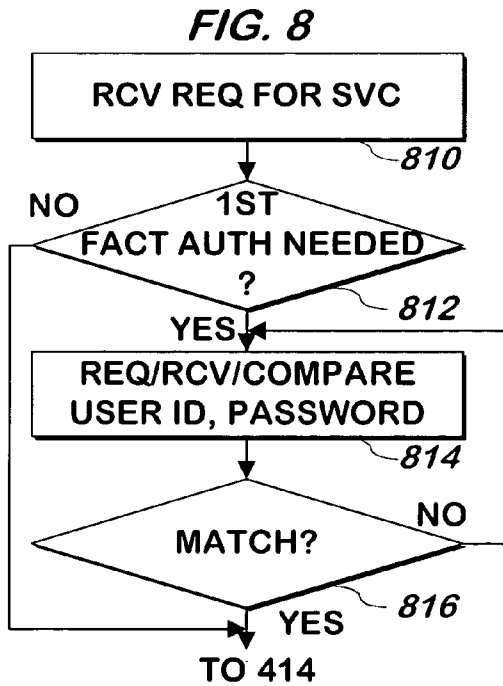
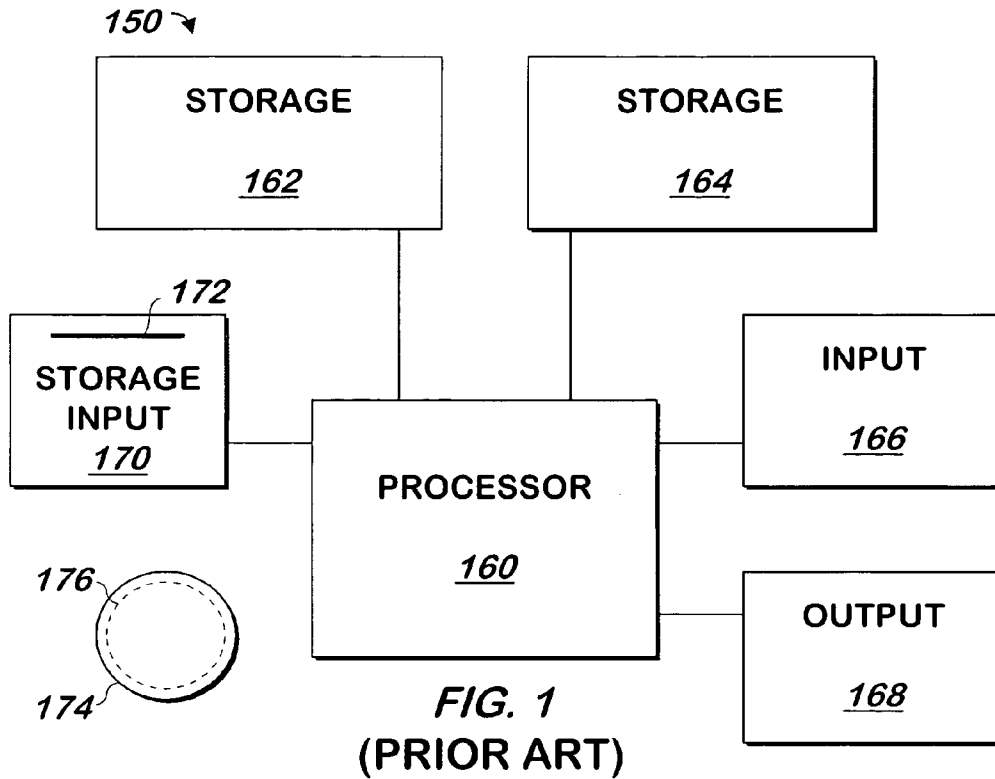
6,389,542	B1	5/2002	Flyntz	
6,401,125	B1	6/2002	Makarios et al.	
6,632,248	B1	10/2003	Isaac et al.	
7,353,396	B2*	4/2008	Micali et al.	713/176
7,426,750	B2*	9/2008	Cooper et al.	726/26
7,480,915	B2*	1/2009	Costa Requena et al.	719/311
2003/0051147	A1*	3/2003	Maeda et al.	713/186
2003/0191949	A1*	10/2003	Odagawa	713/186

2004/0017934	A1*	1/2004	Kocher	382/125
2005/0050322	A1*	3/2005	Mizrah	713/168
2005/0071673	A1*	3/2005	Saito	713/201
2005/0209974	A1*	9/2005	Okunseinde et al.	705/64

OTHER PUBLICATIONS

Written Opinion of the International Searching Authority, Oct. 5, 2006, 3 pages.  
International Search Report, Oct. 5, 2006, 2 pages.

\* cited by examiner



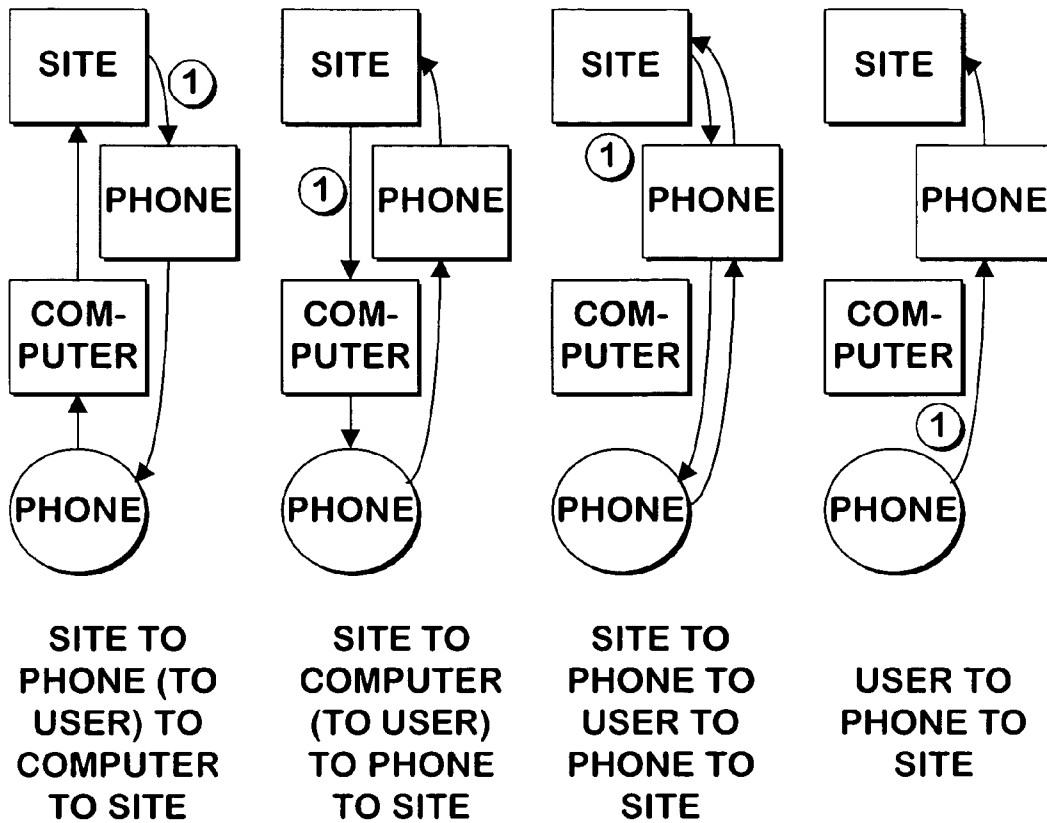


FIG. 2

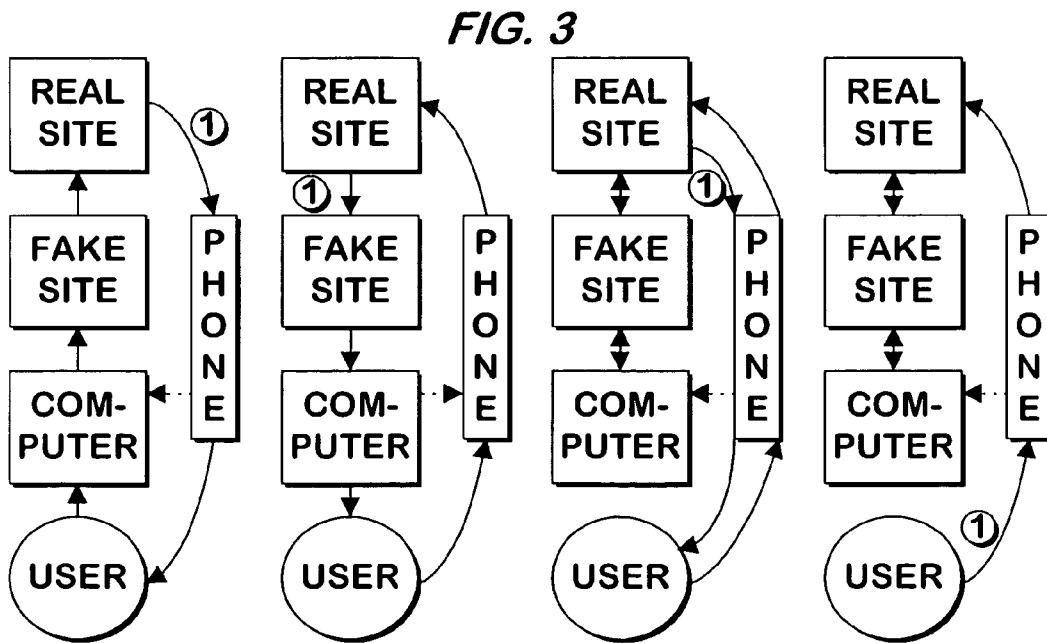


FIG. 3

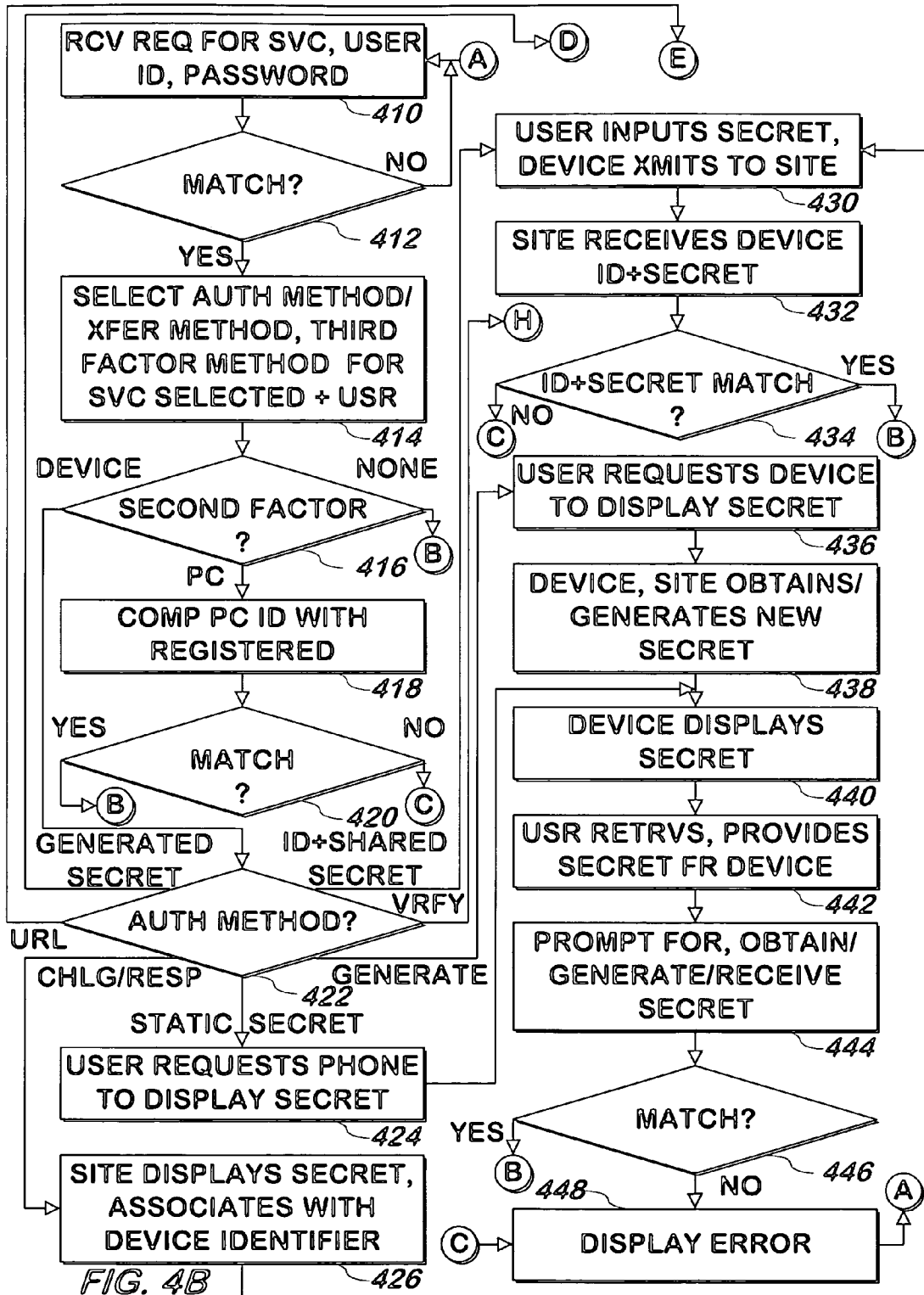


FIG. 4B

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