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(54) **SYSTEMS AND METHODS FOR DETERMINING COLLECTING AND USING GEOGRAPHIC LOCATIONS OF INTERNET USERS**

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(52) **U.S. Cl.** **709/245**; 709/219; 709/229; 709/238

(58) **Field of Search** 709/217, 219, 709/229, 224, 245, 238, 218

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,939,726	A	7/1990	Flammer et al.
5,042,027	A	8/1991	Takase et al.
5,042,032	A	8/1991	Dighe et al.
5,115,433	A	5/1992	Baran et al.
5,231,631	A	7/1993	Buhrke et al.
5,291,550	A	3/1994	Levy et al.
5,418,713	A	5/1995	Yoshimura et al.
5,421,024	A	5/1995	Faulk, Jr. et al.
5,488,608	A	1/1996	Flammer, III
5,490,252	A	2/1996	Macera et al.
5,493,689	A	2/1996	Waclawsky et al.

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

WO	WO 96/13108	5/1996
WO	WO 99/34305	7/1999
WO	WO 00/22495	4/2000
WO	WO 01/57696 A1	8/2001
WO	WO 01/75698 A1	10/2001
WO	WO 02/17139 A1	2/2002

OTHER PUBLICATIONS

Tomasz Imielinski and Julio C. Navas; "Geographic Addressing, Routing, and Resource Discovery with the Global Positioning System"; Computer Science Dept. Rutgers, The State University, Piscataway, NJ 08855, Oct. 19, 1996; pp. 1–10.

(List continued on next page.)

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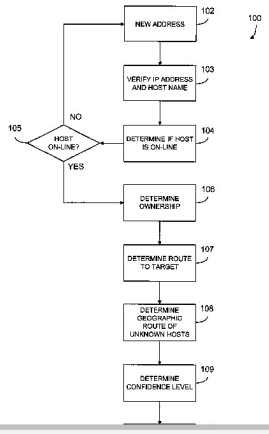
(57) **ABSTRACT**

A method of determining a geographic location of an Internet user involves determining if the host is on-line, determining ownership of the host name, and then determining the route taken in delivering packets to the user. Based on the detected route, the method proceeds with determining the geographic route based on the host locations and then assigning a confidence level to the assigned location. A system collects the geographic information and allows web sites or other entities to request the geographic location of their visitors. The database of geographic locations may be stored in a central location or, alternatively, may be at least partially located at the web site. With this information, web sites can target content, advertising, or route traffic depending upon the geographic locations of their visitors. Through web site requests for geographic information, a central database tracks an Internet user's traffic on the Internet whereby a profile can be generated. In addition to this profile, the central database can store visitor's preferences as to what content should be delivered to an IP address, the available interface, and the network speed associated with that IP address.

15 Claims, 15 Drawing Sheets



U.S. PATENT DOCUMENTS

5,636,276	A		6/1997	Brugger	
5,659,596	A		8/1997	Dunn	
5,680,390	A		10/1997	Robrock, II	
5,734,651	A		3/1998	Blakeley et al.	
5,734,823	A		3/1998	Saigh et al.	
5,734,891	A		3/1998	Saigh	
5,774,668	A		6/1998	Choquier et al.	
5,777,989	A		7/1998	McGarvey	
5,794,217	A		8/1998	Allen	
5,862,339	A	*	1/1999	Bonnaure et al.	709/227
5,870,561	A		2/1999	Jarvis et al.	
5,878,126	A		3/1999	Velamuri et al.	
5,913,036	A		6/1999	Brownmiller et al.	
5,930,474	A		7/1999	Dunworth et al.	
5,937,163	A		8/1999	Lee et al.	
5,944,790	A		8/1999	Levy	
5,948,061	A		9/1999	Merriman et al.	
5,978,845	A		11/1999	Reisacher	
6,009,081	A		12/1999	Wheeler et al.	
6,012,052	A		1/2000	Altschuler et al.	
6,012,088	A		1/2000	Li et al.	
6,012,090	A		1/2000	Chung et al.	
6,014,634	A		1/2000	Scroggie et al.	
6,035,332	A		3/2000	Ingrassia, Jr. et al.	
6,091,959	A		7/2000	Souissi et al.	
6,130,890	A		10/2000	Leinwand et al.	
6,148,335	A		11/2000	Haggard et al.	
6,151,631	A	*	11/2000	Ansell et al.	709/229
6,167,259	A		12/2000	Shah	
6,185,598	B1		2/2001	Farber et al.	
6,192,312	B1		2/2001	Hummelsheim	
6,243,746	B1		6/2001	Sondur et al.	
6,243,749	B1		6/2001	Sitaraman et al.	
6,249,252	B1		6/2001	Dupray	
6,259,701	B1		7/2001	Shur et al.	
6,266,607	B1		7/2001	Meis et al.	
6,272,150	B1		8/2001	Hrastar et al.	
6,272,343	B1		8/2001	Pon et al.	
6,275,470	B1		8/2001	Ricciulli	
6,285,748	B1		9/2001	Lewis	
6,286,047	B1		9/2001	Ramanathan et al.	
6,324,585	B1		11/2001	Zhang et al.	
6,338,082	B1	*	1/2002	Schneider	709/203
6,347,078	B1		2/2002	Narvaez-Guarnieri et al.	
6,356,929	B1		3/2002	Gall et al.	
6,415,323	B1		7/2002	McCanne et al.	
6,421,726	B1	*	7/2002	Kenner et al.	709/225
6,425,000	B1	*	7/2002	Carmello et al.	709/217
6,442,565	B1		8/2002	Tyra et al.	
6,466,940	B1		10/2002	Mills	
6,477,150	B1		11/2002	Maggenti et al.	
6,484,143	B1		11/2002	Swildens et al.	
6,487,538	B1		11/2002	Gupta et al.	
6,505,201	B1		1/2003	Haitsuka et al.	
6,513,061	B1		1/2003	Ebata et al.	
6,526,450	B1	*	2/2003	Zhang et al.	709/245
6,542,739	B1		4/2003	Garner	
6,578,066	B1		6/2003	Logan et al.	
6,629,136	B1		9/2003	Naidoo	
6,684,250	B2		1/2004	Anderson et al.	
2002/0007374	A1		1/2002	Marks et al.	
2002/0143991	A1		10/2002	Chow et al.	

OTHER PUBLICATIONS

Kessler & Shepard; "A Primer on Internet and TCP/IP Tools and Utilities"; Network Working Group; Request for Comments: 2151; FYI: 30; Obsoletes: RFC 1739; Category: Informational; Http://www.ietff.org/rfc/rfc2151.txt; Jun. 1997; (pp. 1–46).

"Subnet Masking Definition", www.exabyte.net/lambert/subnet/subnet_masking_definition.htm, John Lambert, 1999.

Kevin S. McCurley, "Geospacial Mapping and Navigation of the Web"; IBM Almaden Research Center; San Jose, CA 95120; May 1–5, 2001; pp. 221–229.

Orkut Buyukkokten, "Exploiting Geographical Location Information of Web Pages" Department of Computer Science, Stanford University, Stanford, CA 94305; pp. 1–6.

Narushige Shiode, "Analyzing the Geography of Internet Address Space" http://geog.ucl.uk/casa/martine/internetspace; pp. 1–3; (date unknown).

"Subnet Addressing", *Network Computing,* by Ron Cooney, www.networkcomputing.com/unixworld, tutorial/001.html, (no date given).

"Real–Time Geographic Visualization of World Wide Web Traffic" Stephen E. Lamm, Daniel A. Reed, Will H. Scullin. WWW Journal, Issue 3.

Copy of International Search Report for PCT/US 02/37725 mailed Apr. 21, 2003.

U.S. Provisional application Ser. No. 60/194,761, filed Apr. 3, 2000, Christopher Herringshaw et al., inventor.

U.S. Provisional application Ser. No. 60/241,776, filed Oct. 18, 2000, Brad Doctor, et al., inventor.

"Nicname/Whois", Internet Engineering Task Force, Request for Comments 954.

"A Primer on Internet and TCT/IP Tools and Utilities", Internet Engineering Task Force, Request for Comments 2151.

"Domain Name System Security Extensions", Internet Engineering Task Force, Request for Comments 2535.

"Content Delivery Services: Footprint Streaming Solutions", Brochure from Digital Island.

"TraceWire White Paper", Brochure from Digital Island, Jun. 1999.

"We Know Where You Live", Scott Woolley, Forbes Magazine, Nov. 13, 2000.

* cited by examiner

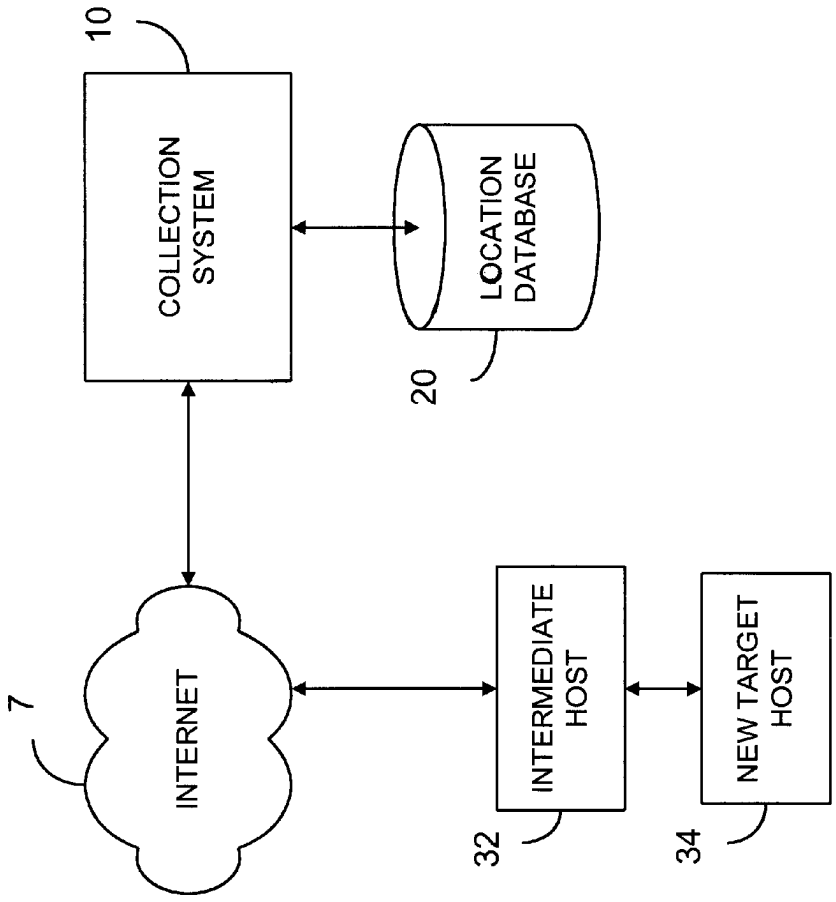


FIGURE 1

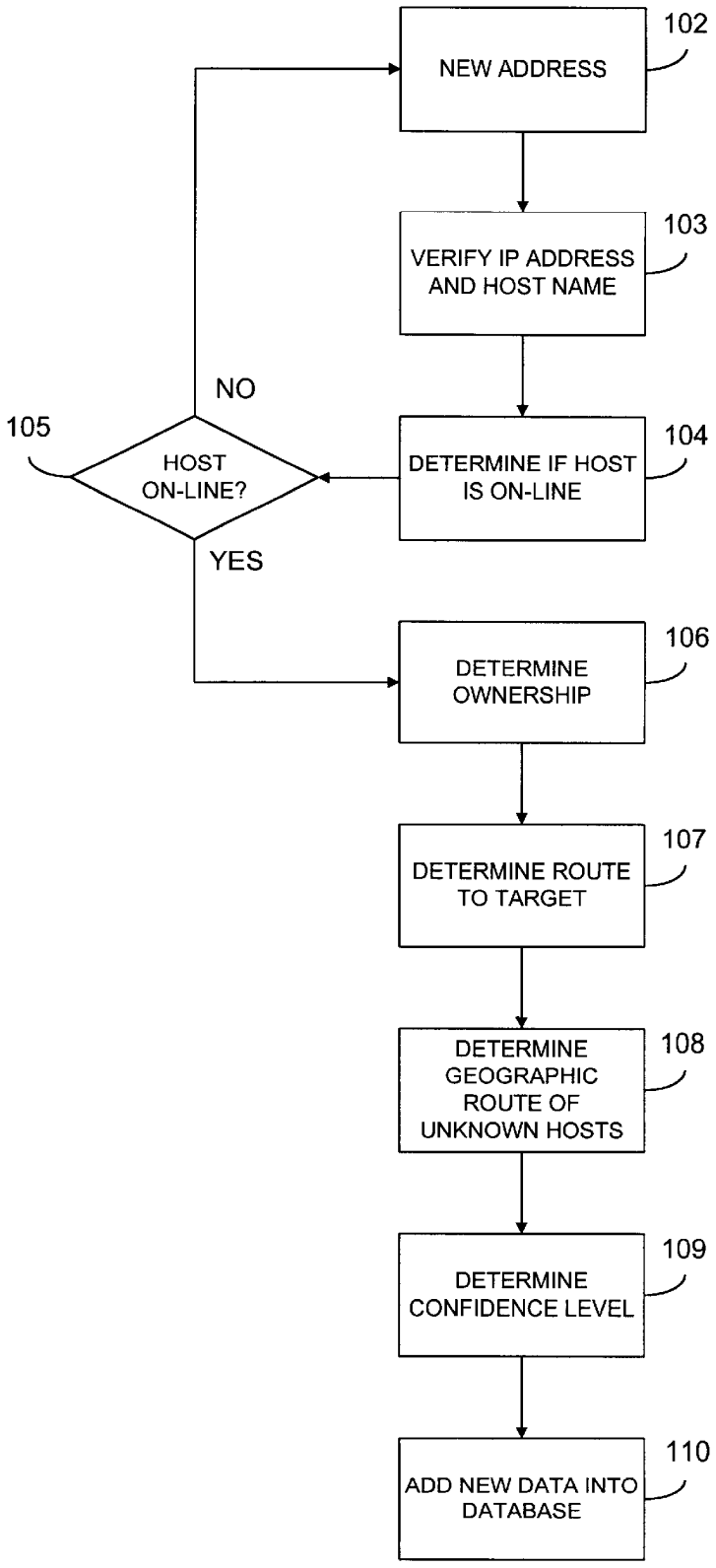


FIGURE 2

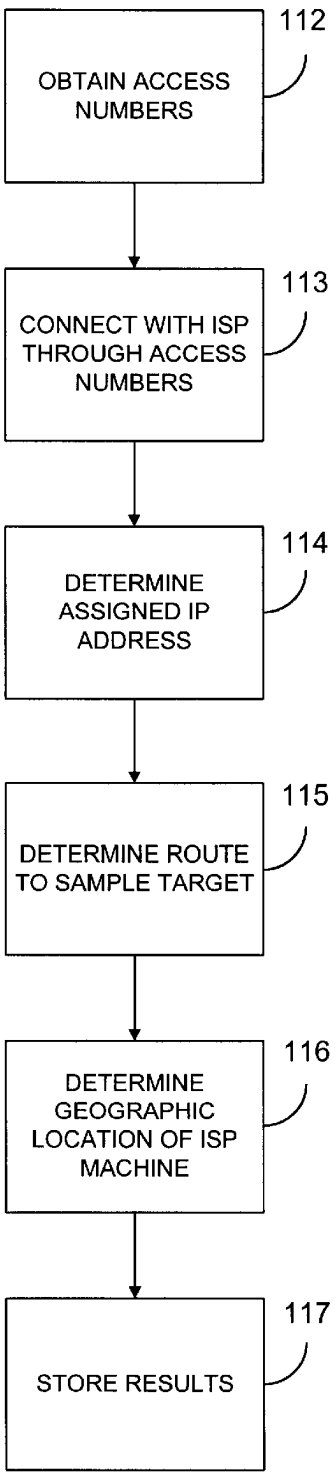


FIGURE 3

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