



US008155298B2

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

(10) **Patent No.:** US 8,155,298 B2  
(45) **Date of Patent:** \*Apr. 10, 2012

(54) **TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK**

4,310,726 A 1/1982 Asmuth ..... 179/18  
4,313,035 A 1/1982 Jordan et al.  
4,348,554 A 9/1982 Asmuth  
4,569,041 A 2/1986 Takeuchi et al.  
4,608,685 A 8/1986 Jain et al.

(75) **Inventors:** Samuel F. Wood, Los Altos Hills, CA (US); Jerry A. Klein, Los Altos, CA (US); Margaret Susan Asprey, Los Altos, CA (US)

(Continued)

**FOREIGN PATENT DOCUMENTS**

(73) **Assignee:** Telemaze LLC, Los Altos, CA (US)

DE 19813179 9/1999

(Continued)

(\* ) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1355 days.

**OTHER PUBLICATIONS**

This patent is subject to a terminal disclaimer.

RFC 3298 Service in the PSTN, Aug. 2002

(Continued)

(21) **Appl. No.:** 11/428,822

*Primary Examiner* — Rasha Al Aubaidi

(22) **Filed:** Jul. 5, 2006

(74) *Attorney, Agent, or Firm* DLA Piper LLP (US)

(65) **Prior Publication Data**

(57) **ABSTRACT**

US 2006/0239436 A1 Oct. 26, 2006

**Related U.S. Application Data**

(63) Continuation of application No. 10/426,279, filed on Apr. 30, 2003, now Pat. No. 7,324,635, which is a continuation-in-part of application No. 09/565,565, filed on May 4, 2000, now Pat. No. 6,574,328.

In one embodiment, the system includes a processor, referred to herein as a tandem access controller (TAC), coupled to the PSTN, where the TAC allows a subscriber to set-up and make changes to the configuration of his or her phone line or other communications device. Such changes include selective call forwarding. In one embodiment, the TAC is controlled by the subscriber using the web. The TAC is coupled internally to the PSTN in a local service area and is outside the central office of the subscriber. A calling party makes a first call to the subscriber using the subscriber's public telephone number. The TAC receives the first call prior to the call reaching the subscriber's terminating central office, which in some cases avoids a toll. The TAC then carries out the subscriber's instructions for the first call, such as making one or more second calls using telephone numbers different from the subscriber's public telephone number. When the second call is answered, the answering phone is connected by the TAC to the caller.

(51) **Int. Cl.**

H04M 3/42 (2006.01)  
H04M 7/00 (2006.01)

(52) **U.S. Cl.** ..... 379/211.01; 379/224

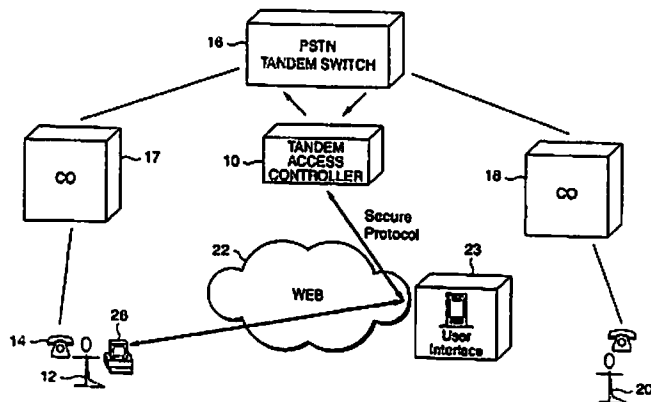
(58) **Field of Classification Search** ..... 379/224, 379/221.11, 221.08, 211.01, 221  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

4,100,377 A 7/1978 Flanagan  
4,238,851 A 12/1980 Takahashi et al.

**42 Claims, 11 Drawing Sheets**



## US 8,155,298 B2

Page 2

U.S. PATENT DOCUMENTS					
4,611,094 A	9/1986	Asmuth et al.	5,428,663 A	6/1995	Grimes et al.
4,611,096 A	9/1986	Asmuth et al.	5,430,719 A	7/1995	Weisser, Jr.
4,630,260 A	12/1986	Toy et al.	5,434,913 A	7/1995	Tung et al.
4,630,262 A	12/1986	Callens et al.	5,436,898 A	7/1995	Bowen et al.
4,661,947 A	4/1987	Lea et al.	5,438,614 A	8/1995	Rozman et al.
4,674,082 A	6/1987	Flanagin et al.	5,444,709 A	8/1995	Riddle
4,679,190 A	7/1987	Dins et al.	5,448,623 A	9/1995	Wiedeman et al.
4,679,191 A	7/1987	Nelson et al.	5,452,289 A	9/1995	Sharma et al.
4,707,831 A	11/1987	Weir et al.	5,453,986 A	9/1995	Davis et al.
4,715,026 A	12/1987	Eberspaecher	5,455,853 A	10/1995	Cebulka et al.
4,723,238 A	2/1988	Isreal et al.	5,457,684 A	10/1995	Bharucha et al.
4,757,497 A	7/1988	Beierle et al.	5,469,500 A	11/1995	Satter et al. 379 201
4,761,779 A	8/1988	Nara et al.	5,471,470 A	11/1995	Sharma et al.
4,771,425 A	9/1988	Baran et al.	5,471,616 A	11/1995	Johnson et al.
4,815,071 A	3/1989	Shimizu	5,479,411 A	12/1995	Klein
4,819,228 A	4/1989	Baran et al.	5,485,457 A	1/1996	Aramaki
4,862,451 A	8/1989	Closs et al.	5,495,567 A	2/1996	Iizawa et al.
4,866,704 A	9/1989	Bergman	5,497,339 A	3/1996	Bernard
4,872,159 A	10/1989	Hemmady et al.	5,521,914 A	5/1996	Mavraganis et al.
4,872,160 A	10/1989	Hemmady et al.	5,526,353 A	6/1996	Henley et al.
4,885,739 A	12/1989	Read et al.	5,537,403 A	7/1996	Cloonan et al.
4,903,261 A	2/1990	Baran et al.	5,541,917 A	7/1996	Farris
4,926,416 A	5/1990	Weik	5,544,161 A	8/1996	Bigham et al.
4,932,022 A	6/1990	Keeney et al.	5,544,163 A	8/1996	Madonna
4,933,931 A	6/1990	Kokubo	5,544,164 A	8/1996	Baran
4,953,158 A	8/1990	Schreur	5,544,168 A	8/1996	Jeffrey et al.
4,953,198 A	8/1990	Daly et al.	5,553,063 A	9/1996	Dickson
4,958,341 A	9/1990	Hemmady et al.	5,557,658 A	9/1996	Gregorek et al.
4,962,497 A	10/1990	Ferenc et al.	5,563,937 A	10/1996	Bruno et al.
4,969,184 A	11/1990	Gordon et al.	5,566,236 A	10/1996	Mel.ampy et al.
4,970,721 A	11/1990	Aczel et al.	5,568,475 A	10/1996	Doshi et al.
4,973,837 A	11/1990	Bradbeer	5,570,355 A	10/1996	Dail et al.
4,975,695 A	12/1990	Almond et al.	5,572,583 A	11/1996	Wheeler, Jr et al.
4,996,685 A	2/1991	Farese et al.	5,577,038 A	11/1996	Miyahara
5,008,929 A	4/1991	Olsen et al.	5,577,041 A	11/1996	Sharma et al.
5,014,266 A	5/1991	Bales et al.	5,579,308 A	11/1996	Humpleman
5,018,136 A	5/1991	Gollub	5,590,181 A	12/1996	Hogan et al.
5,020,058 A	5/1991	Holden et al.	5,592,477 A	1/1997	Farris et al.
5,022,071 A	6/1991	Mozer et al.	5,592,538 A	1/1997	Kosowsky et al.
5,048,081 A	9/1991	Gavaras et al.	5,594,732 A	1/1997	Bell et al.
5,051,983 A	9/1991	Kammerl	5,600,643 A	2/1997	Robrock, II
5,093,827 A	3/1992	Franklin et al.	5,600,649 A	2/1997	Sharma et al.
5,115,431 A	5/1992	Williams et al.	5,602,991 A	2/1997	Berteau
5,150,357 A	9/1992	Hopner et al.	5,604,737 A	2/1997	Iwami et al.
5,157,662 A	10/1992	Tadamura et al.	5,606,594 A	2/1997	Register et al.
5,197,067 A	3/1993	Fujimoto et al.	5,608,786 A	3/1997	Gordon
5,208,806 A	5/1993	Hasegawa	5,613,069 A	3/1997	Walker
5,218,602 A	6/1993	Grant et al.	H1641 H	4/1997	Sharman
5,231,633 A	7/1993	Hluchyj et al.	5,621,727 A	4/1997	Vaudreuil
5,241,588 A	8/1993	Babson, III et al.	5,625,677 A	4/1997	Feiertag et al.
5,247,571 A	9/1993	Kay et al.	5,628,004 A	5/1997	Gormley et al.
5,268,900 A	12/1993	Hluchyj et al.	5,631,897 A	5/1997	Pacheco et al.
5,274,635 A	12/1993	Rahman et al.	5,640,446 A	6/1997	Everett et al.
5,291,489 A	3/1994	Morgan et al.	5,646,945 A	7/1997	Bergler
5,297,191 A	3/1994	Gierszberg	5,650,999 A	7/1997	Dickson
5,301,189 A	4/1994	Schmidt et al.	5,654,957 A	8/1997	Koyama
5,305,308 A	4/1994	English et al.	5,659,541 A	8/1997	Chan
5,311,582 A	5/1994	Davenport et al.	5,659,542 A	8/1997	Bell et al.
5,327,428 A	7/1994	Van As et al.	5,673,262 A	9/1997	Shimizu 370/395
5,341,374 A	8/1994	Lewen et al.	5,680,437 A	10/1997	Segal
5,351,276 A	9/1994	Doll, Jr. et al.	5,684,799 A	11/1997	Bigham et al.
5,351,286 A	9/1994	Nici	5,689,553 A	11/1997	Ahuja et al.
5,353,283 A	10/1994	Tsuchiya	5,692,126 A	11/1997	Templeton et al.
5,359,598 A	10/1994	Steagall et al.	5,701,301 A	12/1997	Weisser, Jr.
5,365,521 A	11/1994	Ohnishi et al.	5,706,286 A	1/1998	Reiman et al.
5,379,293 A	1/1995	Kanno et al.	5,710,769 A	1/1998	Anderson et al.
5,381,405 A	1/1995	Daugherty et al.	5,712,903 A	1/1998	Bartholomew et al.
5,381,466 A	1/1995	Shibayama et al.	5,712,908 A	1/1998	Brinkman et al.
5,383,183 A	1/1995	Yoshida	5,724,412 A	3/1998	Srinivasan
5,384,840 A	1/1995	Blatchford et al.	5,727,057 A	3/1998	Emery et al.
5,390,184 A	2/1995	Morris	5,729,544 A	3/1998	Lev et al.
5,396,491 A	3/1995	Newman	5,732,074 A	3/1998	Spaur et al.
5,420,858 A	5/1995	Marshall et al.	5,732,078 A	3/1998	Arango
5,422,882 A	6/1995	Hiller et al.	5,732,216 A	3/1998	Logan et al.
5,423,003 A	6/1995	Berteau	5,737,320 A	4/1998	Madonna
5,426,636 A	6/1995	Hiller et al.	5,737,331 A	4/1998	Hoppal et al.
5,428,607 A	6/1995	Hiller et al.	5,737,333 A	4/1998	Civanlar et al.
5,428,616 A	6/1995	Field et al.	5,737,533 A	4/1998	De Hond
			5,740,164 A	4/1998	Liron

## US 8,155,298 B2

Page 3

5,740,231 A	4/1998	Cohn et al.	6,094,478 A	7/2000	Shepherd et al.
5,742,596 A	4/1998	Baratz et al.	6,104,800 A	8/2000	Benson
5,742,905 A	4/1998	Pepe et al.	6,134,235 A	10/2000	Goldman et al.
5,751,706 A	5/1998	Land et al.	6,141,341 A	10/2000	Jones et al.
5,751,968 A	5/1998	Cohen	6,161,128 A	12/2000	Smyk
5,754,641 A	5/1998	Voit et al.	6,161,134 A	12/2000	Wang et al.
5,764,628 A	6/1998	Davis et al.	6,163,598 A	12/2000	Moore
5,764,736 A	6/1998	Shachar et al.	6,167,040 A	12/2000	Haeggstrom
5,764,750 A	6/1998	Chau et al.	6,175,860 B1	1/2001	Gaucher
5,764,756 A	6/1998	Onweller	6,188,688 B1	2/2001	Buskirk, Jr.
5,777,991 A	7/1998	Adachi et al.	6,212,261 B1	4/2001	Meubus et al.
5,790,538 A	8/1998	Sugar	6,216,158 B1	4/2001	Luo et al.
5,793,762 A	8/1998	Penners et al.	6,240,097 B1	5/2001	Wesolek et al.
5,793,771 A	8/1998	Darland et al.	6,259,692 B1	7/2001	Shtivelman et al.
5,799,072 A	8/1998	Vulcan et al.	6,262,978 B1	7/2001	Bruno et al.
5,799,154 A	8/1998	Kuriyan	6,266,539 B1	7/2001	Pardo
5,802,160 A	9/1998	Kugell et al.	6,278,707 B1	8/2001	MacMillan et al.
5,805,587 A	9/1998	Norris et al.	6,301,609 B1	10/2001	Aravamudan et al.
5,805,588 A	9/1998	Petersen	6,308,201 B1	10/2001	Pivovar et al.
5,806,057 A	9/1998	Gormley et al.	6,324,183 B1	11/2001	Miller et al.
5,809,022 A	9/1998	Byers et al.	6,327,258 B1	12/2001	Deschaine et al. .... 370/356
5,809,128 A	9/1998	McMullin	6,334,126 B1	12/2001	Nagatomo et al.
5,812,534 A	9/1998	Davis et al.	6,337,858 B1	1/2002	Petty et al.
5,815,505 A	9/1998	Mills	6,339,594 B1	1/2002	Civanlar et al.
5,818,912 A	10/1998	Hammond	6,359,892 B1	3/2002	Szlan
5,825,771 A	10/1998	Cohen et al.	6,381,323 B1	4/2002	Schwab et al.
5,828,666 A	10/1998	Focsaneanu et al.	6,385,308 B1	5/2002	Cohen et al.
5,838,665 A	11/1998	Kahn et al.	6,404,764 B1	6/2002	Jones et al.
5,848,140 A	12/1998	Foladare et al. .... 379/201	6,411,615 B1	6/2002	DeGolia et al.
5,850,433 A	12/1998	Rondeau	6,411,965 B2	6/2002	Klug
5,859,972 A	1/1999	Subramaniam et al.	6,414,962 B1	7/2002	Hall et al.
5,867,494 A	2/1999	Krishnaswamy et al.	6,418,198 B2	7/2002	Brablec et al.
5,867,495 A	2/1999	Elliott et al.	6,421,235 B2	7/2002	Dirzik
5,875,405 A	2/1999	Honda	6,445,694 B1	9/2002	Swartz
5,878,113 A	3/1999	Bhusari	6,445,697 B1	9/2002	Fenton
5,878,418 A	3/1999	Polcyn et al.	6,446,127 B1	9/2002	Shuster et al.
5,881,060 A	3/1999	Morrow et al.	6,448,978 B1	9/2002	Salvador et al.
5,881,131 A	3/1999	Farris et al.	6,456,594 B1	9/2002	Kaplan et al.
5,889,774 A	3/1999	Mirashrafi et al.	6,456,601 B1	9/2002	Kozdon et al.
5,894,473 A	4/1999	Dent	6,459,780 B1	10/2002	Wurster et al.
5,894,595 A	4/1999	Foladare et al.	6,477,565 B1	11/2002	Daswani et al.
5,913,029 A	6/1999	Shostak	6,477,576 B2	11/2002	Angwin et al.
5,915,008 A	6/1999	Dulman	6,483,902 B1	11/2002	Stewart et al.
5,918,172 A	6/1999	Saunders et al.	6,493,338 B1	12/2002	Preston et al.
5,922,047 A	7/1999	Newlin et al.	6,496,477 B1	12/2002	Perkins et al.
5,930,700 A	7/1999	Pepper et al.	6,526,462 B1	2/2003	Elabd
5,933,490 A	8/1999	White et al.	6,539,359 B1	3/2003	Ladd et al.
5,933,778 A	8/1999	Buhrmann et al.	6,577,622 B1	6/2003	Shuster et al.
5,938,757 A	8/1999	Bertsch	6,584,490 B1	6/2003	Shuster et al.
5,946,386 A	8/1999	Rogers et al.	6,614,781 B1	9/2003	Elliott et al.
5,946,684 A	8/1999	Lund	6,643,282 B1	11/2003	Christie ..... 370/352
5,953,392 A	9/1999	Rhie et al.	6,650,901 B1	11/2003	Shuster et al.
5,954,799 A	9/1999	Goheen et al.	6,681,252 B1	1/2004	Shuster et al.
5,958,016 A	9/1999	Chang et al.	6,697,461 B1	2/2004	Middleswarth et al.
5,960,340 A	9/1999	Fuentes	6,731,630 B1	5/2004	Shuster et al.
5,963,551 A	10/1999	Minko	6,741,586 B1	5/2004	Shuster et al.
5,970,059 A	10/1999	Ahopelto et al.	6,744,759 B1	6/2004	Sidhu
5,974,449 A	10/1999	Chang et al.	6,785,266 B2	8/2004	Swartz
5,982,866 A	11/1999	Kowalski	6,788,775 B1	9/2004	Simpson
5,991,291 A	11/1999	Asai et al.	6,795,429 B1	9/2004	Shuster et al.
5,991,310 A	11/1999	Katko ..... 370/522	6,804,224 B1	10/2004	Shuster et al.
5,991,394 A	11/1999	Dezanno et al.	6,822,957 B1	11/2004	Shuster et al.
5,999,525 A	12/1999	Krishnaswamy et al.	6,853,714 B2	2/2005	Liljestrand et al.
6,005,870 A	12/1999	Leung et al.	6,856,616 B1	2/2005	Shuster et al.
6,006,272 A	12/1999	Aravamudan et al.	6,857,021 B1	2/2005	Shuster et al.
6,009,469 A	12/1999	Mattaway et al.	6,857,072 B1	2/2005	Shuster et al.
6,012,088 A	1/2000	Li et al.	6,870,830 B1	3/2005	Shuster et al.
6,014,437 A	1/2000	Acker et al.	6,914,897 B1	7/2005	Shuster et al.
6,020,916 A	2/2000	Gerszberg et al.	6,937,699 B1	8/2005	Shuster et al.
6,026,083 A	2/2000	Albrow et al.	6,956,941 B1	10/2005	Duncan et al.
6,028,917 A	2/2000	Creamer et al.	7,123,708 B1	10/2006	Gavillet ..... 379/219
6,031,836 A	2/2000	Haserodt	7,242,759 B1	7/2007	Sanchez et al. .... 379/219
6,031,904 A	2/2000	An et al.	7,436,851 B1	10/2008	Chambers et al. .... 370/325
6,041,325 A	3/2000	Shah et al.	2001/0022784 A1	9/2001	Menon et al.
6,044,403 A	3/2000	Gerszberg et al.	2001/0030950 A1	10/2001	Chen et al.
6,069,890 A	5/2000	White et al.	2003/0026403 A1	2/2003	Clapper et al.
6,075,992 A	6/2000	Moon et al.	2003/0040325 A1	2/2003	Clark
6,078,581 A	6/2000	Shtivelman et al.	2003/0095650 A1	5/2003	Mize
6,084,584 A	7/2000	Nahi et al.	2003/0133553 A1	7/2003	Khakoo et al.

2003/0156693	A1	8/2003	Goldman	
2003/0194078	A1	10/2003	Wood et al.	
2004/0029568	A1	2/2004	DeLuca et al.	
2004/0240657	A1	12/2004	Camarillo	379/221.02
2004/0264673	A1	12/2004	Novack	379/221.11
2005/0041526	A1	2/2005	Esmersoy et al.	
2005/0141500	A1	6/2005	Bhandari et al.	
2005/0169445	A1	8/2005	Harris	
2005/0207557	A1	9/2005	Dolan et al.	
2007/0041526	A1	2/2007	Hill et al.	379/88.21

FOREIGN PATENT DOCUMENTS

EP	0578374	1/1994
EP	0704788	4/1996
EP	0738093	10/1996
EP	0 789 470	8/1997
EP	0 794 650	9/1997
EP	0 797 373	9/1997
EP	0 824 298	2/1998
EP	0 829 995	3/1998
EP	0 841 831	5/1998
EP	0 847 176	6/1998
EP	0858202	8/1998
EP	0 866 596	9/1998
EP	0 872 998	10/1998
EP	0869688	10/1998
EP	0918423	10/1998
EP	0881848	12/1998
EP	0898431	2/1999
GB	2 315 190	1/1998
JP	10-23067	1/1998
JP	10-51453	2/1998
JP	10-164135	6/1998
JP	10-164257	6/1998
WO	WO94/05111	3/1994
WO	WO95/34985	12/1995
WO	WO 96/08935	3/1996
WO	WO 96/15598	5/1996
WO	WO 97/14234	A2 4/1997
WO	WO 97/14238	4/1997
WO	WO 97/16007	5/1997
WO	WO 97/22216	6/1997
WO	WO 97/23078	6/1997
WO	WO 97/27692	7/1997
WO	WO 97/28628	8/1997
WO	WO 97/29581	8/1997
WO	WO97/31492	8/1997
WO	WO 97/31492	8/1997
WO	WO 97/33412	9/1997
WO	WO97/33421	9/1997
WO	WO 97/38511	A2 10/1997
WO	WO 97/38551	10/1997
WO	WO 97/39560	10/1997
WO	WO97/44943	11/1997
WO	WO 97/46073	A2 12/1997
WO	WO 97/47118	12/1997
WO	WO 97/50217	12/1997
WO	WO 97/50271	12/1997
WO	WO 97/50277	A2 12/1997
WO	WO98/00988	1/1998
WO	WO98/04065	1/1998
WO	WO 98/04989	2/1998
WO	WO98/10538	3/1998
WO	WO 98/11704	3/1998
WO	WO 98/12860	3/1998
WO	WO 98/13974	4/1998
WO	WO98/16051	4/1998
WO	WO 98/18238	4/1998
WO	WO 98/18289	4/1998
WO	WO 98/19425	5/1998
WO	WO 98/19445	5/1998
WO	WO 98/20701	5/1998
WO	WO98/21911	5/1998
WO	WO 98/23067	5/1998
WO	WO 98/23080	5/1998
WO	WO 98/26543	6/1998
WO	EP 0 851 653	7/1998
WO	EP 0 853 411	A2 7/1998
WO	WO 98/28885	7/1998

WO	WO 98/30007	7/1998
WO	WO98/30008	7/1998
WO	WO 98/30008	7/1998
WO	WO 98/34391	8/1998
WO	WO 98/34399	8/1998
WO	WO 98/36543	8/1998
WO	WO 98/37665	8/1998
WO	WO98/37665	8/1998
WO	WO 98/37688	A2 8/1998
WO	WO 98/39897	9/1998
WO	WO 98/42104	9/1998
WO	WO 98/42107	9/1998
WO	WO 98/42146	9/1998
WO	WO 98/47256	A2 10/1998
WO	WO 98/51063	11/1998
WO	WO99/12365	3/1999
WO	WO99/19988	4/1999
WO	WO99/20059	4/1999
WO	WO99/35802	7/1999
WO	WO99/45687	9/1999
WO	WO01/05078	1/2001
WO	WO01/24496	4/2001
WO	WO01/24498	4/2001
WO	WO01/24500	4/2001
WO	WO01/24501	4/2001
WO	WO01/24502	4/2001
WO	WO01/24503	4/2001
WO	WO/0184859	11/2001

OTHER PUBLICATIONS

Implementing Automatic Location Update for Follow-Me database using VoIP and Bluetooth Technologies. IEEE Transaction on computers, vol. 51, No. 10, Oct. 2002.

New services demand integration, Electronic Engineering Times, Aug. 28, 2000, Iss. 1128, p. 110.

Natural Microsystems, M2 Presswire. Coventry: Aug. 18, 2000.

This pipe dream will come true: Voice Over Internet Protocol (VoIP) technology will make the phone Box something that really talks. Businessline, Chennai: Apr. 17, 2002.

Using Optimization to Achieve Efficient Quality of Service in Voice over IP Networks, IEEE: 2003.

Broadsoft literature Broadworks overview, Copyright date 2002.

BroadSoft introduces industry's first complete service delivery and creation product suite for enhanced telephony services Broadworks, ATM Newsletter: Boston: Mar. 2000, vol. 9, Iss. 3, p. 13.

BroadSoft unveils advanced architecture for the rapid and cost effective delivery of enhanced communications services. Website, Aug. 25, 1999, Press releases, 3 pages.

ADC Telecommunications: SS7 New Net SS7 Tutorial: Copyright 1999.

Mary Carmichael, "Calls That Follow you Anywhere" Newsweek, Apr. 28, 2003, p. 43

European Search Report, 3 pages, from European Application No. 04252483.5 (EP Patent No. 1473947B1)

U.S. Appl. No. 09/406,322, Schuster et al., filed Sep. 27, 1999.

U.S. Appl. No. 09/515,798, Schuster et al., filed Feb. 29, 2000

Dowden, Douglas C., et al., "The Future of Network-Provided Communications Services," *Bell Labs Technical Journal*, Jul.-Sep. 2000, pp. 3-10.

Foard, C.F., "Teaming Switches and Computers for Customer Applications," *AT&T Technology*, 1991; 6, 4; Research Library, pp. 32-38

Foster, Robin Harris, "Computer-Telephone Integration Goes Global," *AT&T Technology*, Autumn 1995; 10, 3; Research Library, pp. 18-22.

Kozik, Jack, et al., "On Opening PSTN to Enhanced Voice/Data Services—The PINT Protocol Solution," *Bell Labs Technical Journal*, Jul.-Sep. 2000, pp. 153-165.

Lui, Anthony Y., et al., "The Enhanced Service Manager: A Service Management System for Next-Generation Networks," *Bell Labs Technical Journal*, Jul.-Sep. 2000, pp. 130-144.

Reisfield, E.S., "Customers Take Control of the AT&T Network," *AT&T Technology*, 1991; 6, 1; Research Library, pp. 44-48.

Sijben, Paul G., et al., "Bridging the Gap to IP Telephony," *Bell Labs Technical Journal*, Oct.-Dec. 1998, pp. 192-207.

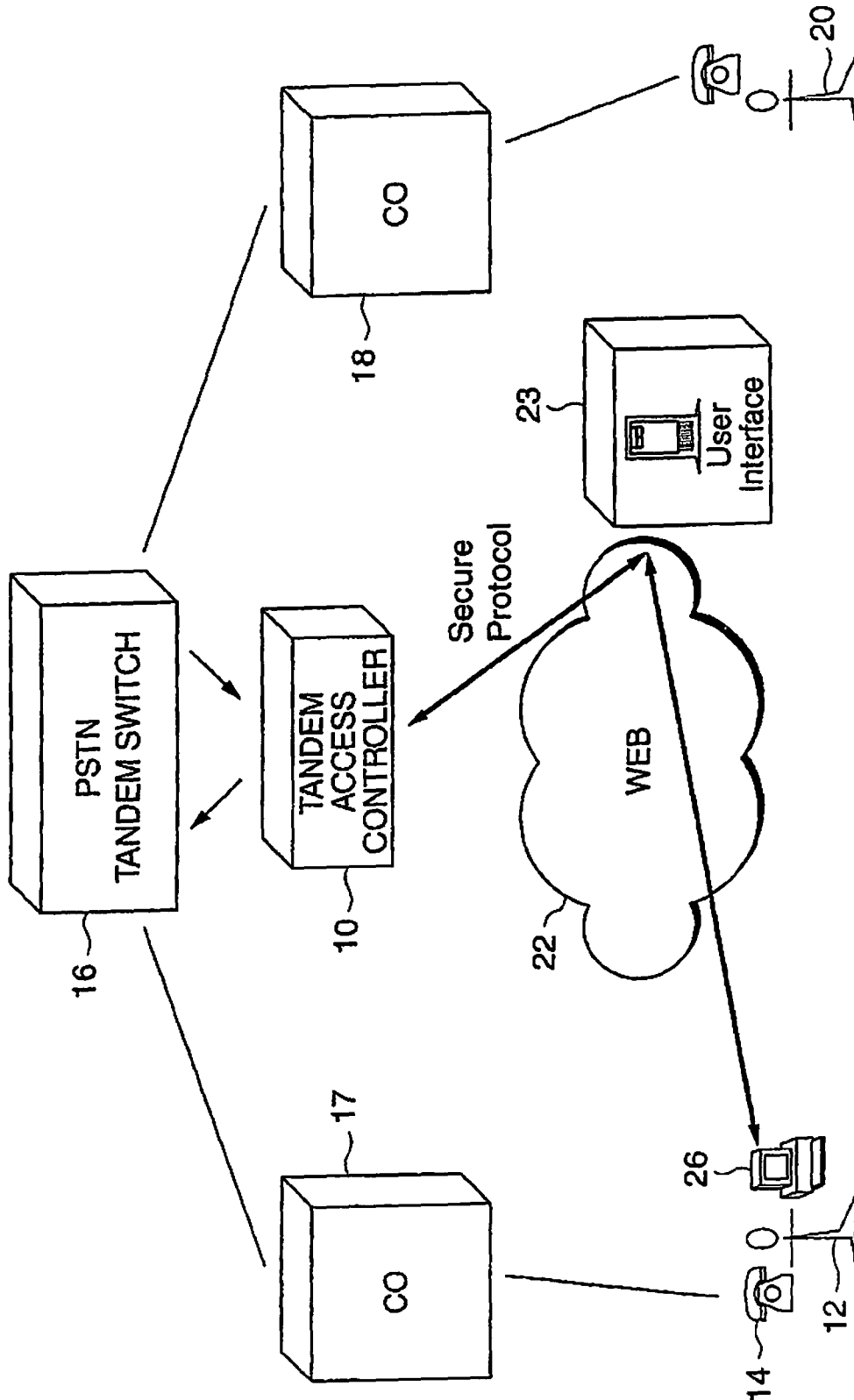


FIG. 1

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.