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Scott et al.

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(54) **METHOD, SYSTEM, AND COMPUTER
PROGRAM PRODUCT FOR ROUTE
QUALITY CHECKING AND MANAGEMENT**

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patent is extended or adjusted under 35
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370/401

(58) Field of Search 370/238, 252,
370/352, 353, 356, 401, 355, 468; 709/238,
241, 245, 218, 227

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,452,294 A * 9/1995 Natarajan 370/351
5,621,727 A 4/1997 Vaudreuil 370/60

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

WO WO 97/14238 A1 4/1997 H04L/12/46
WO WO 97/23078 A1 6/1997 H04L/12/56
WO WO 97/27692 A1 7/1997 H04L/12/56
WO WO 97/28628 A1 8/1997 H04L/12/56

OTHER PUBLICATIONS

Anquetil, L.-P. et al., "Media Gateway Control Protocol And
Voice Over IP Gateways," *Alcatel Telecommunications
Review*, pp. 151-157 (Apr.-Jun. 1999).

Array Series 3000 Users Manual, Array Telecom Corp,
Entire Manual (Aug. 27, 1999).

ctvoice IP Telephony, Product Brochure, Comdial, 6 pages
(Copy obtained Aug. 1999).

ctvoice System User's Manual, Comdial, Entire Manual
(Jun. 1998).

Held, G., *Voice Over Data Networks*, McGraw-Hill, Entire
Book (1998).

McConnell, B., *How to Build an Internet PBX* Ahmed Borg,
at <http://www.google.com> . . . , 13 pages, (Apr. 1997).

Prosis, J., "Programming Windows 95 with MFC, Part VII:
The Document/View Architecture," *Microsoft Systems Jour-
nal*, Miller Freeman, 35 pages (Feb. 1996).

Sheldon, T., *Encyclopedia of Networking, Electronic Edi-
tion*, McGraw-Hill, pp. 1043-1050 (1998).

Yang, C., *INETPhone: Telephone Services and Servers on
Internet*, at <http://www.ds.internic.net/rfc/rfc1789.txt>, 6
pages, (Apr. 1995).

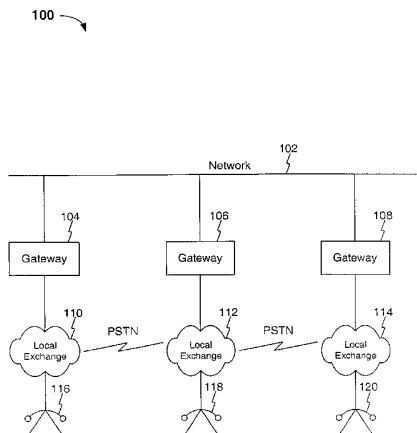
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& Fox P.L.L.C.

(57) **ABSTRACT**

A method, system and computer program product for route
checking and management is described herein. In a voice
over internet protocol environment, the invention allows for
the testing of routes among various gateways. In one
embodiment, gateways include routing managers for check-
ing and storing route information. The method of the inven-
tion includes checking candidate routes for the level of
quality, location and cost levels. Further, users can prioritize
routes based on these criteria.

23 Claims, 8 Drawing Sheets



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U.S. PATENT DOCUMENTS

5,742,596	A	4/1998	Baratz et al.	370/356	6,356,545	B1 *	3/2002	Vargo et al.	370/355
5,757,871	A	5/1998	Furukawa et al.	375/372	6,363,065	B1 *	3/2002	Thornton et al.	370/352
5,790,538	A	8/1998	Sugar	370/352	6,363,319	B1 *	3/2002	Hsu	701/202
5,790,543	A	8/1998	Cloutier	370/395	6,366,560	B1 *	4/2002	Ohiwane et al.	370/238
5,805,602	A	9/1998	Cloutier et al.	370/516	6,385,193	B1 *	5/2002	Civanlar et al.	370/352
5,812,840	A	9/1998	Shwartz	395/604	6,404,746	B1 *	6/2002	Cave et al.	370/262
5,870,464	A	2/1999	Brewster et al.	379/219	6,426,955	B1 *	7/2002	Dalton, Jr. et al.	370/401
5,892,822	A	4/1999	Gottlieb et al.	379/220	6,483,808	B1 *	11/2002	Rochberger et al.	370/238
5,897,613	A	4/1999	Chan	704/210	6,487,172	B1 *	11/2002	Zonoun	370/238
5,900,000	A	5/1999	Korenshtein	707/200	6,529,499	B1 *	3/2003	Doshi et al.	370/352
5,940,479	A	8/1999	Guy et al.	379/93.01	6,584,110	B1 *	6/2003	Mizuta et al.	370/401
5,940,827	A	8/1999	Hapner et al.	707/8	6,597,684	B1 *	7/2003	Gulati et al.	370/351
5,940,829	A	8/1999	Tsuiki et al.	707/10	6,600,738	B1 *	7/2003	Alperovich et al.	370/352
5,940,832	A	8/1999	Hamada et al.	707/100	6,614,765	B1 *	9/2003	Bruno et al.	370/255
5,953,405	A	9/1999	Miloslavsky	379/265					

* cited by examiner

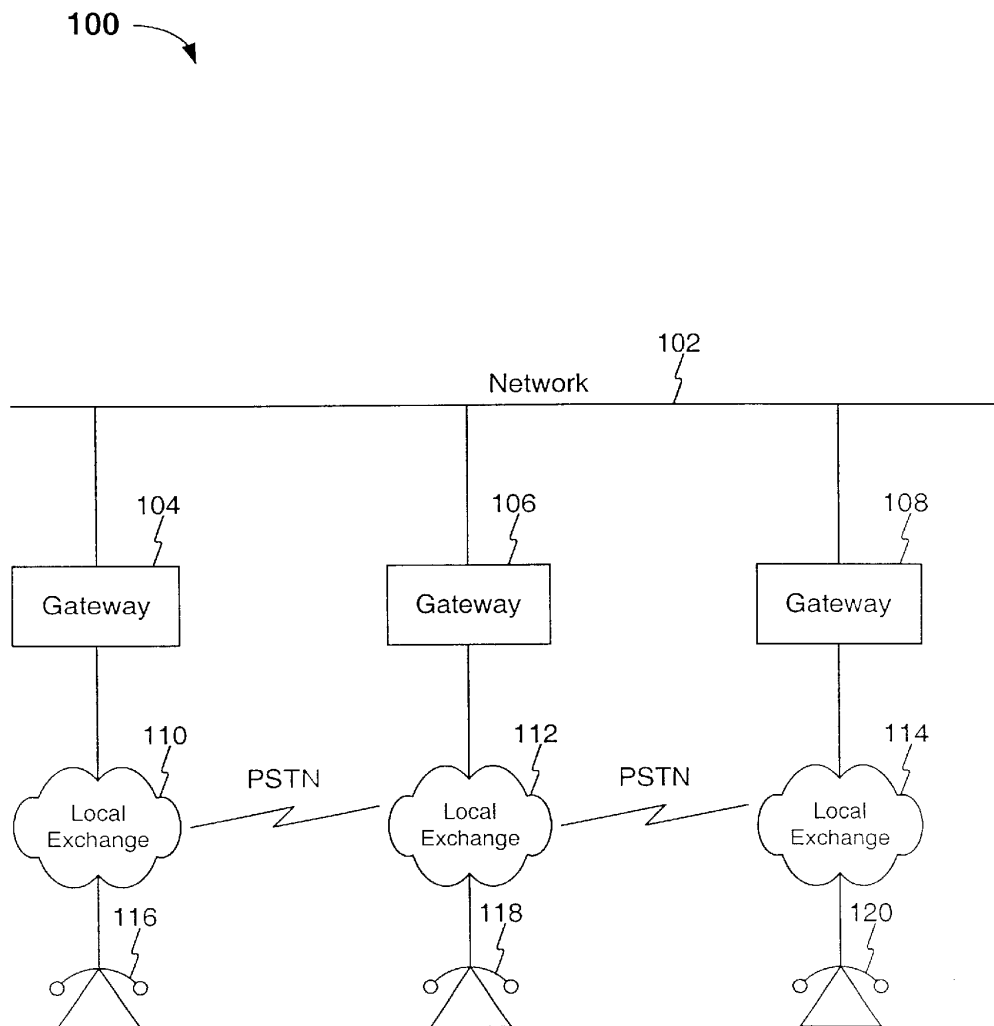


FIG. 1

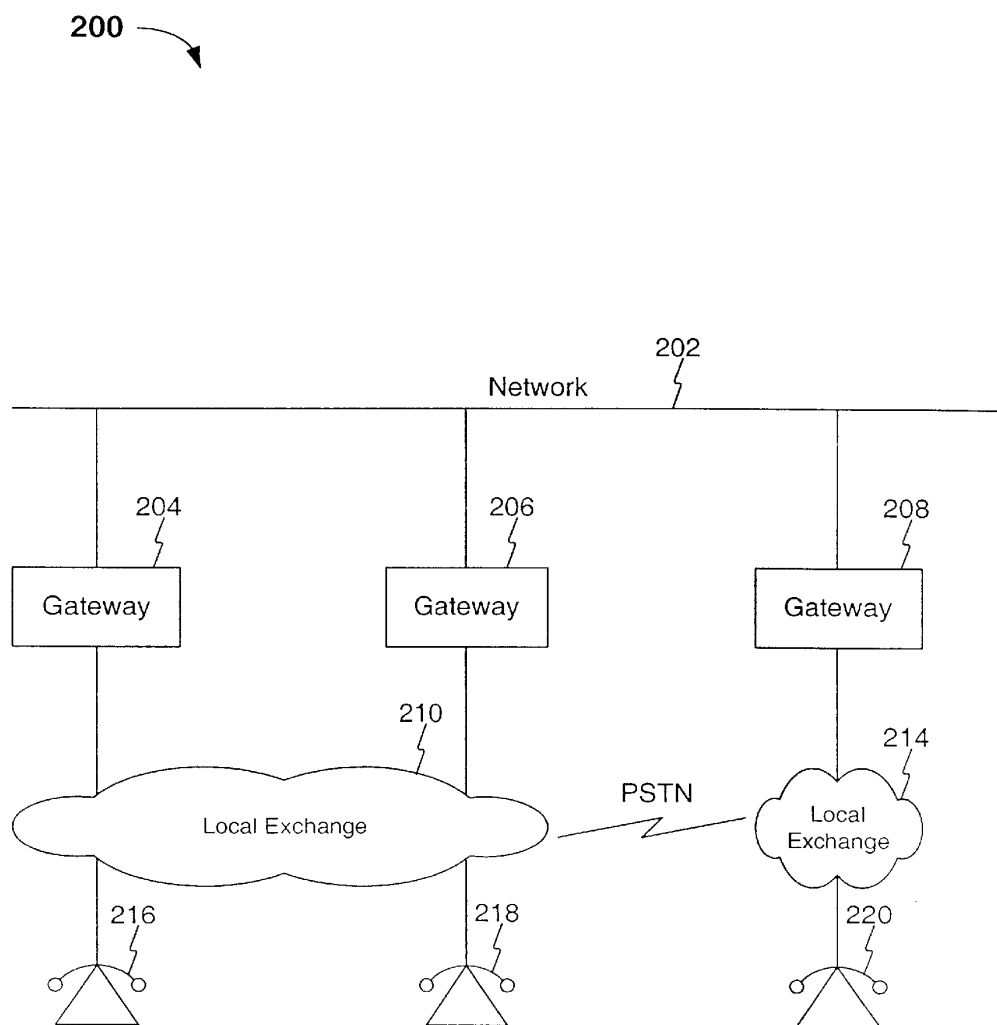


FIG. 2

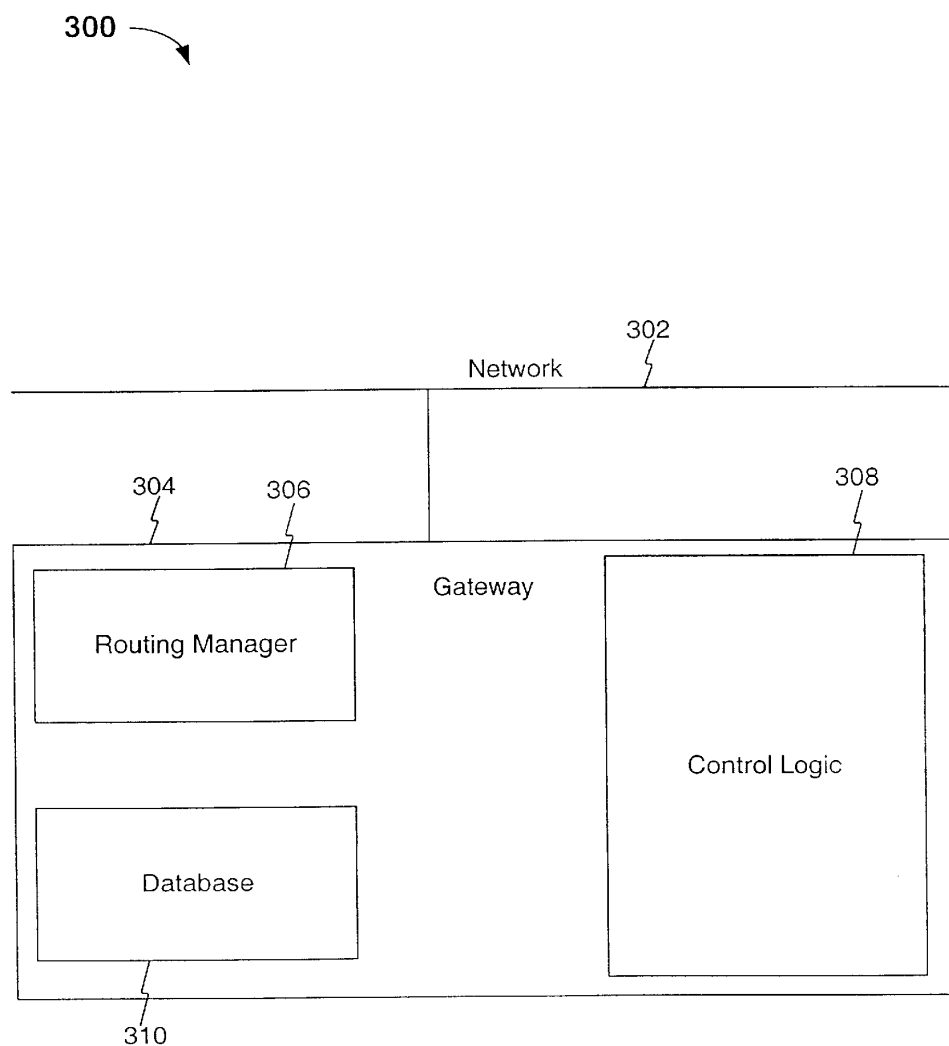


FIG. 3

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