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(54) **BRANCH CALLING AND CALLER ID BASED CALL ROUTING TELEPHONE FEATURES**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,100,377 A 7/1978 Flanagan

(Continued)

FOREIGN PATENT DOCUMENTS

DE 19813179 9/1999

(Continued)

OTHER PUBLICATIONS

ADC Telecommunications; SS7 New Net SS7 Tutorial; © Copyright 1999.

(Continued)

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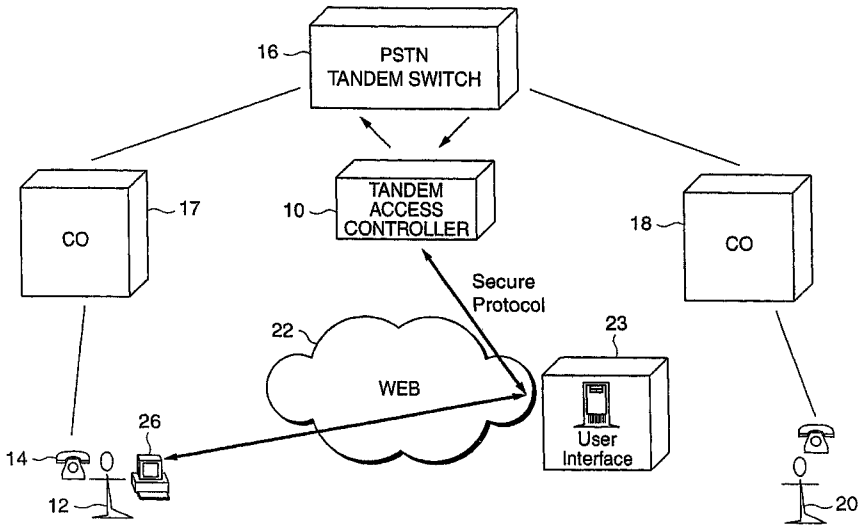
(57) **ABSTRACT**

A caller ID based call routing feature is described for blocked and non-blocked caller ID's. A processing system in the public switched telephone network (PSTN) receives first identifying information for identify the source of a telephone call and associates additional information stored in a memory with the first identifying information. The additional information may be information about the calling party initially downloaded to the memory by a subscriber. Once retrieved from the memory by the processing system, the additional information may then be transmitted to the subscriber via the Internet for display on a monitor or to the subscriber's telephone for display on a telephone display. Another feature described is a branch calling feature where the subscriber may program a processing system within the PSTN to forward an incoming call to two or more end units (e.g., telephones) simultaneously. If the call at an end unit is answered, answer supervision signaling is transmitted back to the processing system which then terminates all other calls. The processing system then connects the calling party to the subscriber. The branch calling may be made for any combination of local, long distance, and cellular telephone numbers.

46 Claims, 11 Drawing Sheets



U.S. PATENT DOCUMENTS

4,238,851	A	12/1980	Takahashi et al.
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.
4,611,094	A	9/1986	Asmuth et al.
4,611,096	A	9/1986	Asmuth et al.
4,630,260	A	12/1986	Toy et al.
4,630,262	A	12/1986	Callens et al.
4,661,947	A	4/1987	Lea et al.
4,674,082	A	6/1987	Flanagin et al.
4,679,190	A	7/1987	Dias et al.
4,679,191	A	7/1987	Nelson et al.
4,707,831	A	11/1987	Weir et al.
4,715,026	A	12/1987	Eberspaecher
4,723,238	A	2/1988	Isreal et al.
4,757,497	A	7/1988	Beierle et al.
4,761,779	A	8/1988	Nara et al.
4,771,425	A	9/1988	Baran et al.
4,815,071	A	3/1989	Shimizu
4,819,228	A	4/1989	Baran et al.
4,862,451	A	8/1989	Closs et al.
4,866,704	A	9/1989	Bergman
4,872,159	A	10/1989	Hemmady et al.
4,872,160	A	10/1989	Hemmady et al.
4,885,739	A	12/1989	Read et al.
4,903,261	A	2/1990	Baran et al.
4,926,416	A	5/1990	Weik
4,932,022	A	6/1990	Keeney et al.
4,933,931	A	6/1990	Kokubo
4,953,158	A	8/1990	Schreur
4,953,198	A	8/1990	Daly et al.
4,958,341	A	9/1990	Hemmady et al.
4,962,497	A	10/1990	Ferenc et al.
4,969,184	A	11/1990	Gordon et al.
4,970,721	A	11/1990	Aczel et al.
4,973,837	A	11/1990	Bradbeer
4,975,695	A	12/1990	Almond et al.
4,996,685	A	2/1991	Farese et al.
5,008,929	A	4/1991	Olsen et al.
5,014,266	A	5/1991	Bales et al.
5,018,136	A	5/1991	Gollub
5,020,058	A	5/1991	Holden et al.
5,022,071	A	6/1991	Mozer et al.
5,048,081	A	9/1991	Gavaras et al.
5,051,983	A	9/1991	Kammerl
5,093,827	A	3/1992	Franklin et al.
5,115,431	A	5/1992	Williams et al.
5,150,357	A	9/1992	Hopner et al.
5,157,662	A	10/1992	Tadamura et al.
5,197,067	A	3/1993	Fujimoto et al.
5,208,806	A	5/1993	Hasegawa
5,218,602	A	6/1993	Grant et al.
5,231,633	A	7/1993	Hluchyj et al.
5,241,588	A	8/1993	Babson, III et al.
5,247,571	A	9/1993	Kay et al.
5,268,900	A	12/1993	Hluchyj et al.
5,274,635	A	12/1993	Rahman et al.
5,291,489	A	3/1994	Morgan et al.
5,297,191	A	3/1994	Gerszberg
5,301,189	A	4/1994	Schmidt et al.
5,305,308	A	4/1994	English et al.
5,311,582	A	5/1994	Davenport et al.
5,327,428	A	7/1994	Van As et al.
5,341,374	A	8/1994	Lewen et al.
5,351,276	A	9/1994	Doll, Jr. et al.
5,351,286	A	9/1994	Nici
5,353,283	A	10/1994	Tsuchiya
5,359,598	A	10/1994	Steagall et al.
5,381,405	A	1/1995	Daugherty et al.
5,381,466	A	1/1995	Shibayama et al.
5,383,183	A	1/1995	Yoshida
5,384,840	A	1/1995	Blatchford et al.
5,390,184	A	2/1995	Morris
5,396,491	A	3/1995	Newman
5,420,858	A	5/1995	Marshall et al.
5,422,882	A	6/1995	Hiller et al.
5,423,003	A	6/1995	Berteau
5,426,636	A	6/1995	Hiller et al.
5,428,607	A	6/1995	Hiller et al.
5,428,616	A	6/1995	Field et al.
5,428,663	A	6/1995	Grimes et al.
5,430,719	A	7/1995	Weisser, Jr.
5,434,913	A	7/1995	Tung et al.
5,436,898	A	7/1995	Bowen et al.
5,438,614	A	8/1995	Rozman et al.
5,444,709	A	8/1995	Riddle
5,448,623	A	9/1995	Wiedeman et al.
5,452,289	A	9/1995	Sharma et al.
5,453,986	A	9/1995	Davis et al.
5,455,853	A	10/1995	Cebulka et al.
5,457,684	A	10/1995	Bharucha et al.
5,471,470	A	11/1995	Sharma et al.
5,471,616	A	11/1995	Johnson et al.
5,479,411	A	12/1995	Klein
5,485,457	A	1/1996	Aramaki
5,495,567	A	2/1996	Iizawa et al.
5,497,339	A	3/1996	Bernard
5,521,914	A	5/1996	Mavraganis et al.
5,526,353	A	6/1996	Henley et al.
5,537,403	A	7/1996	Cloonan et al.
5,541,917	A	7/1996	Farris
5,544,161	A	8/1996	Bigham et al.
5,544,163	A	8/1996	Madonna
5,544,164	A	8/1996	Baran
5,544,168	A	8/1996	Jeffrey et al.
5,553,063	A	9/1996	Dickson
5,557,658	A	9/1996	Gregorek et al.
5,563,937	A	10/1996	Bruno et al.
5,566,236	A	10/1996	MeLampy et al.
5,568,475	A	10/1996	Doshi et al.
5,570,355	A	10/1996	Dail et al.
5,572,583	A	11/1996	Wheeler, Jr. et al.
5,577,038	A	11/1996	Miyahara
5,577,041	A	11/1996	Sharma et al.
5,579,308	A	11/1996	Humpleman
5,590,181	A	12/1996	Hogan et al.
5,592,477	A	1/1997	Farris et al.
5,592,538	A	1/1997	Kosowsky et al.
5,594,732	A	1/1997	Bell et al.
5,600,643	A	2/1997	Robrock, II
5,600,649	A	2/1997	Sharma et al.
5,602,991	A	2/1997	Berteau
5,604,737	A	2/1997	Iwami et al.
5,606,594	A	2/1997	Register et al.
5,608,786	A	3/1997	Gordon
5,613,069	A	3/1997	Walker
H1641	H	4/1997	Sharman
5,621,727	A	4/1997	Vaudreuil
5,625,677	A	4/1997	Feiertag et al.
5,628,004	A	5/1997	Gormley et al.
5,631,897	A	5/1997	Pacheco et al.
5,640,446	A	6/1997	Everett et al.
5,646,945	A	7/1997	Bergler
5,650,999	A	7/1997	Dickson
5,654,957	A	8/1997	Koyama
5,659,541	A	8/1997	Chan
5,659,542	A	8/1997	Bell et al.
5,680,437	A	10/1997	Segal
5,684,799	A	11/1997	Bigham et al.

5,701,301	A		12/1997	Weisser, Jr.	5,982,866	A	11/1999	Kowalski
5,706,286	A		1/1998	Reiman et al.	5,991,291	A	11/1999	Asai et al.
5,710,769	A		1/1998	Anderson et al.	5,991,394	A	11/1999	Dezonno et al.
5,712,903	A		1/1998	Bartholomew et al.	5,999,525	A	12/1999	Krishnaswamy et al.
5,712,908	A		1/1998	Brinkman et al.	6,005,870	A	12/1999	Leung et al.
5,724,412	A		3/1998	Srinivasan	6,006,272	A	12/1999	Aravamudan et al.
5,727,057	A		3/1998	Emery et al.	6,009,469	A	12/1999	Mattaway et al.
5,729,544	A		3/1998	Lev et al.	6,012,088	A	1/2000	Li et al.
5,732,074	A		3/1998	Spaur et al.	6,014,437	A	1/2000	Acker et al.
5,732,078	A		3/1998	Arango	6,020,916	A	2/2000	Gerszberg et al.
5,732,216	A		3/1998	Logan et al.	6,026,083	A	2/2000	Albrow et al.
5,737,320	A		4/1998	Madonna	6,028,917	A	2/2000	Creamer et al.
5,737,331	A		4/1998	Hoppal et al.	6,031,836	A	2/2000	Haserodt
5,737,333	A		4/1998	Civanlar et al.	6,031,904	A	2/2000	An et al.
5,737,533	A		4/1998	De Hond	6,041,325	A	* 3/2000	Shah et al. 707/10
5,740,164	A		4/1998	Liron	6,044,403	A	3/2000	Gerszberg et al.
5,740,231	A		4/1998	Cohn et al.	6,069,890	A	5/2000	White et al.
5,742,596	A		4/1998	Baratz et al.	6,075,992	A	6/2000	Moon et al.
5,742,905	A		4/1998	Pepe et al.	6,078,581	A	6/2000	Shtivelman et al.
5,751,706	A		5/1998	Land et al.	6,084,584	A	7/2000	Nahi et al.
5,751,968	A		5/1998	Cohen	6,094,478	A	7/2000	Shepherd et al.
5,754,641	A		5/1998	Voit et al.	6,104,800	A	8/2000	Benson
5,764,628	A		6/1998	Davis et al.	6,134,235	A	10/2000	Goldman et al.
5,764,736	A		6/1998	Shachar et al.	6,141,341	A	10/2000	Jones et al.
5,764,750	A		6/1998	Chau et al.	6,161,128	A	12/2000	Smyk
5,764,756	A		6/1998	Onweller	6,161,134	A	12/2000	Wang et al.
5,777,991	A		7/1998	Adachi et al.	6,163,598	A	12/2000	Moore
5,790,538	A		8/1998	Sugar	6,167,040	A	12/2000	Haeggstrom
5,793,762	A		8/1998	Penners et al.	6,175,860	B1	1/2001	Gaucher
5,793,771	A		8/1998	Darland et al.	6,188,688	B1	2/2001	Buskirk, Jr.
5,799,072	A		8/1998	Vulcan et al.	6,212,261	B1	4/2001	Meubus et al.
5,799,154	A		8/1998	Kuriyan	6,216,158	B1	4/2001	Luo et al.
5,802,160	A	*	9/1998	Kugell et al. 379/211.04	6,240,097	B1	5/2001	Wesloek et al.
5,805,587	A		9/1998	Norris et al.	6,259,692	B1	7/2001	Shtivelman et al.
5,805,588	A		9/1998	Petersen	6,262,978	B1	7/2001	Bruno et al.
5,806,057	A		9/1998	Gormley et al.	6,266,539	B1	7/2001	Pardo
5,809,022	A		9/1998	Byers et al.	6,278,707	B1	8/2001	MacMillan et al.
5,809,128	A		9/1998	McMullin	6,301,609	B1	10/2001	Aravamudan et al.
5,812,534	A		9/1998	Davis et al.	6,308,201	B1	10/2001	Pivowar et al.
5,815,505	A		9/1998	Mills	6,324,183	B1	11/2001	Miller et al.
5,818,912	A		10/1998	Hammond	6,327,258	B1	12/2001	Deschaine et al.
5,825,771	A		10/1998	Cohen et al.	6,334,126	B1	12/2001	Nagatomo et al.
5,828,666	A		10/1998	Focsaneanu et al.	6,337,858	B1	1/2002	Petty et al.
5,838,665	A		11/1998	Kahn et al.	6,339,594	B1	1/2002	Civanlar et al.
5,850,433	A		12/1998	Rondeau	6,359,892	B1	3/2002	Szlam
5,859,972	A		1/1999	Subramaniam et al.	6,381,323	B1	* 4/2002	Schwab et al. 379/211.02
5,867,494	A		2/1999	Krishnaswamy et al.	6,385,308	B1	5/2002	Cohen et al.
5,867,495	A		2/1999	Elliott et al.	6,404,764	B1	6/2002	Jones et al.
5,875,405	A		2/1999	Honda	6,411,615	B1	6/2002	DeGolia et al.
5,878,113	A		3/1999	Bhusri	6,411,965	B2	6/2002	Klug
5,878,418	A		3/1999	Polcyn et al.	6,414,962	B1	7/2002	Hall et al.
5,881,060	A		3/1999	Morrow et al.	6,418,198	B2	7/2002	Brablec et al.
5,881,131	A		3/1999	Farris et al.	6,421,235	B2	7/2002	Ditzik
5,889,774	A		3/1999	Mirashrafi et al.	6,445,694	B1	9/2002	Swartz
5,894,473	A		4/1999	Dent	6,445,697	B1	9/2002	Fenton
5,894,595	A		4/1999	Foladare et al.	6,446,127	B1	9/2002	Schuster et al.
5,913,029	A		6/1999	Shostak	6,448,978	B1	9/2002	Salvador et al.
5,915,008	A		6/1999	Dulman	6,456,594	B1	9/2002	Kaplan et al.
5,918,172	A		6/1999	Saunders et al.	6,456,601	B1	9/2002	Kozdon et al.
5,922,047	A		7/1999	Newlin et al.	6,459,780	B1	10/2002	Wurster et al.
5,930,700	A		7/1999	Pepper et al.	6,477,565	B1	11/2002	Daswani et al.
5,933,490	A		8/1999	White et al.	6,477,576	B2	11/2002	Angwin et al.
5,933,778	A		8/1999	Buhrmann et al.	6,483,902	B1	11/2002	Stewart et al.
5,938,757	A		8/1999	Bertsch	6,493,338	B1	12/2002	Preston et al.
5,946,386	A		8/1999	Rogers et al.	6,496,477	B1	12/2002	Perkins et al.
5,946,684	A		8/1999	Lund	6,526,462	B1	2/2003	Elabd
5,953,392	A		9/1999	Rhie et al.	6,539,359	B1	3/2003	Ladd et al.
5,954,799	A		9/1999	Goheen et al.	6,577,622	B1	6/2003	Shuster et al.
5,958,016	A		9/1999	Chang et al.	6,584,490	B1	6/2003	Shuster et al.
5,960,340	A		9/1999	Fuentes	6,614,781	B1	9/2003	Elliott et al.
5,963,551	A		10/1999	Minko	6,650,901	B1	11/2003	Shuster et al.

6,731,630	B1	5/2004	Shuster et al.	
6,741,586	B1	5/2004	Shuster et al.	
6,744,759	B1 *	6/2004	Sidhu et al.	370/356
6,785,266	B2	8/2004	Swartz	
6,788,775	B1	9/2004	Simpson	
6,795,429	B1	9/2004	Shuster et al.	
6,804,224	B1	10/2004	Shuster et al.	
6,822,957	B1	11/2004	Shuster et al.	
6,853,714	B2	2/2005	Liljestrand et al.	
6,856,616	B1	2/2005	Shuster et al.	
6,857,021	B1	2/2005	Shuster et al.	
6,857,072	B1	2/2005	Shuster et al.	
6,870,830	B1	3/2005	Shuster et al.	
6,914,897	B1	7/2005	Shuster et al.	
6,937,699	B1	8/2005	Shuster et al.	
6,956,941	B1	10/2005	Duncan et al.	
2001/0022784	A1	9/2001	Menon et al.	
2001/0030950	A1	10/2001	Chen et al.	
2003/0026403	A1	2/2003	Clapper	
2003/0040325	A1	2/2003	Clark	
2003/0095650	A1	5/2003	Mize	
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.	
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.	

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	0 851 653		7/1998
EP	0 853 411	A2	7/1998
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	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	WO 98/28885		7/1998
WO	WO 98/30007		7/1998
WO	WO 98/30008		7/1998
WO	WO98/30008		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	0184859	A2	11/2001

OTHER PUBLICATIONS

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

RFC 3298 Service in the PSTN, Aug. 2002.

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)

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.

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.

* cited by examiner

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