

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO. LTD., AND SAMSUNG ELECTRONICS
AMERICA, INC.,

Petitioner,

v.

MASSIVELY BROADBAND LLC,

Patent Owner.

Case No. IPR2026-00086

U.S. Patent No. 8,725,700

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 8,725,700**

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EXHIBIT LIST

Ex.	Description
EX1001	U.S. Patent No. 8,725,700 (“’700 Patent”)
EX1002	Declaration of Kevin C. Almeroth
EX1003	Curriculum Vitae of Kevin C. Almeroth
EX1004	Prosecution History for U.S. Pat. No. 8,725,700
EX1005	Patent Owner’s District Court Infringement Contentions for ’700 Patent
EX1006	U.S. Provisional Patent Application 60/971,175 filed Sep. 10, 2007
EX1007	U.S. Provisional Patent Application 60/977,582 filed Oct. 4, 2007
EX1008	U.S. Provisional Patent Application 61/028,261 filed Feb. 13, 2008
EX1009	U.S. Patent Publication No. 2007/0207800 A1 (“Daley”)
EX1010	U.S. Patent Publication No. 2008/0305747 A1 (“Aaron”)
EX1011	U.S. Patent Publication No. 2008/0186882 A1 (“Scherzer”)
EX1012	U.S. Patent Publication No. 2006/0253453 A1 (“Chmaytelli”)
EX1013	U.S. Patent Publication No. 2003/0216953 A1 (“Dawson”)
EX1014	Intentionally Omitted
EX1015	J. Schiller, <i>Mobile Communications</i> , Addison-Wesley, 2 nd Ed., 2003
EX1016	M. Stemm and R. Katz, “Vertical handoffs in wireless overlay networks,” <i>Mobile Networks and Applications</i> , vol. 3, pp. 335-50, 1998
EX1017	R. Chalmers, G. Krishnamurthi, and K. Almeroth, “Enabling Intelligent Handovers in Heterogeneous Wireless Networks,” <i>ACM</i>

	Journal on Mobile Networks and Applications (MONET), vol. 11, num. 2, pp. 215-227, April 2006
EX1018	S. Soliman, P. Agashe, et al., “gpsOne™: A hybrid position location system.” IEEE, 0-7803-6560-7, pp. 330-35, 2000
EX1019	K. Wang, L. Yan, H. Wen, and K. He, “GpsOne: a New Solution to Vehicle Navigation,” IEEE, 0-7803-8416-4, pps. 341-46, 2004
EX1020	U.S. Patent Publication No. 2003/0125044 A1 (“Deloach”)
EX1021	<i>Fryer’s TowerSource Acquired by Biby Publishing</i> (Dec. 29, 2005), available at https://wirelessestimator.com/content/articles/?pagename=wireless+to+wer+news , p. 13
EX1022	FCC ASR Registration Form 854 (January, 2006)
EX1023	Sample FCC ASR Record
EX1024	FCC ASR Search Screenshot
EX1025	Intentionally Omitted
EX1026	Richard Shim, <i>Boingo, T-Mobile Team On Wireless Roaming</i> , CNET (Mar. 18, 2003), available at: https://www.cnet.com/tech/mobile/boingo-t-mobile-team-on-wireless-roaming/
EX1027	Intentionally Omitted
EX1028	U.S. Patent No. 6,332,127 (“Bandera”)
EX1029	U.S. Patent No. 6,545,596 (“Moon”)
EX1030	U.S. Patent Publication No. 2002/0046084 A1 (“Steele”)
EX1031	U.S. Patent No. 7,110,749 (“Zellner”)
EX1032	G. Heine, <i>GSM Networks: Protocols, Terminology, and Implementation</i> , Artech House, 1999.
EX1033	U.S. Patent No. 6,978,138 (“Japenga”)

EX1034	Intentionally Omitted
EX1035	Telcom Network Planning for evolving Network Architectures, Reference Manual, Draft Version 4.1, ITU, 28 February 2007.
EX1036	A. Sinclair, GSM Goes to Market, GSM Association, March 2007
EX1037	Intentionally Omitted
EX1038	Intentionally Omitted
EX1039	Bitfone Solutions, Bitfone (Oct. 22, 2006), available at https://web.archive.org/web/20061022001229/http://www.bitfone.com/usa/enter.shtml
EX1040	U.S. Patent Application Publication 2004/0097260 (“Stenton”)
EX1041	Sandeep Adwanker, et al., <i>Universal Manager: Seamless Management of Enterprise Mobile and Non-mobile Devices</i> , IEEE International Conference on Mobile Data Management (2004).
EX1042	U.S. Provisional Patent Application No. 60/774,406 (“Daley Provisional”)
EX1043	Gary Krakow, <i>The first Palm-Microsoft smart phone debuts</i> , NBC News (January 5, 2006), available at https://www.nbcnews.com/id/wbna10698983
EX1044	Pui-Wing Tam, <i>How Palm’s Treo Capitalized On BlackBerry’s Patent Fracas</i> , Wall Street Journal (Mar. 23, 2006), available at https://www.wsj.com/articles/SB114308086956305949
EX1045	E.P. 1,624,710 (“Smith”)
EX1046	W.O. 2004/030393 (“Korale”)
EX1047	<i>MySpace, Facebook and Other Social Networking Sites: Hot Today, Gone Tomorrow?</i> , Knowledge at Wharton (May 3, 2006), available at https://knowledge.wharton.upenn.edu/podcast/knowledge-at-wharton-podcast/myspace-facebook-and-other-social-networking-sites-hot-today-gone-tomorrow/

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EX1048	U.S. Patent No. 7,373,246 (“O’Clair”)
EX1049	U.S. Patent No. 8,666,821 (“Xie”)
EX1050	U.S. Patent Publication No. 2007/0213925 (“Sharma”)

LIST OF CHALLENGED CLAIMS

Claim	Limitation
1[pre]	A method of collecting and providing access to quality or service information associated with one or more wireless communications networks, mobile devices, or end users, comprising:
1[a]	using a computer, receiving mobile device location information of a plurality of mobile devices or end users that are associated with one or more wireless communications networks and quality or service information pertaining to wireless access characteristics for one or more mobile devices of said plurality of mobile devices or end users, and said quality or service information comprising coverage, availability or performance information of one or more wireless communications networks or said one or more mobile devices,
1[b]	storing, by action of said computer, said mobile device location information and said quality or service information in a memory or database;
1[c]	updating, by action of said computer, said mobile device location information stored in said memory or database when a mobile device of said plurality of mobile devices travels from one location to another;
1[d]	providing access to said quality or service information stored in said memory or database to one or more end users or one or more end user communication devices or one or more carriers or third parties that provide services to said one or more end users or one or more end user communication devices or one or more carriers, or to said one or more wireless communications networks; and
1[e]	wherein said wireless access characteristics comprise one or more of identified, perceived or measured: radio reception quality, network performance, quality of service, data rate, spectrum availability or suitability, capacity or bandwidth, availability or quality of coverage, availability or quality of capacity, availability or quality of one or more services or carriers, availability or quality of air interfaces, average use profile, average availability profile, statistics on outage or reliability or coverage or capacity carrying capabilities for one or more service providers, frequencies, radio frequency or

Claim	Limitation
	quality of service or coverage or service map or addresses for one or more service providers, radio frequency or end-user application performance, and cost of service.
2	The method of claim 1 wherein said step of providing access provides access to said one or more end users or one or more end user communications devices by reporting quality or service information to said one or more end users or said one or more end user communications devices.
3	The method of claim 1 wherein said quality or service information is location specific.
4	The method of claim 1, further comprising serving data based on mobile device location information and quality or service information stored in said memory or database.
5	The method of claim 4 wherein said data comprises one or more of a recommended operating band, operating mode, communications network and/or carrier for end users or end user communications devices.
6	The method of claim 5 wherein said data is formatted and served to end users or end user communications devices as one or more web pages.
7	The method of claim 1, further comprising serving data based on mobile device location information or quality or service information stored in said memory or database to one or more carriers.
8	The method of claim 1, further comprising providing access to quality or service information stored in said memory or database to a party or parties other than subscribers and carriers of said one or more wireless communications networks.
9[a]	The method of claim 1, wherein said quality or service information further comprises rank ordering or preferred preferences for one or more of ranked or preferred:
9[a][i]	wireless performance, telecommunication services, service providers, carriers, frequencies, spectrum allocations, wireless

Claim	Limitation
	connection options, power levels, data rates, modulation types, air interface specifications, and bandwidths, and
9[b]	wherein said providing step further provides access to one or more of said ranked ordering or preferred preferences to said one or more end users or said one or more end user communication devices or said one or more carriers or said third parties that provide services to said one or more carriers, or to said one or more wireless communications networks.
10[pre]	A system for collecting and providing access to quality or service information associated with one or more wireless communications networks, mobile devices, or end users, comprising:
10[a]	a computer configured to receive mobile device location information of a plurality of mobile devices or end users that are associated with one or more wireless communications networks and quality or service information pertaining to wireless access characteristics for one or more mobile devices of said plurality of mobile devices or end users, and said quality or service information comprising coverage, availability or performance information of one or more wireless communications networks or said one or more mobile devices;
10[b]	a memory or database configured to store the received mobile device location information and quality or service information;
10[c]	an interface through which one or more end users or one or more end user communication devices, or one or more carriers, or one or more third parties that provide services to said one or more end users or one or more end user communication devices or said one or more carriers, or one or more wireless communications networks may access said quality or service information or mobile device location information stored in said memory or database; and
10[d]	wherein said wireless access characteristics comprise one or more of identified perceived or measured: radio reception quality, network performance, quality of service, data rate, spectrum availability or suitability, capacity or bandwidth, availability or quality of coverage, availability or quality of capacity, availability or quality

Claim	Limitation
	of one or more services or carriers, availability or quality of air interfaces, average use profile, average availability profile, statistics on outage or reliability or coverage or capacity carrying capabilities for one or more service providers, frequencies, radio frequency or quality of service or coverage or service map or addresses for one or more service providers, radio frequency or end-user application performance, and cost of service.
11	The system of claim 10, further comprising a server configured to serve quality or service information stored in said memory or database to one or more carriers.
12	The system of claim 10, further comprising a server configured to generate and serve data based on mobile device location information and quality or service information stored in said memory or database to one or more end users or one or more end user communications devices.
13	The system of claim 12 wherein said data comprises one or more of a recommended operating band, operating mode, communications network and/or carrier for said one or more end users or one or more of said end user communications devices.
14	The system of claim 13 wherein said server comprises a web server and said data is formatted as one or more web pages served to said one or more end users or one or more of said end user communications devices.
15	The system of claim 10 wherein said computer is configured to provide access to quality or service information stored in said memory or database to a party or parties other than subscribers and carriers of said one or more wireless communications networks.
16 <pre>[pre]</pre>	The system of claim 10,
16 <pre>[a]</pre>	wherein said quality or service information further comprises rank ordering or preferred preferences for one or more of ranked or preferred:
16 <pre>[a][i]</pre>	wireless performance, telecommunication services, service providers, carriers, frequencies, spectrum allocations, wireless

Claim	Limitation
	connection options, power levels, data rates, modulation types, air interface specifications, and bandwidths, and
16[b]	wherein said interface is configured to provide access to one or more of said rank ordering or preferred preferences to said one or more end users or said one or more end user communication devices or said one or more carriers or said one or more third parties, or to said one or more wireless communications networks.

I. INTRODUCTION

The '700 Patent is directed to “creating an inventory and marketplace for available properties for use in telecommunication networks,” “providing quality and/or performance monitoring and control for wireless communication systems,” and “providing localized content over wireless networks.” EX1001, Abstract. The '700 Patent claims priority to three provisional applications, each describing one of these concepts. EX1001, 1:10-15; EX1006-1008; EX1002, ¶¶33-36.

However, the '700 Patent does not claim any new or non-obvious technology. The challenged claims recite little more than collecting information about the performance of wireless devices and the communications systems to which they might connect and, optionally, sending those devices configuration instructions after evaluating the collected data—indeed, little more than that is disclosed. EX1001, 25:7-26:50, 27:11-28:21. But device monitoring and management systems and location-specific advertising existed in the prior art well before the alleged¹ September 10, 2007, priority date. As demonstrated herein, the challenged claims are unpatentable under 35 U.S.C. § 103.

¹ Petitioner does not concede that the priority claims are proper.

II. MANDATORY NOTICES AND FEES

A. Real Party-In-Interest

The real parties-in-interest are Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, “Petitioner”).

B. Related Matters

The ’700 patent was asserted against Petitioner in *Massively Broadband LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.*, Case No. 2:25-CV-00608-JRG (E.D. Tex., filed June 6, 2025). Also asserted in that case are, *inter alia*, related patents 8,515,925 and 8,224,794. Both the ’700 Patent and 8,515,925 issued from continuations of the application that issued as 8,224,794.

C. Counsel and Service Information

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D. Payment of Fees

The Office is authorized to charge the fee required for this Petition (and any additional fees) to Deposit Account No. 50-5708. Any additional fees that might be due are also authorized.

E. Requirements for *Inter Partes* Review

Petitioner certifies that the '700 patent is available for *inter partes* review, that Petitioner is not barred or estopped, and that 35 U.S.C. §§ 315(a)-(b) is inapplicable.

III. GROUNDS

Ground	Basis	Reference(s)	Claims
1	§103	Daley, Aaron, and Scherzer	1-16
2	§103	Scherzer	1-6, 8-16
3	§103	Scherzer and Chmaytelli	7
4	§103	Scherzer and Sharma	7

IV. '700 PATENT

A. '700 Patent Specification

The specification discloses that before the alleged invention, intermediaries would help make a market between real property owners and telecommunications carriers desirous of placing infrastructure on that property. EX1001, 1:19-2:41. It describes that a variety of information and analytics were used when identifying opportunities and negotiating a deal. *Id.* It also describes the existence of online marketplaces and software tools to facilitate such transactions. *Id.*, 2:31-57. After asserting there was no “public clearinghouse” where carriers could explore information about “tower sites or available real estate or land available to their business needs” (3:17-21, 2:58-3:28), the '700 Patent asserts that business and technical trends, including developments in wireless connectivity (3:29-4:22), will contribute to the demand for an online marketplace specific to telecommunications infrastructure, replacing the existing manual markets (4:23-5:56).

The patent identifies both (1) firms and websites that use public information to map or plot wireless signal strength/quality and that allow users to comment on

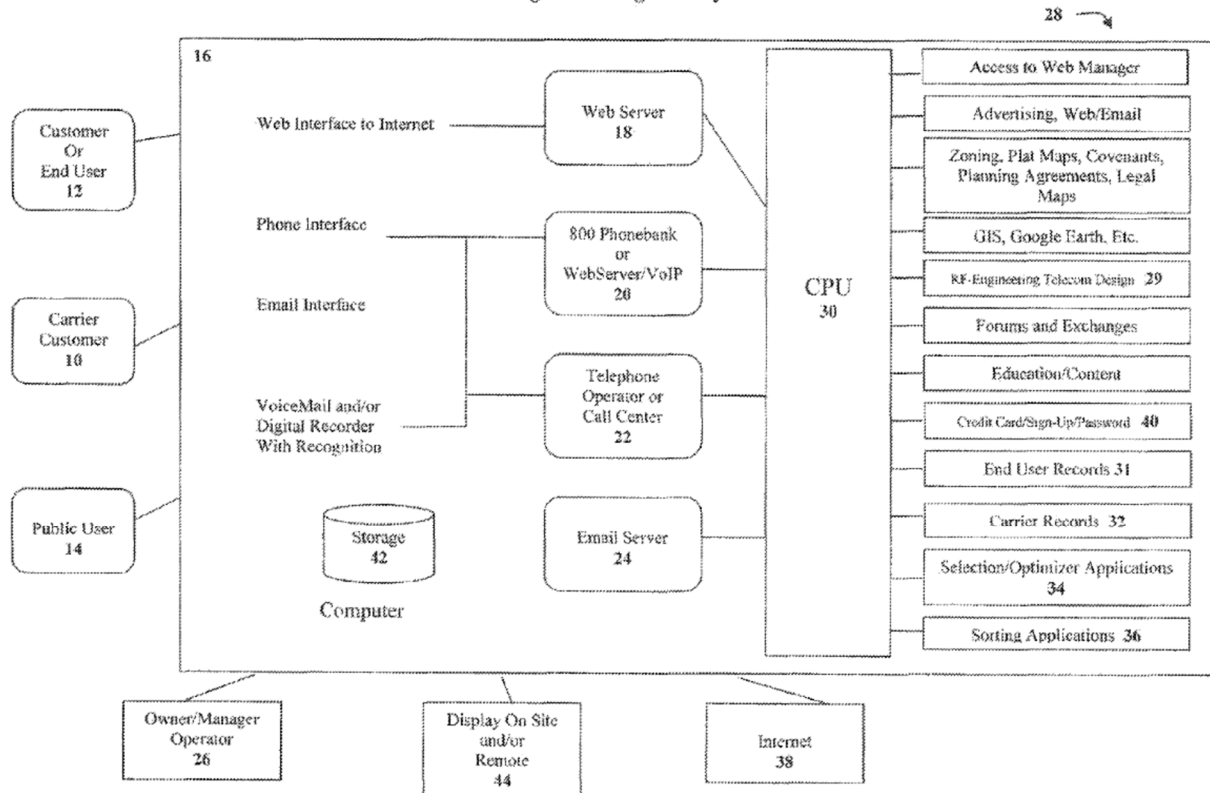
the same wireless signal strength in a particular area and (2) websites that push advertising to users and similarly allow for user reviews of wireless devices and networks. *Id.*, 7:8-40. In the Detailed Description, the patent acknowledges additional prior art and specific systems and sites of relevance. *Id.*, 13:60-16:11.

The specification emphasizes the breadth of the invention: “This invention applies to any carrier-based system ... no matter ... whether it is wired or wireless ... or what the technology, modulation, access method, etc. may be. That is, this patent is not limited to wireless, optical, cellular, WiMax, Mesh, WiFi, RFID, LMDS, cable, or satellite, and not limited to fixed, mobile, or portable operation by users...” *Id.*, 8:64-9:25.

The patent’s Figure 1 depicts “the clearinghouse computer system” (*id.*, 12:6-9) showing a standard database system where information such as advertising, legal data, geographic/mapping data, user account information, carrier records, and end user records, is made accessible via a variety of interfaces such as the web, phone, or email (elements 18, 20, 22, and 24) to different users such as members of the public, carriers, customers/subscribers, and system end users (elements 10, 12, and 14). The Board construes claims per *Phillips v. AWH Corp.* 415 F.3d 1303 (Fed. Cir. 2005), and “only to the extent necessary to resolve a controversy.” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017). Except for the terms below, or unless otherwise indicated, and for the purposes of

this proceeding only, the claim terms should carry their “ordinary and customary” (*i.e.*, plain and ordinary) meaning: “the meaning that the term would have to a person of ordinary skill in the art in question” at the time of the invention. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007) (citation omitted).

Fig. 1 Clearinghouse System



B. Prosecution History (EX1004)

The '700 Patent is a pre-AIA patent whose earliest possible priority date is September 10, 2007, via Provisional Application No. 60/971,175. It also claims priority to Provisional Applications No. 60/977,582 (filed Oct. 4, 2007) and No. 61/028,261 (filed Feb. 13, 2008).

The '700 Patent issued from Application No. 12/815,165, filed June 14, 2010, as a continuation of Application No. 12/208,007, filed September 10, 2008. Applicants filed terminal disclaimers over, *inter alia*, 8,224,794, and overcame two rejections through a combination of amendment and argument. None of the references argued in this petition were made of record during prosecution.

V. PERSON OF ORDINARY SKILL

A POSITA at the time of alleged invention would have had at least a bachelor's degree in computer science, electrical engineering, or a related field, and at least two years (cumulative) of work or research experience in the fields of database design or administration, online marketplaces or e-commerce, and wireless network or mobile device management, or equivalents. Additional work or research experience could substitute for education, and further education could substitute for work or research experience. EX1002, ¶46.

Petitioner's expert, Dr. Almeroth, exceeded this level by the priority date. EX1003.

VI. CLAIM CONSTRUCTION

The Board construes claims per *Phillips v. AWH Corp.* 415 F.3d 1303 (Fed. Cir. 2005) and "only to the extent necessary to resolve a controversy." *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017). No express constructions are required to find the '700 patent claims invalid. For the

purposes of this proceeding only, the claim terms should carry their “ordinary and customary” (*i.e.*, plain and ordinary) meaning: “the meaning that the term would have to a person of ordinary skill in the art in question” at the time of the invention. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007) (citation omitted). To the extent relevant, Petitioner addresses the plain meaning of certain terms in the analysis for the presented Grounds.

VII. GROUNDS

A. Prior Art

1. Daley

U.S. Patent Application Publication 2007/0207800 (“Daley”) is prior art under at least pre-AIA 35 U.S.C. §§ 102(a) and 102(e), having been filed February 20, 2007, and published September 6, 2007, before the earliest possible effective filing date of the ’700 Patent (September 10, 2007).

Daley describes a system for managing and monitoring mobile devices and the mobile networks to which they connect. EX1009, Abstract, [0031], [0032], [0038], [0047]-[0056]. Daley Figure 1 illustrates the mobile device 107, its client-side software components, and the network operator’s server-side components. EX1009, Fig. 1, [0033], [0035].

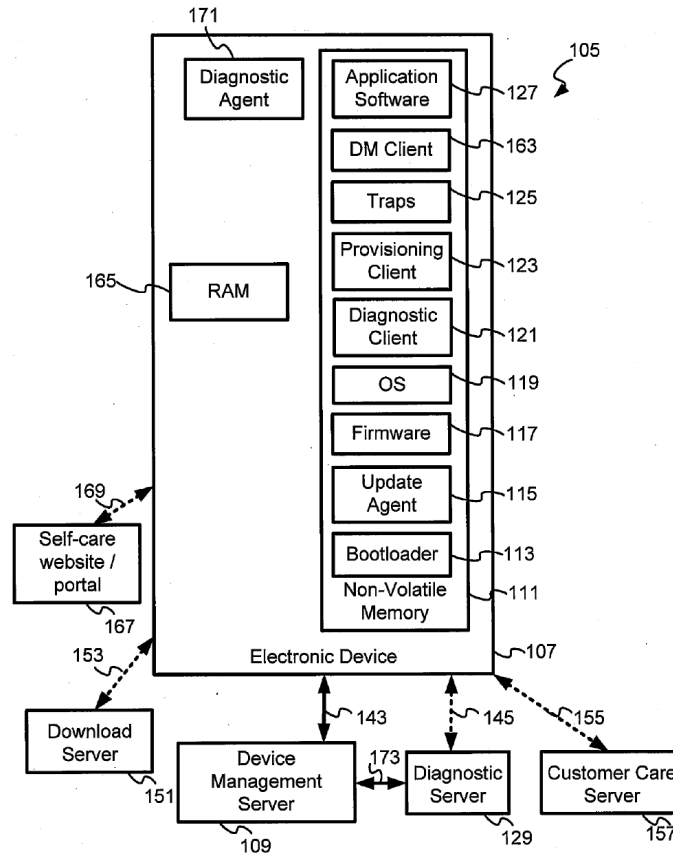
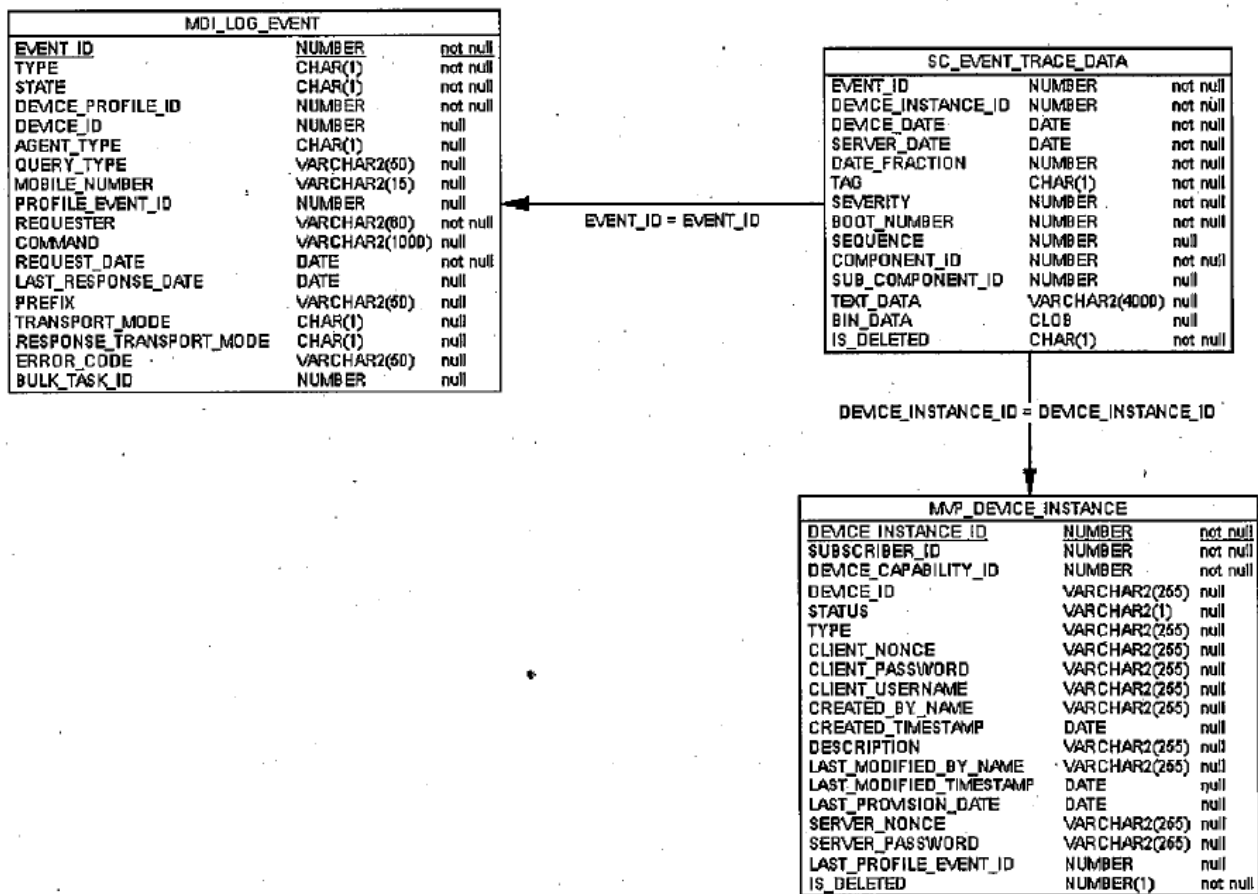
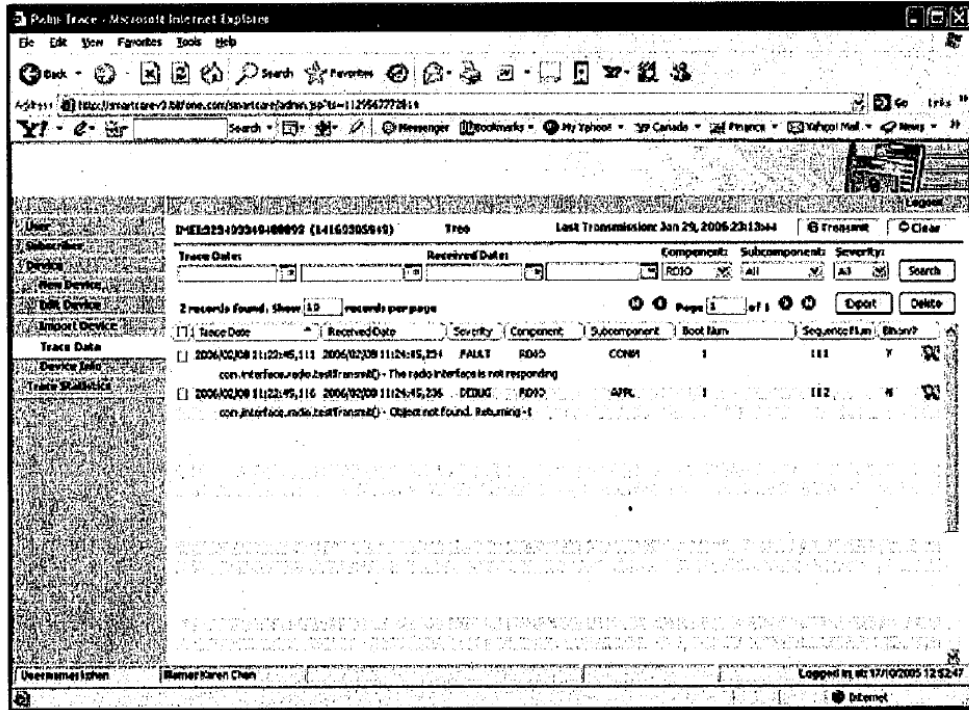


FIG. 1

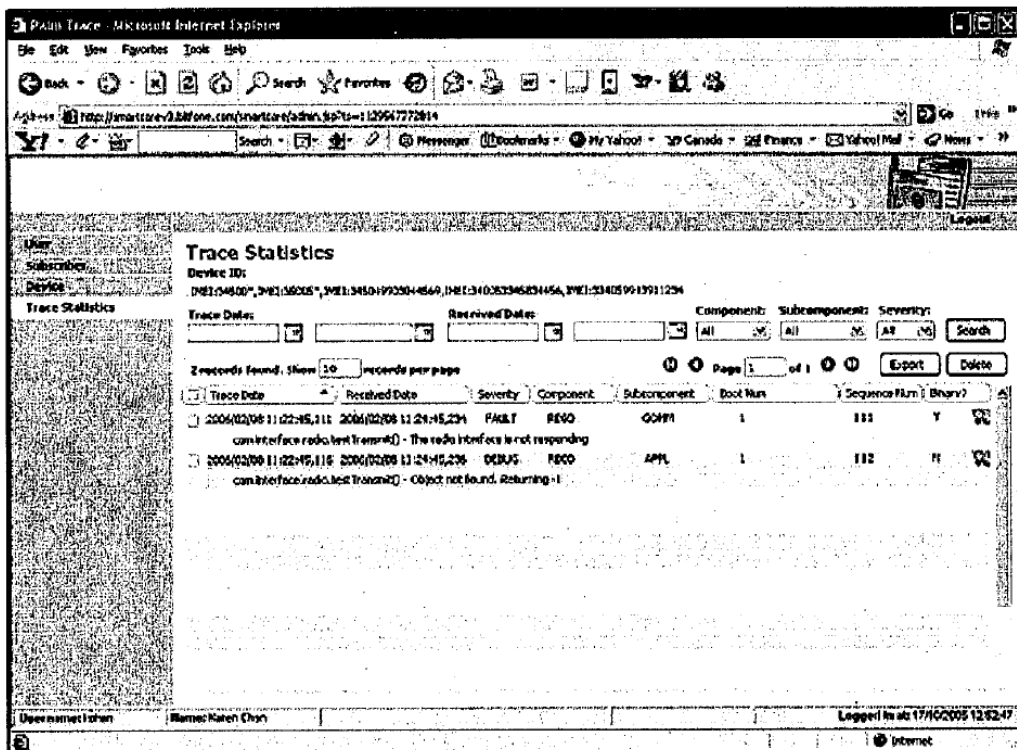
The client software components include the device management client, diagnostic client, provisioning client, update agent, and traps client. EX1009, [0035]. These components configure, update, and monitor the mobile device. EX1009, [0035]-[0041]. Server components include the download server, device management server, diagnostic server, customer care server, and self-care website/portal. EX1009, [0033]. The client components communicate with the server components, allowing the network operator to remotely diagnose and resolve problems faced by the customer/subscriber. EX1009, [0034], [0038].

The client software generates and collects diagnostics, tracing, debugging, and network performance information. EX1009, [0039]-[0042]. This information is uploaded to the server components, where it is stored in a database and made available (e.g., through a web page) to a network operator or mobile device user. EX1009, [0044], [0059], [0072], [0202], [0215], [0242], [0249], [0252], [0273]-[0274], Fig. 14-18.





The network operator may analyze the collected information in aggregate to gather statistics across multiple mobile devices. EX1009, [0286]-[0290], Fig. 17.



2. Aaron

U.S. Patent Application Publication 2008/0305747 (“Aaron”) is prior art under at least pre-AIA 35 U.S.C. § 102(e), having been filed June 7, 2007 (before the earliest effective filing date of the ’700 Patent) and published December 11, 2008.

Aaron describes methods and systems for measuring the service quality of wireless telecommunications systems through collecting and measuring information from wireless devices. EX1010, Abstract, [0004]-[0005].

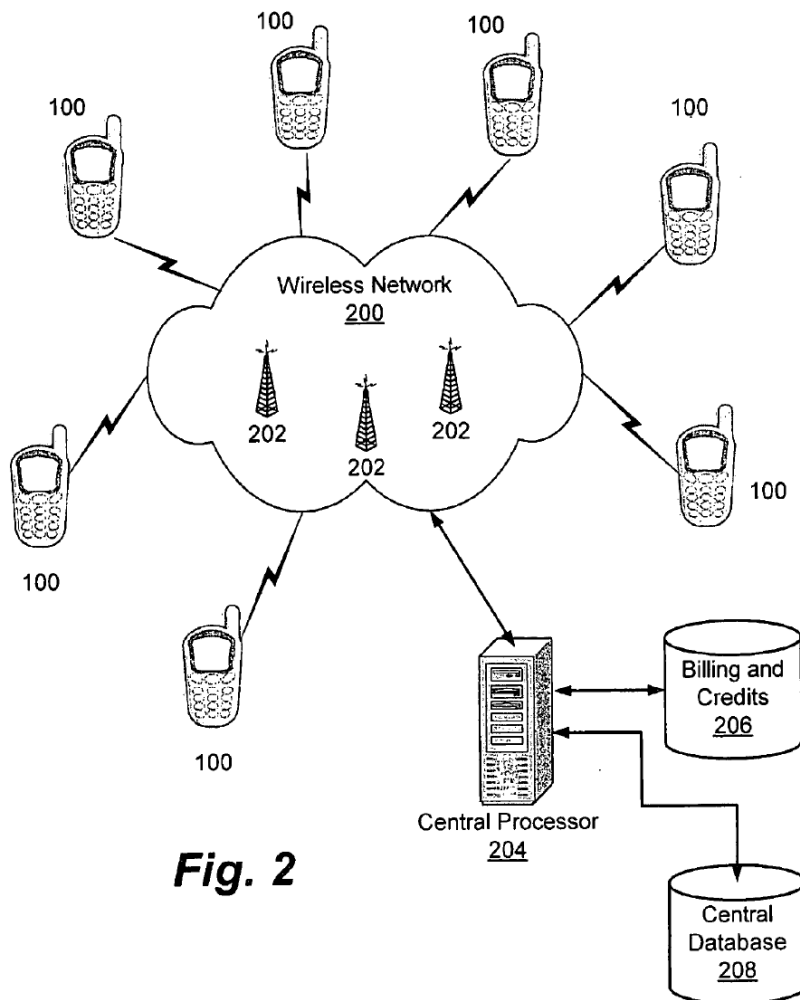


Fig. 2

The wireless devices collect service quality information such as “the signal strength of a radio link between the wireless terminal 100 and a base station 202, the signal quality of a radio link between the wireless terminal 100 and a base station 202, and the occurrence of a dropped call. SNR (signal-to-noise ratio) may also be used.” EX1010, [0040]. The wireless devices also determine their geographic location based on a GPS receiver or based on the base stations they use. EX1010, [0006], [0042].

The information, including the location information, is sent to a server system that stores the received information in a central database. EX1010, [0036], [0037], [0043]. The wireless service provider may use the quality of service and location information to identify problems within the wireless communications system. EX1010, [0009], [0031], [0052], [0054].

3. Scherzer

U.S. Patent Application Publication 2008/0186882 (“Scherzer”) is prior art under at least pre-AIA 35 U.S.C. §§ 102(a) and (e), having been filed May 3, 2007 and published August 7, 2008, both before the earliest effective filing date of the ’700 Patent.

Scherzer discloses a system for collecting service quality information for wireless access points into a database that is then shared with devices to facilitate those devices connecting to access points based on the collected measurements.

EX1011, Abstract. This system includes client devices such as cellphones communicating with a server to update and query a database containing measurements of quality and the geographic location of wireless access points. EX1011, [0068], Fig. 1.

Scherzer's database "stores historical data about radio broadband access resources" including "WiFi hot-spots locations and quality." EX1011, [0067]-[0068]. The server populates the database based on "connectivity reports" received from client devices. EX1011, [0069], [0071]. Client devices conduct radio surveys of the radio resources available at the client's geographic area, and for each radio resource, the client performs a "measurement trip" to collect "radio resource parameters." EX1011, [0080]-[0082].

Scherzer's client devices also receive quality and connection information from the server's database and may use the information when selecting and connecting to a wireless access point. EX1011, [0070]-[0071].

Scherzer describes the server using the information in the database to provide geographic maps of access points near a client device. EX1011, [0149]. The server may also provide a ranking of those access points based on the database's measurements of the quality of the access point. EX1011, [0149]-[0151].

B. Ground 1: Daley, Aaron, and Scherzer

1. Combination

Daley's mobile device monitoring and diagnostic system is augmented to leverage the mobile device geographic location capabilities and access point quality measurement collection and use, as disclosed by Aaron and Scherzer. EX1002, ¶¶64.

Daley, Aaron, and Scherzer are all analogous art because they all incorporate the collection of data, including quality of service information, from mobile devices to a central server for review, analysis, and issue remediation and/or wireless service improvement. EX1002, ¶65.

2. Motivations to Combine

Adding Device Location Information Improves Problem Assessment and Remediation: Daley is directed to systems and method involving applications running on a mobile subscriber's mobile devices that collect and transmit information about those devices to a server, allowing end-users of the server system (who may access that system via web and other interfaces and who may themselves be mobile subscribers) to remotely diagnose and resolve problems faced by the subscriber and allowing subscribers to engage in self-help. EX1009, [0033]-[0034], [0038]-[0042], [0215]-[0216], Figs. 1, 4, 6-18.

A POSITA would have known that when assessing an issue with a wireless device, and especially when attempting to assess and resolve an issue with the network performance of the device, one of the most helpful pieces of information is

the location of the device. EX1002, ¶67. A POSITA's common sense is sufficient to understand that a system for monitoring, diagnosing, and resolving issues with wireless devices, would benefit from having access to (1) information about the location of the devices at the time of the monitored performance and (2) information about the infrastructure (*e.g.*, base stations or towers) with which the device was or could have been in communication. EX1002, ¶67. Moreover, Aaron and Scherzer demonstrate that a POSITA would have known about the benefits of having such information available in a device monitoring and management system. EX1002, ¶¶67-69. A POSITA would therefore have looked to art, including Aaron and Scherzer, that describes collecting and leveraging device location information in a system like Daley's. EX1002, ¶¶67-69.

As set forth above, Aaron, like Daley, is directed to collecting and measuring service quality information from wireless devices. EX1002, ¶68. Aaron discloses more detail about the type of network performance data disclosed in Daley, specifically reciting additional infrastructure-related parameters such as "signal strength," "signal quality," "dropped call[s]," and signal-to-noise ratios. EX1010, [0040]. Aaron also discloses collecting information about the geographic location of the wireless device when service quality information is collected. EX1010, [0006], [0042]. Scherzer is similarly directed to improving the performance of a wireless device based in part on collecting data from that device into a server-side

database. EX1002, ¶¶68. The database includes the geographic location of wireless access points and both real-time and historical data about their performance. EX1011, [0067]-[0069], Fig. 1. A POSITA would have looked to the teachings of Scherzer and Aaron when considering how to add location related features to Daley. EX1002, ¶¶67-69.

Collecting Base Station Information Improves Problem Assessment and Remediation: A POSITA also would have been aware that because mobile devices were oftentimes within range of multiple cell towers or access points (base stations), connecting a mobile device to a different base station (*e.g.*, switching to a new base station to maintain service quality as the mobile device moves or if performance on the current base station degrades) was a common exercise. EX1002, ¶¶70-71; EX1015 at 117-120, 142-156; EX1016 at 336-39; EX1032 at 4-7, 15-38, 251-302, 327, Table 11.4; EX1033 at 1:10-2:67, EX1035; EX1036 at 1:18-4:36. Information about handovers, including transitions from a home network to a roaming network, could be both a useful diagnostic tool (*e.g.*, to determine whether an issue is rooted in the device or in the network infrastructure). *Id.* Allowing or encouraging a connection to another base station or tower is also a potential remedy (*e.g.*, if another base station would be more performant or less expensive). *Id.* Handovers might occur based on factors including service quality measurements, cell load and capacity, and mobility patterns (*e.g.*, speed of the mobile device movement). *Id.*

They were also influenced by the location of the cell tower, including relative to the device, and the properties of the tower (*e.g.*, transmission bands, load, carrier affiliation). *Id.*

Daley explicitly discloses monitoring “roaming transitions” (EX1009, [0145]), which involve base station transitions. EX1002, ¶70. A POSITA would have been motivated to augment Daley with additional base-station specific monitoring and configuration capabilities, because, for example, having such information can help determine if a device is optimally configured for use with its current base station, if its configuration settings should be changed, or if it can (or perhaps should) connect to a different base station. EX1002, ¶¶70-71. Moreover, Daley as augmented with location-related collection and processing (*e.g.*, as disclosed in Aaron or Scherzer) would have invited these additional capabilities with additional vigor, because customers and carriers would expect such a system to leverage its access to location information by providing location-related functionality such as base station recommendations or rankings. EX1002, ¶71.

Notably, both collecting real-time location data and retaining that data for analysis further the goal of Daley—improving user experiences with mobile devices as they are on the move. EX1002, ¶72. For example, real-time location data facilitates providing configuration information, including lists of relevant towers and how best to connect to them, to resolve immediate problems or mitigate ongoing

risks. EX1002, ¶72. Historical location data can facilitate more systemic analysis by identifying locations in which customers frequently encounter issues or by identifying common configurations in devices that do not experience problems in a given location. EX1002, ¶72. Indeed, Daley specifically contemplates “anticipatory tracing” or collection of data “for a problem that is expected to occur at some time in the future.” EX1009, [0060]. Moreover, a POSITA would have been aware of related art, such as Scherzer, that discloses such systems and their advantages. EX1002, ¶¶72-74.

A POSITA would therefore have looked to art that describes collecting, providing, and using information about base stations and access points in the context of a system like Daley or Daley as augmented per Aaron. EX1002, ¶¶72-74. Scherzer discloses such a system, and a POSITA would have looked to the teachings of Scherzer when considering how to add base-station related features to Daley (or Daley as augmented per Aaron). EX1002, ¶¶72-74.

*Collecting **Both** Base Station Information and Location Information Further Improves Problem Assessment and Remediation:* A POSITA would have known that having *both* location and base station information can help determine whether an issue is location-specific (*e.g.*, dues to a storm, power outage, or some source of interference), base station specific (*e.g.*, excessive demand, a misconfiguration, or a malfunction), or a device or user specific issue. EX1002, ¶75.

A POSITA would also have understood that it was in the best interests of customers and carriers to expeditiously and accurately remedy, and not just diagnose, a wide range of issues. EX1002, ¶76. A POSITA would have understood that by augmenting Daley's system with location and base station information, the system would have been enabled to address a wider range of remedial actions, including configuring a device to avoid interference and optimize connectivity, avoiding excessive power use if there appears to be a regional power outage, or connecting to alternative base stations if a base station appears overloaded or unavailable. EX1002, ¶76. The latter remedy, in particular, was known to possibly have financial implications for a device user (*e.g.*, because of roaming or off-network fees). EX1002, ¶77. A POSITA would have understood that in some circumstances it would be appropriate (or even required) to empower the end user to make the final decision as to what base stations to connect to because connecting to certain base stations might have incurred additional end user cost (such as by triggering roaming charges). EX1002, ¶77. Therefore, a POSITA would have known that it would be advantageous to be able to provide a list of available base stations (ideally ranked according to various metrics such as availability, performance, or cost) and allow the device user to make the final decision. EX1002, ¶77.

A POSITA would also have been motivated by the knowledge that enhancing Daley to provide these features and functionality would likely provide a competitive advantage (*e.g.*, by improving customer satisfaction and retention) or at least be necessary to avoid competitive disadvantage as these features became “table stakes.” EX1002, ¶78.

Moreover, Scherzer would have provided a POSITA with additional motivations to implement this functionality in a wireless device monitoring and management system. EX1002, ¶79.

Knowing that these features and functions were desirable to have in a system like Daley’s, a POSITA would have recognized that Aaron and Scherzer disclose implementing those features and functions in systems that are technically similar to that of Daley. EX1002, ¶80.

3. Reasonable Expectation of Success

A POSITA would have had a reasonable expectation of success in adding location and access point capabilities to Daley, including as disclosed by Aaron and Scherzer. EX1002, ¶81.

Enhancements to Daley’s mobile devices to collect geographic location, as disclosed in Aaron, and access point information, as disclosed in Scherzer, would have been straightforward and well within the abilities of a POSITA because this is the same type of problem, with the same type of solution, as the data collection

already disclosed by Daley. EX1002, ¶81. Similarly, a POSITA would have known that transmitting this additional data would have been accomplished by simply adding additional header and content fields to the transmission protocol disclosed by Daley with a minimal impact on consumed bandwidth. EX1002, ¶82.

On the server side, a POSITA would have known how to extend the databases disclosed by Daley. EX1002, ¶83. For example, if a relational database is used a POSITA would know to add additional columns or tables for the additional datatypes and relationships, such as a table for access points or a column to record the location of a device at the time of collection. EX1002, ¶83. Adding user interface pages to support this additional content and functionality would have been well within the skillset of a POSITA, requiring the same type of work that would have been necessary to create the pages disclosed in Daley. EX1002, ¶84.

To the extent a device did not already track its own location, a POSITA would also have understood that information about the location of a wireless device and information about the location and properties of wireless infrastructure could have been sourced or determined in multiple ways from multiple sources, and a POSITA would have known how to implement each of the various options. EX1002, ¶85. For example, it was known that a device could determine its location, with varying degrees of accuracy and precision, by using GPS (integrated into the device or otherwise), measuring the signal delay to an emitter of known location, triangulation

with multiple emitters, comparison of observed network performance to devices known to be in roughly similar locations, etc. EX1002, ¶86. A POSITA would have understood that methods including advanced forward link trilateration (AFLT), round trip delay (RTD), cell/sector centroids, etc., were well known in the art and embodied in commercial solutions such as Qualcomm's gpsOne®. EX1018 at 330-33; EX1019 at 341-43; EX1020, [0005]-[0007], [0068]-[0095]; EX1002, ¶86. The location of a base station could be determined from commercial databases, such as Qualcomm's Base Station Almanac. EX1020, [0008]-[0016]; EX1002, ¶87.

In sum, the above-discussed concepts were well-established and compatible, and integrating them into the system of Daley would have been straightforward and predictable. EX1002, ¶88.

4. Analysis

(a) Claim 1

(i) 1[pre]²

Assuming the preamble is limiting, the combination renders obvious *a method of collecting and providing access to quality or service information associated with one or more wireless communications networks, mobile devices, or end users and a system for* the same. EX1002, ¶89.

² The full text of the claims is set forth in the table of claims.

Daley discloses methods and systems for wireless communication network operators to collect diagnostic tracing and log data, including network performance data, from mobile devices. EX1009, Abstract. The system includes a diagnostic server that receives and stores monitoring, tracing, configuration, and diagnostic data from diagnostic client software running on each mobile device (*collecting ... quality or service information associated with one or more ... mobile devices*). EX1009, [0039]-[0040], [0215]-[0216]. The diagnostic data includes “network performance data.” EX1009, [0041]; EX1002, ¶90. Daley’s diagnostic client also collects log data that includes *quality or service information* by logging “discrete events such as low/high signal or roaming transitions” that reflect the experience[] of the mobile device. EX1009, [0145]; EX1002, ¶90; *see also e.g.* EX1009, [0270] (an exemplary log entry: “2006/01/23 11:23:33 2006/01/23 11:26:121 12 22 DEBUG RADI SGNL Signal ‘extremely low’, problem”). The diagnostic server receives this information and stores it in a database. EX1009, [0215]-[0216]; EX1002, ¶91. The system also includes web pages that provide Internet-based interfaces into the collected data, *e.g.* “the Device IMEI/ESN, Manufacturer, Model, Platform, Revision, Processor, OS Version, Free Memory, Signal Strength, and Data Connection Settings, for example,” to users of the system, including the wireless network provider and the customer (*providing access to quality or service*

information associated with one or more ... mobile devices). EX1009, [0291], Figs. 15-18; EX1002, ¶92.

Aaron discloses mobile devices measuring the “quality of a wireless communication service” (*quality or service information associated with one or more communications networks, mobile devices, or end users*) and a server (“central processor 204”) *collecting* the “service quality information and location information” from those mobile devices to store in database (“central database 208”). EX1010, [0031]-[0035], [0036]-[0037]. Aaron discloses using this information to draw or update quality-of-service maps (*providing access to quality or service information*) which technicians use to identify problems with the wireless communications network. EX1010, [0031], [0036], [0037], [0043]; EX1002, ¶93.

As set forth above, it would have been obvious to a POSITA to combine this aspect of Aaron with Daley. EX1002, ¶94.

(ii) 1[a]

The combination renders obvious this limitation. EX1002, ¶¶95-104.

Daley discloses capturing and storing information about transitions from being connected to a native network to a roaming network which includes *location information*. EX1009 [0145], [0270]-[0271], [0291]. A POSITA would have understood that this information includes the identity of the old tower and the identity of the new tower. EX1002, ¶96. The identity of the tower is location

information because towers are located at fixed geographic locations. EX1002, ¶¶96-97. A POSITA would have known that the location of a tower or base station could be determined from public and commercial databases, such as Qualcomm’s Base Station Almanac, the FCC’s Antenna Structure Registration, and the TowerSource online site-location tool. EX1020, [0008]-[0016]; EX1021, 13; EX1022; EX1023; EX1024; EX1002, ¶97. A POSITA would have found it straightforward to include tower and base station information in a management system like Daley. EX1002, ¶98. Daley therefore discloses a database containing *location information of a plurality of mobile devices ... and quality or service information* to correlate with the roaming events. EX1002, ¶¶96-98.

Aaron discloses *using a computer* (central processor 204), *receiving mobile device location information ... and quality or service information pertaining to wireless access characteristics for one or more mobile devices* (it receives “service performance information, geographic location information, and user feedback from the various wireless terminals 100”). EX1010, [0036], [0043], EX1002, ¶99. Central processor 204 is a *computer* that runs software on a processor. EX1010, [0050] (“The operations of FIG. 4 are implemented via software ... executing on a single processor or multiple processors that perform the various functions of central processor 204.”). Aaron Figure 4 discloses the steps taken by central processor 204

including receiving the “service quality information and location information from wireless terminal.” EX1010, Fig. 4 (annotated below), [0050], EX1002, ¶100.

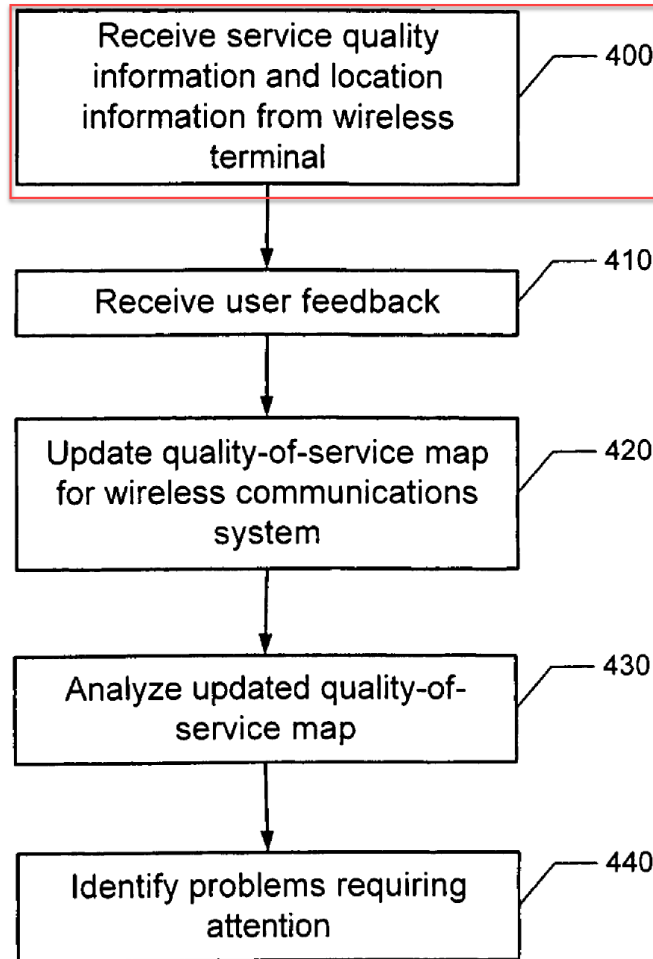


Fig. 4

Figure 3 discloses the steps of the mobile device in collecting and sending this information to the central processor 204. EX1010, Fig. 3 (annotated below), [0038]; EX1002, ¶101.

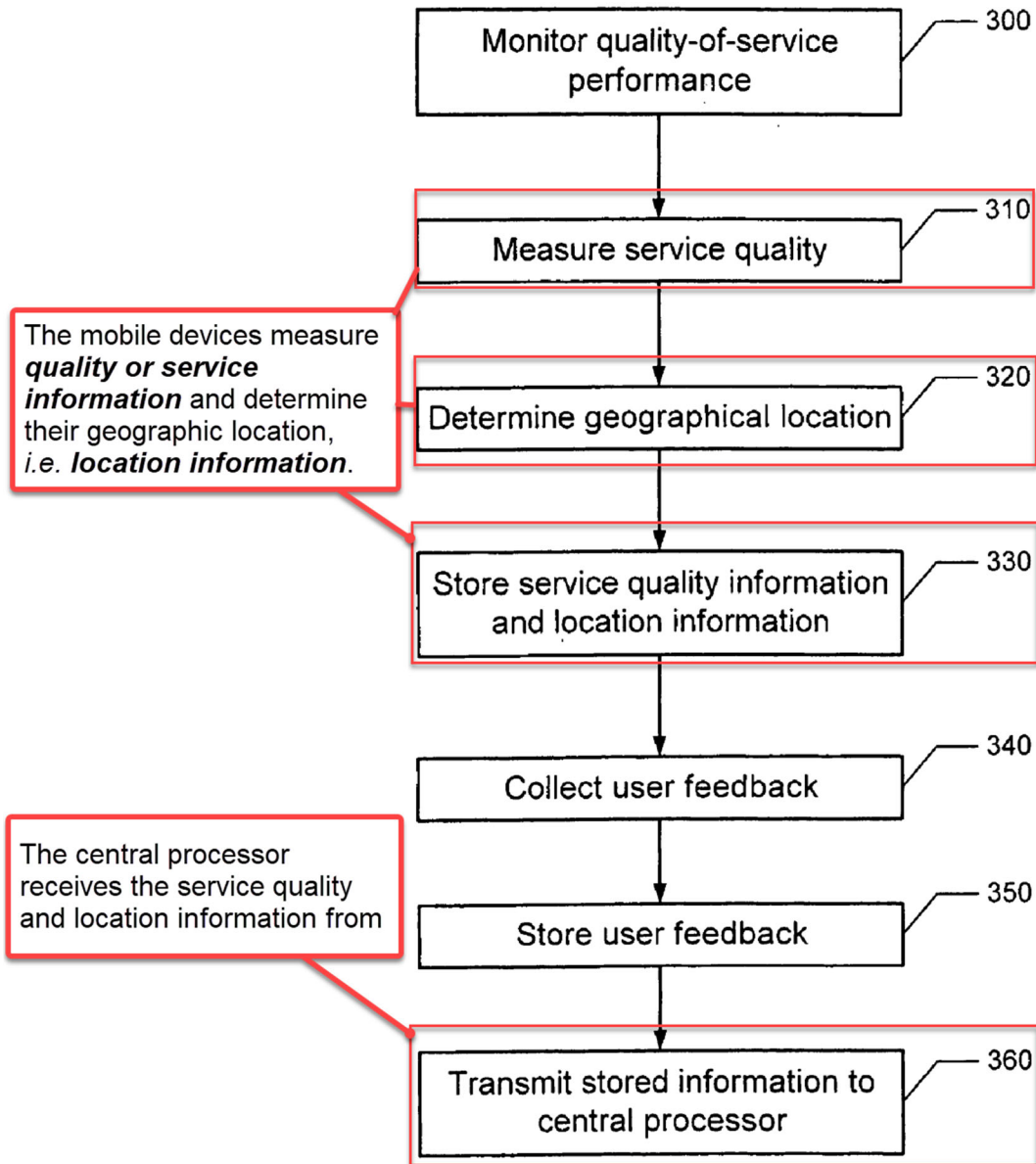


Fig. 3

Each mobile device measures the quality of its wireless communication service (*quality or service information pertaining to wireless access characteristics for one or more mobile devices*). EX1010, [0031]-[0035], [0041]; EX1002, ¶102.

The “service quality” measurements include “performance parameters” such as “the

signal strength of a radio link between the wireless terminal 100 and a base station 202, the signal quality of a radio link between the wireless terminal 100 and a base station 202, ... the occurrence of a dropped call ... [and] SNR (Signal-to-Noise Ratio).” EX1010, [0041], Claim 2.

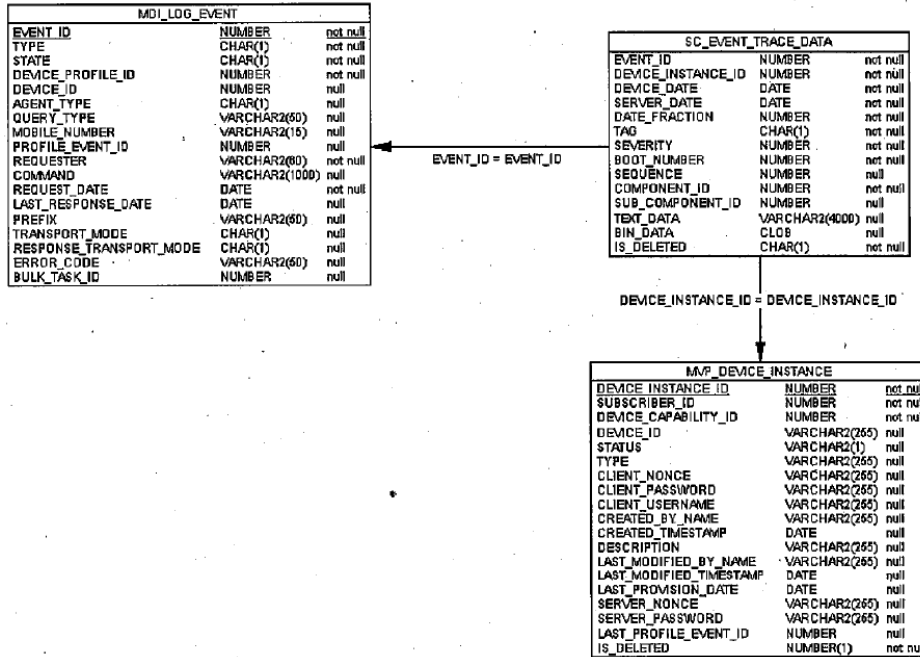
Each mobile device determines its geographic location (*location information*) using, e.g.: a Global Position Systems receiver, triangulation methods based on the mobile device’s distance from multiple base stations, methods based on the geographic location of the base station with which the mobile device has a radio link. EX1010, [0042]; EX1002, ¶103.

As set forth above, it would have been obvious to a POSITA to combine this aspect of Aaron with Daley’s collection of diagnostic tracing and log data from mobile devices . EX1002, ¶104.

(iii) 1[b]

The combination renders obvious this limitation. EX1002, ¶¶105-109.

Daley discloses that the client software on the mobile device generates and collects diagnostics, tracing, debugging, and network performance information. EX1009, [0039]-[0042]; EX1002, ¶106. This information is uploaded to the server components, where it is stored in a database and made available (e.g., through a web page) to a network operator or mobile device user. EX1009, [0044], [0059], [0072], [0202], [0215], [0242], [249], [252], [0273]-[0274], Fig. 14-18.



As discussed above regarding 1[pre], Aaron discloses central processor 204 storing the *location information* and *quality or service information* received from mobile devices into central database 208. EX1010, [0036]-[0037] (“The central database 208 may be utilized to store information received from wireless terminals.”). Central database 208 receives and stores the information *by action of* central processor 204 (*said computer*). EX1010, [0036]. Aaron further discloses this information being included in quality-of-service maps. EX1010, [0037] (“The central database 208, in conjunction with the central processor 204, may be utilized to draw and/or analyze quality-of-service maps”). Therefore, Aaron discloses the information being stored in both central database 208 and updated quality-of-service maps. EX1002, ¶¶107-108.

As discussed above, it would have been obvious to combine the diagnostic and tracing database of Daley with database of Aaron including the location information. EX1002, ¶109.

(iv) 1[c]

The combination renders obvious this limitation. EX1002, ¶¶110-113.

Aaron explicitly discloses collecting information when a quality-of-service threshold is impacted. EX1010, [0005]-[0007], [0033]-[0034], [0041]. Many of these quality-of-service thresholds are dependent, in whole or in part, on the location of Aaron's wireless terminal. EX1010, [0006] ("signal strength of a radio link with a base station, signal quality of a radio link with a base station, and/or numbers of dropped calls"), [0041]; EX1002 ¶111 (explaining that changes in location often causes changes in these values). Aaron therefore discloses or makes obvious that the wireless terminal collects data (including the terminal's location) when the terminal changes location. EX1002 ¶111.

A POSITA would have found it obvious for the combination of Daley and Aaron to transmit information at or around the time that information is collected, such that the server is *updating... location information... when a mobile device ... travels from one location to another*. EX1002 ¶112. Daley discloses uploading collected information based on a log-related threshold, a specific triggering event, periodically, or upon server request. EX1009, [0153]-[0156]. This is similar to and

consistent with Aaron's disclosure that central processor 204 receives information from the wireless terminals periodically, on a scheduled basis, when traffic is low, or "when transmission is otherwise convenient." EX1010, [0005], [0036]. A POSITA would understand that especially if the quality-of-service measure indicates a degradation in quality, that would be both an appropriate trigger (e.g., because degrading quality is of relatively high importance) and indicate that transmission is convenient (e.g., because there is still a signal but if degradation continues there might not be a signal in the near future). EX1002 ¶113. Accordingly, a POSITA would find that the above-discussed combination of Daley and Aaron renders this limitation obvious. EX1002 ¶113.

(v) 1[d]

The combination renders obvious this limitation. EX1002, ¶¶114-117.

Daley discloses *providing access* to customer service representatives and engineers (*one or more carriers or third parties that provide services to one or more end users*) to diagnose problems with a mobile device encountered by a customer (*access to said quality or service information*). EX1009, [0038], [0060] ("tracing data transferred by the electronic device 107 to the diagnostic server 129 may be processed and provided as viewable data by the diagnostic server 129, for analysis by a human engineer for subsequent corrective steps"); EX1002, ¶115. Daley also discloses that such a user may view and search diagnostic and trace data. EX1009,

[0119], [0254]; EX1002, ¶¶115-116. And Daley’s system includes web page interfaces that allow a user to *access ... quality or service information stored in said ... database*. EX1009, [0273]-[0274], [0290]-[0291], Figs. 15-17; EX1002, ¶¶115-116.

In addition, Aaron discloses technicians (*one or more carriers or third parties that provide services to said ... one or more carriers, or to one or more wireless communications networks*) *accessing* the quality-of-service maps that central processor 204 updates with service quality information received from mobile devices (*quality or service information*). EX1010, [0036] (“Technicians can then consult the updated quality-of-service map and determine if problems or changes warrant any adjustment to the wireless communications network or its components, and/or to various services or applications.”). As set forth above, it would have been obvious to a POSITA to combine this aspect of Aaron with Daley. EX1002, ¶117.

(vi) 1[e]

The combination renders obvious this limitation. EX1002, ¶¶118-123.

Daley’s diagnostic server collects diagnostic tracing and log data from mobile devices through the diagnostic client, and that diagnostic data includes “*network performance* data.” EX1009, [0041]; EX1002, ¶119. Daley’s diagnostic client also collects log data that includes *quality of service* information by logging “discrete events such as low/high signal or roaming transitions” that reflect the experience[]

of the mobile device. EX1009, [0145]; EX1002, ¶119; *see also e.g.* EX1009, [0270] (an exemplary log entry: “2006/01/23 11:23:33 2006/01/23 11:26:121 12 22 DEBUG RADI SGNL Signal ‘extremely low’, problem”). Signal strength is a ***quality of service*** measurement because it measures the wireless service’s level of availability and quality of radio frequency coverage. The diagnostic server receives this information and stores it in a database. EX1009, [0215]-[0216]; EX1002, ¶120. Daley provides web pages that display device information including: “the Device IMEI/ESN, Manufacturer, Model, Platform, Revision, Processor, OS Version, Free Memory, **Signal Strength**, and Data Connection Settings, for example.” EX1009, [0291]; EX1002, ¶120.

As discussed above, Aaron discloses mobile devices collecting “service quality” measurements including “performance parameters” such as (EX1010, [0041], Claim 2; EX1002, ¶121):

- “the signal strength of a radio link between the wireless terminal 100 and a base station 202,” (***radio reception quality, network performance, quality of service, quality of coverage***)
- “the signal quality of a radio link between the wireless terminal 100 and a base station 202,” (***radio reception quality, network performance, quality of service, quality of coverage***)

- “the occurrence of a dropped call,” and (*radio reception quality, network performance, quality of service, availability or quality of coverage*)
- “SNR (Signal-to-Noise Ratio).” (*radio reception quality, network performance, quality of service, quality of coverage*)

As set forth above, it would have been obvious to a POSITA to combine these aspects of Aaron with Daley. EX1002, ¶122.

(b) Claim 2

The combination renders obvious this limitation. EX1002, ¶¶124-130.

Daley discloses a “[s]elf-care website / portal” that communicates with the mobile device. EX1009, Fig. 1, [0033], [0034]. A POSITA would have known that the “self-care website” indicated a web interface through which a user (*end user*) of the mobile device *access[ed]* the *report[ed] quality or service information* collected from the user’s mobile device. EX1002, ¶125.

Additionally, Aaron discloses mobile device users providing feedback regarding the wireless communications network service quality including “comments, opinions and/or perceptions, responses, suggestions, selected choices, ratings, etc.” EX1010, [0021]. This user feedback is gathered when “a performance parameter falls below a threshold value” or in response to “another problem(s) associated with a wireless communications service.” EX1010, [0034]. The, the user

(*end user*) provides feedback “about quality of service and/or about a detected problem ... via the display of the wireless terminal” (*end user communications devices*). EX1010, [0044], [0045]-[0047]; EX1002, ¶126. When the mobile device solicits this feedback from the user, the mobile device includes the relevant context of the identified problem, *e.g.* “Is this problem sufficient to cause you to switch carriers? Select Yes or No.” EX1010, Table 1. Additionally, Aaron discloses configuring mobile devices “to provide user access to a web log (‘blog’) ... and may automatically provide details to the blog about a detected problem.” EX1010, [0045]. Therefore, the user feedback mechanisms *provide access ... by reporting quality or service information to ... end users or ... end user communications devices*. EX1002, ¶127. As set forth above, it would have been obvious to a POSITA to combine these aspects of Aaron with Daley. EX1002, ¶128. It would have been obvious to a POSITA to combine Aaron’s quality-of-service maps with the diagnostic and “self-care website” capabilities of Daley. EX1002, ¶128. A POSITA would have recognized that the quality-of-service maps would have been useful for subscribers to self-diagnose service quality issues, thus reducing demand for customer service representatives. EX1002, ¶128.

Additionally, Scherzer also discloses providing mobile device users with access to the collected service or quality information stored in the database. Scherzer discloses *providing* mobile devices (*end user communications devices*) and their

users (*end users*) with *access* to access point maps that provide rankings of access points nearby the mobile device's current or prospective geographic location based on the quality or service information in the database (*reporting quality or service information*). EX1011, [0078]; EX1002, ¶129. The server communicates such information to the mobile device via the Internet (*provides access*). EX1011, [0068]; EX1002, ¶¶129-130. As set forth above, it would have been obvious to combine Scherzer's location-based access point mapping and ranking functionality with Daley's diagnostic functionality to a provide users of mobile devices with information regarding the service quality of their mobile devices. The user-driven, self-service functionality disclosed in both Daley (i.e. "self-care website") and Scherzer (i.e. wireless access point mapping and ranking for user selection) reduces the need for a customer service representative to assist with resolving or improving the wireless service quality. EX1002, ¶130.

(c) Claim 3

The combination renders obvious this limitation. EX1002, ¶¶131-136.

As discussed above regarding 1[a], Daley discloses capturing and storing information about mobile devices transitioning from a connection with a native network to a roaming network which includes *quality or service information* that is *location specific*. EX1009 [0145], [0270]-[0271], [0291]; EX1002, ¶132. Daley discloses that "roaming transitions" are events captured by the client-side logging

components of the mobile devices. EX1009, [0145]. A POSITA would have recognized that roaming transition events indicate *location specific* information regarding the *quality or service* of the mobile device at the geographic location where the transition occurs which would be indicated by at the least the occurrence of the transition, the networks involved in the transition, and the towers or base stations between which the mobile device transitions. EX1002, ¶133.

As discussed above regarding 1[a]-[e], Aaron discloses mobile devices measuring service quality performance parameters (*quality or service information*) continuously, including as the mobile device moves across geographic locations. EX1010, [0040]-[0041]. When a mobile device measures the service quality, it then determines its geographic location. EX1010, [0042]. This information is then stored and transmitted together to central processor 204. EX1010, [0043]. Therefore, the service quality measurements are *location specific* because they are measured by the mobile device at a particular location, propagated to central processor 204 with that associated location information, and then analyzed for quality-of-service maps based on that associated location information. EX1002, ¶134-135.

As set forth above, it would have been obvious to a POSITA to combine these *location specific* aspects of Aaron with the diagnostic and tracing capabilities of Daley. EX1002, ¶136.

(d) Claim 4

The combination renders obvious this limitation. EX1002, ¶¶137-143.

As discussed above regarding 1[d], Daley discloses web page interfaces that *serv[er] data based on mobile device location information and quality or service information store in said ... database*. EX1009, [0273]-[0274], [0290]-[0291], Figs. 15-17; EX1002, ¶¶138-139. In particular, Daley’s web pages include a “user interface screen for displaying trace statistics from trace data.” EX1009, [0029], Fig. 17; [0277]-[0290]. As discussed above regarding 1[pre], Daley discloses As previously discussed in 1[a], the diagnostic and tracing data collected from mobile devices includes “roaming transitions,” i.e. *location information*. EX1009, [0145]. Therefore, Daley’s web interfaces include both *location information* and *quality or service information*.

Additionally, as discussed above regarding 1[d], Aaron discloses *servicing* quality-of-service maps to technicians. EX1010, [0036]. The quality-of-service maps are updated based central database 208’s (*database*) location and quality-of-service measurements collected from mobile devices (*mobile device location information and quality or service information*). EX1010, [0035]-[0037], [0040]-[0043]. It would have been obvious to combine Aaron’s quality-of-service map functionality with Daley’s diagnostic and tracing features. EX1002, ¶140. A POSITA would have recognized that Aaron’s location information and quality-of-

service information would be beneficial for diagnosing problems or improving the performance of a subscriber's wireless service. EX1002, ¶141.

Additionally, Scherzer also discloses providing mobile device users with geographic maps of wireless access points based on the collected *location* and *service or quality information* stored in the database. Scherzer discloses providing mobile devices with access point maps that include rankings of the access points nearby a mobile device's current or prospective geographic location *based on the quality or service information* in the database for that mobile device's geographic *location*. EX1011, [0078], [0149]-[0151]; EX1002, ¶142. The server communicates such information to the mobile device via the Internet (*servicing data*). EX1011, [0068]; EX1002, ¶142. As set forth above, it would have been obvious to combine Scherzer's location-based wireless access point mapping and ranking functionality with Daley's diagnostic functionality. EX1002, ¶142. A POSITA would have recognized that this combination would have allowed users to configure their mobile devices for wireless access points based on the service quality information collected into the database from other mobile devices. EX1002, ¶142-143.

(e) Claim 5

The combination renders obvious this limitation. EX1002, ¶¶144-146.

The rankings of access points disclosed by Scherzer and discussed above regarding Claim 4, are a *recommended... communications network and/or carrier for end users or end user communications devices*. EX1011, [0078], [0149]-[0151]; EX1002, ¶145. Scherzer describes a database of “broadband wireless connectivity (WiFi)” resources (*communications network*) available to users of mobile devices. EX1011, [0010]-[0023]. Based on the service quality information reported into the database by mobile devices, the server provides a ranking of these wireless networks to mobile device users nearby particular wireless networks. EX1011, [0149]-[0151]; EX1002, ¶146.

(f) Claim 6

The combination renders obvious this limitation. EX1002, ¶¶147-150.

As discussed above regarding claims 4 and 5, Daley discloses web page interfaces that A POSITA would have found obvious to combine with Aaron’s quality-of-service maps for serving to user (*end users or end user communications devices*). EX1002, ¶148.

As discussed above regarding claims 4 and 5, Scherzer discloses providing mobile devices (*end users or end user communications devices*) the quality or service information and location information as access point maps that include rankings of the access points nearby a mobile device’s current or prospective geographic location. Scherzer discloses that it was well-known in the art to provide

data regarding wireless service information at particular geographic locations *formatted and served to end users ... as ... web pages*. EX1011, [0023] (“WiFi resources (hot-spots) maps are available through various websites (JiWire, Microsoft, etc.) to enable users to locate AP’s.”); EX1002, ¶149. Additionally, Daley discloses web pages that provide Internet-based interfaces into the collected data to users of the system, including the wireless network provider and the customer. EX1009, Figs. 15-18), [0033]-[0034]. Therefore, it would have been obvious to a POSITA implementing this combination of Daley, Aaron, and Scherzer, to provide the access point maps of Scherzer to mobile devices through web pages. EX1002, ¶150.

(g) Claim 7

The combination renders obvious this limitation. EX1002, ¶¶151-153.

Daley discloses customer service representatives and engineers (*one or more carriers*) to diagnose problems with a mobile device encountered by a customer through web pages containing the *quality or service information*. EX1009, [0038], [0060] (“tracing data transferred by the electronic device 107 to the diagnostic server 129 may be processed and provided as viewable data by the diagnostic server 129, for analysis by a human engineer for subsequent corrective steps”); EX1002, ¶152. Daley discloses that such a user may view and search diagnostic and trace data. EX1009, [0119], [0254]; EX1002, ¶153. And Daley’s system includes web page

interfaces that allow a user. EX1009, [0273]-[0274], [0290]-[0291], Figs. 15-17; EX1002, ¶¶152-153.

(h) Claim 8

The combination renders obvious this limitation. EX1002, ¶¶154-162.

As discussed above regarding claim 7, Daley discloses both customer service representatives and engineers using the diagnostic and tracing data collected into the database to diagnose problems encountered by subscribers. EX1009, [0038], [0060]; EX1002, ¶155.

Daley discloses that “a trace/diagnostic server functionality may comprise a new service built upon an existing customer care system such as the SmartCare/FusionDM server architecture of Bitfone Corporation ... to support the management of, and data collection from, diagnostic/trace-enabled devices.” EX1009, [0112]. Daley specifically discloses implementing this service in systems like “SmartCare or FusionDM system available from Bitfone Corporation.” EX1009, [0090], [0112], [0129], [0275], [0276], [0300]. Indeed, Bitfone’s FusionDM was sold to enterprise, corporate customers to enable management of employee mobile devices. EX1039 (“FusionDM provides peace-of-mind to corporate users and IT managers by enabling the OTA locking and wiping of devices to prevent unauthorized access.”). A POSITA would thus have known that such a system would have been operable by *parties other than subscribers and carriers of*

said one or more wireless communications networks. EX1002, ¶¶156-57.

Therefore, Daley discloses or renders obvious employers (*parties other than subscribers and carriers*) access[ing] the *quality or service information stored in said memory or database.*

Additionally, Daley's provisional application, U.S. Provisional Application No. 60/774,406, filed on Feb. 17, 2006, incorporated by reference into Daley (EX1009, [0001]), discloses the diagnostic and tracing data collection system of Daley specifically for use by Palm for the Palm Treo mobile device. EX1002, ¶¶158-159, EX1042, 26:

1.1 Purpose, Intended Audience, and Use of This Document

The purpose of this document is to describe the requirements, architecture and design details for Phase 1, Stage 1 of the Treo Trace project. This document covers the design of the Treo Trace Client and the Treo Trace Server.

The intended audience for this document includes the engineers, professional services engineers, and the quality assurance team who will be working on the project. This document will also be presented to Palm for discussion, validation and acceptance. Upon acceptance by Palm, this document will serve as the basis for mutual understanding of the core design requirements. Subsequent changes and additions will be managed through the Engineering Change Request process (ECR), according to the Bitfone Product Development SOP.

Palm was a device manufacturer, *i.e. a party ... other than subscribers and carriers of said one or more wireless communications networks.* EX1043, EX1044. Therefore, Daley discloses *providing access* to the “engineers, professional services engineers, and the quality assurance team” of device manufacturers. EX1042, 26; EX1002, ¶¶159-160.

In addition, a POSITA would have known that mobile virtual network operators (MVNOs) served as intermediaries between telecommunication carriers of *wireless communications networks* and *subscribers*. EX1045, [0008]-[0009], EX1046, 5:18-24, EX1002, ¶161. MVNOs support their subscribers and want to provide similar support to more traditional carriers. EX1045, [0009] (“Carriers can devolve marketing, sales, billing, customer relations, and related front and back office functions to MVNOs who may provide these functions more efficiently for their target markets than can the carriers themselves.”), EX1046, 5:26-31. However, MVNO’s do not own or operate the underlying telecommunications network, and instead use networks provided by one or more other carriers. EX1045, [0009] (“MVNO is a [service provider] that does not maintain its own wireless network (i.e., radio equipment).”), EX1046, 5:18-24. A POSITA would have understood that in the context of an MVNO, there are considerable benefits from the underlying carrier or network operator, the subscriber, and the MVNO all having access to the *quality or service information stored in said ... database*, including because it would allow the MVNO to directly support its subscribers and the carrier or network operator to assess and improve the performance of its network. EX1045, [0046]-[0048], [0092], EX1046, 14:24-15:13, EX1002 ¶¶161-162.

(i) Claim 9

(i) 9[a]

The combination renders obvious this limitation. EX1002, ¶¶163-165.

Scherzer’s radio resource database includes information related to a mobile device’s wireless connection to an access point, *e.g.*, “[b]ackhaul quality (estimated bandwidth connection to Internet)”, “success rate,” “average execution periods,” [p]ercentage allowable shared bandwidth.” EX1011, [0109]-[0117], [0148]; EX1002, ¶164. Scherzer encodes access point connection quality data, into quality and accessibility vectors, which include connection quality, ease of accessibility, and location coordinates, in the database. EX1011, [0131]-[0140]. Scherzer discloses that these vectors are used to determine rankings of access point connections (*quality or service information further comprises rank ordering or preferred preferences*). EX1002, ¶165.

(ii) 9[b]

The combination renders obvious this limitation. EX1002, ¶¶166-167.

As discussed above regarding claims 4 and 5, Scherzer discloses providing mobile devices (*end users or ... end user communication devices*) with access point maps that include rankings of the access points (*i.e. telecommunication services, service providers, carriers, frequencies, ... wireless connection options, ... bandwidths*) nearby a mobile device’s current or prospective geographic location

based on the quality or service information in the database for that mobile device's geographic location. EX1011, [0078], [0149]-[0151]; EX1002, ¶¶166-167.

(j) Claim 10

(i) 10[pre]

See 1[pre], *supra*. Daley, Aaron, and Scherzer each disclose *system[s]* that perform the *collecting and providing access to quality or service information associated with ... mobile devices* described in claims 1-9. EX1002, ¶¶168-169.

(ii) 10[a]

See 1[a], *supra*.

(iii) 10[b]

See 1[b], *supra*.

(iv) 10[c]

See 1[d], *supra*.

(v) 10[d]

See 1[e], *supra*.

(k) Claim 11

See claim 7, *supra*.

(l) Claim 12

See claim 4, *supra*.

(m) Claim 13

See claim 5, *supra*.

(n) Claim 14

See claim 6, *supra*.

(o) Claim 15

See claim 8, *supra*.

(p) Claim 16

(i) 16[a]

See 9[a], *supra*.

(ii) 16[a][i]

See 9[a][i], *supra*.

(iii) 16[b]

See 9[b], *supra*.

C. Ground 2: Scherzer

1. Prior Art

Scherzer discloses or renders obvious each element of the challenged claims, and it therefore invalidates under 35 U.S.C. Section 103. EX1002, ¶182.

2. Analysis

(a) Claim 1

(i) 1[pre]

To the extent the preamble is limiting, Scherzer discloses a system and methods that include a server that receives, stores, and updates “access point connection cache data from the network access point” and the access point connection quality data from mobile device for access points across geographic

locations (*collecting ... quality or service information associated with one or more wireless communications networks, mobile devices, or end users*). EX1011, [0058], [0059]; EX1002, ¶¶183-184. The system uses the database records pertaining to access points to provide a geographic map of access points to mobile devices to assist the user in selecting a nearby access point (*providing access to...*). EX1011, [0149].

Owners of access points register their access point with the system to allow other third-party users to connect to their access point for wireless Internet access. EX1011, [0147]; EX1002, ¶185.

(ii) 1[a]

Scherzer renders obvious this limitation. EX1002, ¶¶186-192.

using a computer, receiving mobile device location information of a plurality of mobile devices or end users that are associated with one or more wireless communications networks: Scherzer discloses a server that receives “radio access point” connection quality measurements from mobile devices and stores it in a “radio resource database.” EX1011, [0057]-[0059], [0073], [0106], [0109]. Scherzer’s server includes an “evaluation module” “which evaluates accessibility and bandwidth of various AP’s, and store[s] the information as an update in database 110, as shown by arrow 131.” EX1011, [0068], Fig. 1. Scherzer further discloses that access point connection quality measurements are associated with access points

at particular geographic locations and the measurements are gathered by mobile devices within range of that geographic location. Scherzer's mobile devices determine their own geographic *location information* which is included in the data sent to the database. EX1011, [0082]-[0087], [0131]. Therefore, Scherzer's database maintains geographic location information for wireless access points. EX1002, ¶¶187-188. The access points are organized by "wireless regions" such as "cities, parks, groups of cities, states and other geographical areas of interest." EX1011, [0131], [0149].

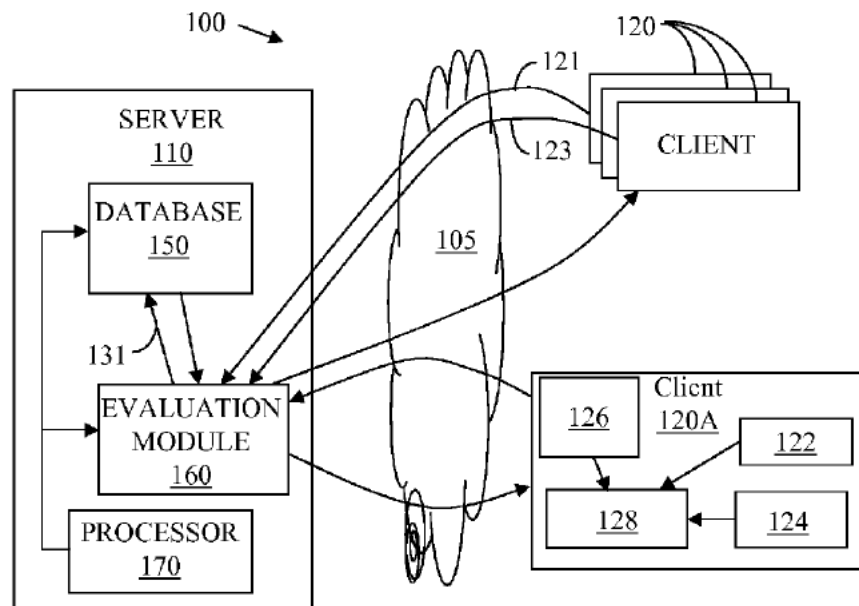


Figure 1

quality or service information pertaining to wireless access characteristics for one or more mobile devices of said plurality of mobile devices or end users, and said quality or service information comprising coverage, availability or performance information of one or more wireless communications networks or

said one or more mobile devices: Scherzer’s radio resource database includes *quality or service information* related to a mobile device’s wireless connection to an access point, e.g., “[b]ackhaul quality (estimated bandwidth connection to Internet)”, “success rate,” “average execution periods,” [p]ercentage allowable shared bandwidth.” EX1011, [0109]-[0117], [0148]. Scherzer discloses collecting access point connection quality data from mobile devices which includes “[r]eceived signal strength” and “[a]vailable bandwidth.” EX1011, [0028]-[0049]. Scherzer encodes access point connection quality data, into quality and accessibility vectors (*performance information of one or more wireless communications networks or ... one or more mobile devices*), which include connection quality, ease of accessibility, and location coordinates, in the database. EX1011, [0131]-[0140]; EX1002, ¶¶189-190.

Scherzer’s *mobile devices* include “laptops, handheld devices (PDA’s), cell phones, or any other devices that incorporate radio facility.” EX1011, [0080]. Each wireless mobile device executes a client program “that besides connecting to the radio network, executes radio measurements and report to the network server that shares this information with other user’s clients.” EX1011, [0067], [0071], [0073], [0082]-[0087], [0149]. The mobile devices communicate with the server and populate the database with access point connection quality data associated with these *mobile devices of said plurality of mobile devices or end users* by sending

“connectivity reports” and results from radio surveys and “measurements trips” performed by the devices (*coverage, availability or performance information of one or more wireless communications networks or said one or more mobile devices*). EX1011, [0080]; EX1002, ¶¶191-192.

(iii) 1[b]

Scherzer renders obvious this limitation. EX1002, ¶¶193-94.

Scherzer discloses a server that receives “radio access point” connection quality measurements from mobile devices and stores it in a “radio resource database,” *i.e. storing ... mobile device location information and said quality or service information in a ... database*. EX1011, [0057]-[0059], [0073], [0106], [0109]; EX1002, ¶194. Scherzer’s server includes an “evaluation module” “which evaluates accessibility and bandwidth of various AP’s, and store[s] the information as an update in database 110, as shown by arrow 131” (*by action of said computer*). EX1011, [0068], Fig. 1; EX1002, ¶194.

(iv) 1[c]

Scherzer renders obvious this limitation. EX1002, ¶¶195-197.

Scherzer discloses that access point connection quality measurements are associated with access points at particular geographic locations and the measurements are gathered by mobile devices within range of that geographic location, *i.e. for one or more geographic locations of said one or more mobile or*

fixed devices. Scherzer’s mobile devices determine their own *geographic location*] which is included in the data sent to the database. EX1011, [0082]-[0087], [0131]; EX1002, ¶¶196-97.

(v) 1[d]

Scherzer renders obvious this limitation. EX1002, ¶¶198-200.

Scherzer discloses *providing* mobile devices (*end user communications devices*) and their users (*end users*) with *access* to access point maps that provide rankings of access points nearby the mobile device’s current or prospective geographic location based on the quality or service information in the database. EX1011, [0078]; EX1002, ¶¶198-199. The server communicates such information to the mobile device via the Internet (*providing access*). EX1011, [0068]; EX1002, ¶¶199-200.

(vi) 1[e]

1[e][i]-[xvii]

Scherzer renders obvious this limitation. EX1002, ¶¶201-203.

As discussed above regarding 1[a], Scherzer’s radio resource database includes *wireless access characteristics* related to a mobile device’s wireless connection to an access point, e.g., “[b]ackhaul quality (estimated bandwidth connection to Internet)”, “success rate,” “average execution periods,” [p]ercentage allowable shared bandwidth” (*network performance, quality of service, ... capacity or bandwidth*). EX1011, [0109]-[0117], [0148]; EX1002, ¶¶201-202. Scherzer

discloses collecting access point connection quality data from mobile devices which includes “[r]eceived signal strength” and “[a]vailable bandwidth” (*radio reception quality, network performance, quality of service, ... capacity or bandwidth*). EX1011, [0028]-[0049]; EX1002, ¶¶202-203. Scherzer encodes access point connection quality data, into quality and accessibility vectors, which include connection quality, ease of accessibility, and location coordinates, in the database. EX1011, [0131]-[0140].

(b) Claim 2

Scherzer renders obvious this limitation. EX1002, ¶¶204-206.

Scherzer discloses *providing* mobile devices (*end user communications devices*) and their users (*end users*) with *access* to access point maps that provide rankings of access points nearby the mobile device’s current or prospective geographic location based on the quality or service information in the database (*reporting quality or service information*). EX1011, [0078]; EX1002, ¶¶205-206. The server communicates such information to the mobile device via the Internet (*provides access*). EX1011, [0068]; EX1002, ¶¶205-206.

(c) Claim 3

Scherzer renders obvious this limitation. EX1002, ¶¶207-209.

As discussed above regarding 1[a], Scherzer discloses that access point connection quality measurements are associated with access points at particular

geographic locations and the measurements are gathered by mobile devices within range of that geographic location (*quality or service information is location specific*). Scherzer's mobile devices determine their own geographic location information which is included in the data sent to the database. EX1011, [0082]-[0087], [0131]. Scherzer's database maintains geographic location information for wireless access points. EX1002, ¶¶208-209. The access points are organized by "wireless regions" such as "cities, parks, groups of cities, states and other geographical areas of interest." EX1011, [0131], [0149].

(d) Claim 4

Scherzer renders obvious this limitation. EX1002, ¶¶210-212.

Scherzer discloses providing mobile devices with access point maps that include rankings of the access points nearby a mobile device's current or prospective geographic location *based on the quality or service information* in the database for that mobile device's geographic *location*. EX1011, [0078], [0149]-[0151]; EX1002, ¶211. The server communicates such information to the mobile device via the Internet (*servicing data*). EX1011, [0068]; EX1002, ¶¶211-212.

(e) Claim 5

Scherzer renders obvious this limitation. EX1002, ¶¶213-214.

As discussed above regarding Claim 4, Scherzer discloses rankings (*recommended*) of the access points (*communications network and/or carrier*)

nearby a particular mobile device (*for end users or end user communications devices*). EX1011, [0078], [0149]-[0151]; ; EX1002, ¶214.

(f) Claim 6

Scherzer renders obvious this limitation. EX1002, ¶¶215-217.

As discussed above regarding claims 4 and 5, Scherzer discloses providing mobile devices (*end users or end user communications devices*) the quality or service information and location information as access point maps that include rankings of the access points nearby a mobile device's current or prospective geographic location. Scherzer discloses that it was well-known in the art to provide *data* regarding wireless service information at particular geographic locations *formatted and served to end users ... as ... web pages*. EX1011, [0023] (“WiFi resources (hot-spots) maps are available through various websites (JiWire, Microsoft, etc.) to enable users to locate AP’s.”); EX1002, ¶216. Therefore, it would have been obvious to a POSITA to provide the access point maps in Scherzer to mobile devices through web pages. EX1002, ¶¶216-217.

(g) Claim 8

Scherzer renders obvious this limitation. EX1002, ¶¶218-220.

Scherzer discloses operating the database system “as a social network.” EX1011, [0147]. A POSITA would have recognized that a social network amongst the owners of wireless access points would include *parties other than subscribers*

and carriers of one or more wireless communications networks. EX1002, ¶¶218-220. Scherzer further contemplates that the social network users would be users of “access device 320, such as a laptop, a PDA, etc,” and not necessarily *subscribers* of *wireless communications networks*. EX1011, [0147]; EX1002, ¶220.

(h) Claim 9

Scherzer renders obvious this limitation. EX1002, ¶¶221-223.

Scherzer’s radio resource database includes information related to a mobile device’s wireless connection to an access point, *e.g.*, “[b]ackhaul quality (estimated bandwidth connection to Internet)”, “success rate,” “average execution periods,” [p]ercentage allowable shared bandwidth.” EX1011, [0109]-[0117], [0148]; EX1002, ¶222. Scherzer encodes access point connection quality data, into quality and accessibility vectors, which include connection quality, ease of accessibility, and location coordinates, in the database. EX1011, [0131]-[0140]. Scherzer discloses that these vectors are used to determine rankings of access point connections (*quality or service information further comprises rank ordering or preferred preferences*). EX1002, ¶223.

(i) 9[a][i]

9[b]

Scherzer renders obvious this limitation. EX1002, ¶¶224-226.

As discussed above regarding claims 4 and 5, Scherzer discloses providing mobile devices (*end users or ... end user communication devices*) with access point

maps that include rankings of the access points (*i.e. telecommunication services, service providers, carriers, frequencies, ... wireless connection options, ... bandwidths*) nearby a mobile device's current or prospective geographic location based on the quality or service information in the database for that mobile device's geographic location. EX1011, [0078], [0149]-[0151]; EX1002, ¶¶225-226.

(i) Claim 10

(i) 10[pre]

See 1[pre], *supra*. Scherzer discloses *system[s]* that perform the *collecting and providing access to quality or service information associated with ... mobile devices* described in claims 1-9. EX1002, ¶227.

(ii) 10[a]

See 1[a], *supra*.

(iii) 10[b]

See 1[b], *supra*.

(iv) 10[c]

See 1[d], *supra*.

(v) 10[d]

See 1[e], *supra*.

(j) Claim 11

See claim 7, *supra*.

(k) Claim 12

See claim 4, *supra*.

(l) Claim 13

See claim 5, *supra*.

(m) Claim 14

See claim 6, *supra*.

(n) Claim 15

See claim 8, *supra*.

(o) Claim 16

(i) 16[a]

16[a][i]

See 9[a] and 9[a][i], *supra*.

(ii) 16[b]

See 9[b], *supra*.

D. Ground 3: Scherzer and Chmaytelli

1. Chmaytelli

U.S. Patent Application Publication 2006/0253453 (“Chmaytelli”) was filed on May 31, 2005 and published on November 9, 2006, and is prior art under at least pre-AIA 35 U.S.C. §§ 102(a) and (e).

Chmaytelli describes methods and systems for delivering ads to a mobile device with content tailored to the device’s geographic location. EX1012, Abstract,

[0010]-[0016]. Chmaytelli discloses an ad server for distributing ads that are associated with geographic areas of interest. EX1012, [0011]-[0016], [0075], [0080]. The location of the mobile device is determined (via, e.g., GPS or a recently-used tower). EX1012, [0070], [0078]-[0079], [0082]. When the mobile device is within the targeted geographic area of an ad, the server triggers delivery of the ad to the device. EX1012, [0080]-[0084]. Ad views and usage are monitored to enhance targeted content generation and delivery, conversion rates, and user experiences. EX1012, [0043], [0049], [0051].

2. Combination, Motivation, and Reasonable Expectation of Success

Scherzer's mobile access point quality measurement collection with geographic location and use for ranking of wireless access points is augmented with certain ad-related features as taught by Chmaytelli. EX1002, ¶242.

A POSITA would have been motivated to combine Chmaytelli with Scherzer. EX1002, ¶¶243-245. For example, a POSITA would have known, from Chmaytelli and from other references, of industry interest in location-based content, including advertising. EX1028; EX1029; EX1030; EX1031; EX1002, ¶243. Advertising was widely recognized as an attractive additional revenue stream or a way to offer network services at less cost. EX1002, ¶243. Scherzer describes the system operating as a "social network," and a POSITA would have known that social networking systems at the time were commonly monetized through integrating

advertising into the system. EX1011, [0147]; EX1047 (“Social networking sites in general rely mainly on a simple advertising model — selling banner and text ads”); EX1002, ¶244. And location-specific advertising was understood to be more likely be viewed and to result in conversions. EX1002, ¶244. A POSITA would therefore have recognized the potential value of adding localized ad serving capabilities to Scherzer, which already collected location information from devices and already transmitted data (e.g., access point quality and connection details) to them. EX1002, ¶245.

A POSITA would have had a reasonable expectation of success in implementing the combination. EX1002, ¶246; EX1048; EX1049. Especially since Scherzer already disclosed providing location-specific information to mobile devices, including by querying a database to find and rank access points nearby a particular mobile device (EX1011, [0149]-[0151]), it would have been straightforward to serve another type of content (ads) in the same fashion, as disclosed in Chmaytelli. EX1002, ¶247.

3. Analysis

(a) Claim 7

The combination renders obvious this limitation. EX1002, ¶¶248-252.

Chmaytelli discloses relaying location-based advertisements to carriers based on location information for mobile devices that receive the advertisements. EX1002,

¶249. Chmaytelli discloses a “wireless advertisement (ad) system” that comprises “a server configured to generate and transmit an ad containing location data that defines a geographic area” and provides ads “based on a location of the client device and the geographic area defined in the ad” (*servicing data based on mobile device location information*). EX1012, [0010]; EX1002, ¶249. Chmaytelli further discloses that the ad server receives the location information from a server of the carrier: “[c]lient devices within the targeted area (i.e., the defined geographic area) can be identified from the location information stored on a server in the carrier network” (*location information ... stored in said ... database*). EX1012, [0080]; EX1002, ¶250.

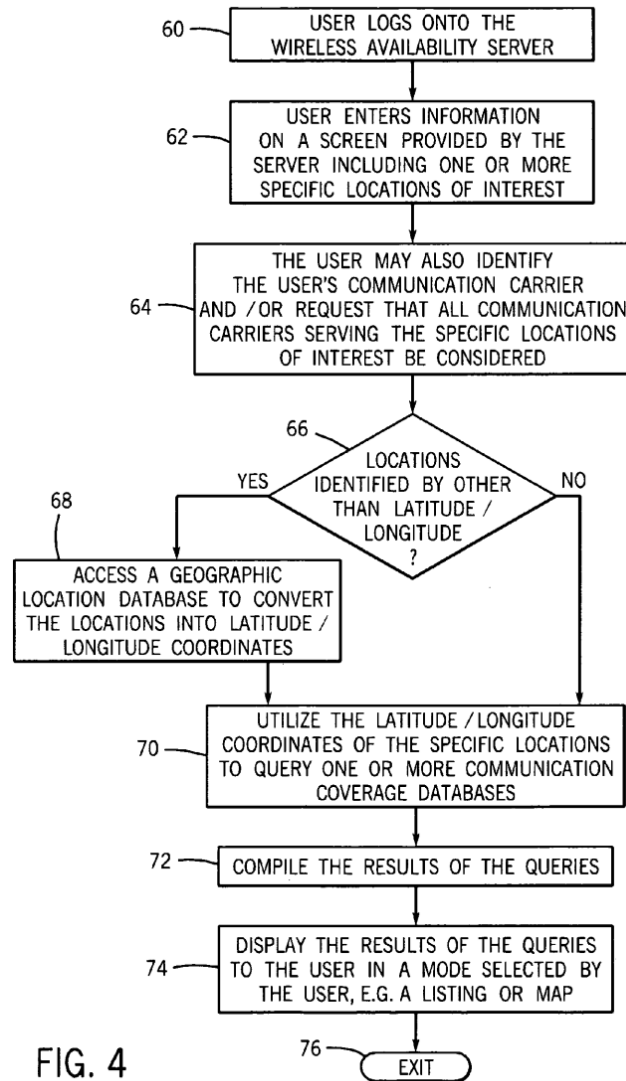
Chmaytelli discloses that the ads may be sent from the ad server to the carrier network and then relayed to the mobile device (*to one or more carriers*). EX1012, [0077] (“client devices 752 in communication with a first carrier 750 and client devices 762 in communication with a second carrier 760 may be within the targeted geographic area. Accordingly, generating a targeted ad at CAM console 740 and sending it to the first carrier network 750 and the second carrier network 760 can greatly increase the number of client devices that receive the ad.”); EX1002, ¶¶251-252.

E. Ground 4: Scherzer and Sharma

1. Sharma

U.S. Patent Application Publication 2007/0213925 (“Sharma”) was filed on March 13, 2006 and published on September 13, 2007, and is prior art under at least pre-AIA 35 U.S.C. §§ 102(a) and (e).

Sharma describes methods and systems for delivering location-based wireless coverage information to users of wireless communications devices. EX1050, Abstract, [0015]-[0022]. Sharma describes a system with a database of granular wireless coverage information identified by latitude and longitude coordinates. EX1050, [0029]. Users of mobile devices send requests to a wireless availability server for coverage information at the user’s particular location, as determined by specifying a street address or using PGS receiver. EX1050, [0027]. The wireless availability server returns results that indicate the wireless coverage at the location provided by carriers such as in a map format. EX1050, [0030], Fig. 4.



2. Combination, Motivation, and Reasonable Expectation of Success

Scherzer's mobile access point quality measurement collection with geographic location is augmented with certain wireless availability server features as taught by Sharma. EX1002, ¶255.

A POSITA would have been motivated to combine Sharma with Scherzer. EX1002, ¶¶256-258. For example, a POSITA would have known, from Sharma and

from other references, of industry interest in location-based measurements of wireless connectivity quality. EX1050, [0003]-[0005], [0016]; EX1002, ¶256. Wireless connectivity quality and coverage was widely recognized as a competitive feature for wireless service providers to attract subscribers. EX1050, [0003]-[0005], EX1002, ¶256. A POSITA would therefore have recognized the potential value of selling reports or data based on the quality of service and location information collected into the database of Scherzer to wireless service providers. EX1002, ¶257. Scherzer granular data would have been supplemental to the wireless communications data already collected by wireless service providers. EX1050, [0005] (“Many cellular service providers and Wi-Fi carriers provide information concerning service coverage areas. However, the specificity of this information is normally not sufficiently granular to allow subscribers or potential subscribers to accurately predict whether specific locations of importance to them, e.g. a house, hotel, work location, waypoint, etc., are adequately served within the coverage area.”), EX1002, ¶257. Therefore, the Scherzer data would seamlessly fit into the data pipeline of Sharma by providing an alternative flow of wireless quality data and providing a revenue stream to the operator of Scherzer’s database. EX1050, [0029] (“Such information can be compiled by empirical testing such as by determining signal strengths available at specific latitude and longitude coordinates for wireless carriers either by professional engineering signal strength studies or by obtaining

such information from reports provided by users of the various wireless carriers indicating signal strength readings/communication quality at specific locations.”); EX1002, ¶258.

A POSITA would have had a reasonable expectation of success in implementing the combination. EX1002, ¶259. Scherzer already disclosed providing location-specific information to mobile devices, including by querying a database to find and rank access points nearby a particular mobile device (EX1011, [0149]-[0151]), it would have been straightforward to create similar reports or share the same data with wireless service providers for integration into their own databases and coverage maps. EX1002, ¶¶259-260.

3. Analysis

(a) Claim 7

The combination renders obvious this limitation. EX1002, ¶¶261-263.

Scherzer discloses various types of parties operating wireless access points including public businesses, municipalities, business offices, and private residences. EX1011, [0010]-[0015]; EX1002, ¶262. A POSITA would have known that telecommunications carriers also operated wireless access points. EX1050, [0019], EX1040, [0018], EX1026; EX1002, ¶262. Further, it was well-known that mobile devices incorporated both connectivity to cellular telecommunications networks and wireless local-area-networks. EX1040, [0023], EX1041, 2; EX1002, ¶263.

Therefore, a POSITA would have known that a carrier operating wireless access points would have used *data based on mobile device location information or quality or service information* to understand, track, and improve their wireless access points and related telecommunication services. EX1002, 263. It would have been obvious to a POSITA to *serv[e] data based* on the information in the *database to one or more carriers* as part of reports on telecommunication carriers services and coverages. EX1002, ¶263.

F. Secondary Considerations

Any secondary considerations further weigh in favor of obviousness, and certainly do not overcome the strong showing of obviousness. EX1002, ¶264-68.

VIII. CONCLUSION

For the reasons above, *inter partes* review is requested.

Date: October 24, 2025

Respectfully submitted,

By: /s/ James Glass

James M. Glass

Counsel for Petitioner

CERTIFICATION UNDER 37 C.F.R. § 42.24

Under the provisions of 37 C.F.R. § 42.24, the undersigned hereby certifies that the word count for the foregoing Petition for *inter partes* review (excluding the table of contents, table of authorities, mandatory notices, certificate of service or word count, and appendix of exhibits or claim listing) totals 11,163 words, which is within the word limit allowed under 37 C.F.R. § 42.24(a)(i).

Date: October 24, 2025

/s/ James Glass

James Glass (Reg. No. 46729)

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6(e), 42.105(a), the undersigned hereby certifies service on the PO of a copy of this Petition and its respective exhibits at the official correspondence address for the attorneys of record for the '700 Patent as shown in USPTO PAIR via FedEx:

WC&F IP

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Courtesy copies were also sent via electronic mail to Patent Owner's counsel of record in the related district court proceeding:

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