IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of:	Darren P. Briggs, et al.	
U.S. Patent No.:	RE45,543	Attorney Docket No.: 00058-0002IP1
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Appl. Serial No.:	13/894,009	
Filing Date:	May 14, 2013	
Title:	METHOD AND APPARATUS FOR SELECTIVELY SHARING AND PASSIVELY TRACKING COMMUNICATION DEVICE EXPERIENCES	

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PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES PATENT NO. RE45,543 PURSUANT TO 35 U.S.C. §§ 311–319, 37 C.F.R. § 42

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Ex-1004	Curriculum Vitae of David Hilliard Williams
Ex-1005	U.S. Patent Application Publication No. 2003/0055983 to Callegari ("Callegari")
Ex-1006	U.S. Provisional Patent Application No. 60/277,174
Ex-1007	U.S. Provisional Patent Application No. 60/277,187
Ex-1008	U.S. Provisional Patent Application No. 60/277,200
Ex-1009	U.S. Patent No. 6,714,791 to Friedman ("Friedman")
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Ex-1015	U.S. Patent App. Pub. No. 2003/0022684A1 to Seeger ("Seeger")
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Ex-1030	Goran M. Djuknic & Robert E. Richton, "Geolocation and Assisted GPS", Computer, Volume 34, Issue 2, Feb. 2001, pp 123-125
Ex-1031	Jim Waldo et al., "A Note on Distributed Computing", Sun Microsystems Laboratories, SMLI TR-94-29 November, 1994.

Ex-1032	Niranjan G. Shivaratri et al., "Load Distributing for Locally Distributed Systems", Computer, Volume 25, December 1992 pp. 33-44
Ex-1033	Jim Gray, "An Approach to Decentralized Computer Systems", Tandem Computers Technical Report 85.4, June 1985
Ex-1034	Flavin Cristian, "Understanding Fault-Tolerant Distributed Systems", Communications of the ACM, Volume 34, No. 2, February 1991 pp. 56-78
Ex-1035	U.S. Patent No. 6,799,277 to Colvin ("Colvin")
Ex-1036	PCT App. Pub. No. WO 01/74034 to Ericsson ("Ericsson")
Ex-1037	Microsoft Campus Agreement: How to Get Started (February 9, 2001), available at https://www.uprm.edu/cms/index.php?a=file&fid=126
Ex-1038	Platform Services, OPENWAVE, https://web.archive.org/web/20020206231928/http:/www.openwave.com/products/platform_services/
Ex-1039	U.S. Patent No. 7,376,433 to Hose ("Hose")
Ex-1040	Jay Farrell & Tony Givargis, "Differential GPS Reference Station Algorithm - Design and Analysis", IEEE Transactions on Control Systems Technology, Vol. 8, No. 3, May 2000 pp 519-531
Ex-1041	François J.N. Cosquer & Paulo Veríssimo, "The Impact of Group Communication Paradigms on Groupware Support", Proceedings of the Fifth IEEE Computer Society Workshop on Future Trends of Distributed Computing Systems, 1995 pp, 207-214
Ex-1042	M. Kolland et al., "Information Sharing in Collaborative Environments", Proceedings of 3rd IEEE Workshop on Enabling Technologies: Infrastructure for Collaborative Enterprises, April 1994, pp. 140-154
Ex-1043	Zygmunt J. Haas & Sanjoy Paul, "Limited-lifetime Shared-access in Mobile Systems" Proceedings of the IEEE International Conference on Communications ICC '95, June 1995 pp. 1404-1408
Ex-1044	Mahadev Satyanarayanan, "Accessing Information on Demand at Any Location - Mobile Information Access", IEEE Personal Communications, February 1996 pp. 26-33
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Ex-1047	U.S. Patent No. 7,133,685 to Hose ("Hose")
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I. PRELIMINARY STATEMENT

Lyft, Inc. and Bumble Trading LLC (collectively, "Petitioner") request *inter partes* review of claims 32, 34, 36, 38, 39, 41, 43-49, 51, 53-62, 72, and 76 of U.S. Patent No. RE45,543 (Ex-1001). The patentability analysis of this Petition is identical to the petition filed in IPR2021-00127, and Petitioner concurrently requests joinder to that proceeding. Section XII, *infra*, addresses various discretionary considerations, including Petitioner's contingent stipulation to avoid overlapping grounds in district court.

II. BACKGROUND OF LOCATION-DETERMINING AND LOCATION-SHARING TECHNOLOGIES

Before the '543 patent, a wide range of terrestrial and satellite-based location technologies had been in use for years. Williams, ¶¶41-61. The 1996 Telecommunications Act was the catalyst for a boom of location-based technologies across a wide breadth of industries. Williams, ¶57. For satellite communications, the U.S. GPS (Global Positioning Satellite) system triggered even more innovation in location services fields. Williams, ¶58.

In the late 90s and early 2000s, developers in the wireless/mobile communications industry were implementing wireless location-based information sharing services across a variety of fields. Williams, ¶¶44-98. Key components of location determination and sharing systems included: registration, location

determination (e.g. via GPS or location service providers), and information sharing. Williams, ¶¶59,78,84. Location sharing also quickly became widely pervasive in many fields, including the following sub-industries. Williams, ¶83; Ex-1042, Ex-1043, Ex-1044.

- User matching (matching users to other users or businesses to share information) (Williams, ¶¶63-71 (citing Ex-1012, Ex-1012, Ex-1013, Ex-1014, Ex-1015, Ex-1016)),
- social networking (Williams, ¶¶73-78 (citing Ex-1017, Ex-1018, Ex-1019)), collaboration and groupware (Williams, ¶¶79-84 (citing Ex-1020, Ex-1020, Ex-1021, Ex-1022, Ex-1023; Ex-1041)),
- advertising (Williams, ¶¶85-96 (citing Ex-1024, Ex-1025, Ex-1027)), and
- instant messaging (Williams, ¶¶96-98 (citing Ex-1005, Ex-1009)).

The ’543 patent’s disclosures touch on each of these sub-industries, as does the presented prior art. Williams, ¶¶99-109.

III. OVERVIEW OF PRIOR ART

The ’543 patent was filed on May 14, 2013 with a priority claim dating back to April 24, 2001.

A. *Callegari*

U.S. Patent Application Publication No. 2003/0055983 (Ex-1005, “*Callegari*”) was filed on March 19, 2002, claiming priority to three provisional

applications filed on March 19, 2001: U.S. Provisional Patent Application Nos. 60/277,174 (Ex-1006), 60/277,187 (Ex-1007), and 60/277,200 (Ex-1008). At least claim 1 of *Callegari* is supported by the provisional applications, as shown below. Williams, ¶¶100-105.

Callegari	**Provisional Applications**
1[pre] A method for providing a virtual I [sic] journal, comprising:	"An illustrative aspect of the invention includes a *method for providing a journal*. The method includes creating a *journal entry that is virtually affixed to a location* of interest. The method also includes presenting the journal entry to a selected person when the selected person is within the vicinity of the location of interest." Ex-1007, 5, 36.
1[a] receiving a journal entry in an electronic medium from a first user, the journal entry including a definition of a geographic point of origin and information content	"The method includes creating a *journal entry that is virtually affixed to a location* of interest. The method also includes presenting the journal entry to a selected person when the selected person is within the vicinity of the location of interest." *Id*., 5, 36. "Location objects implement the data and behavior of geographical entities. Locations are added to a Realm databases [sic] based on Realm logic and a creation event. When a Real[m] is created, there are no Locations. Locations must be initialized by the

associated with the geographic point of origin;	creator of the Realm or through the creation event of user/s. Locations may be created that have an area beyond the *origin point* and the resolution of the position determining equipment. All locations contain *content*." *Id*., 23. "This content may be private (only accessible to the user/author) or can be shared with others in "buddy lists" for collaboration. These services may also be public, which is available to the entire user base of the system. Virtual content can be multimedia/multiformat. For example, it can include text, voice, graphics etc. Presentation of this content depends on what was created and on the individual personalized settings of people who will access this content. Virtual content creates a private or collaborative location-based messaging community. *These journals or services overlay the physical world*. Users can interact with the services in an ad hoc fashion. The term "content" used here refers to being location sensitive. Discrete messages, newsgroups, bulletin boards, chat rooms, or live instant messaging can all be location sensitive. The term "content"

encompasses all of these forms of communication. The term "content" throughout may also include applications and applets.

Id., 9.

Figure 2 Example Location Structure

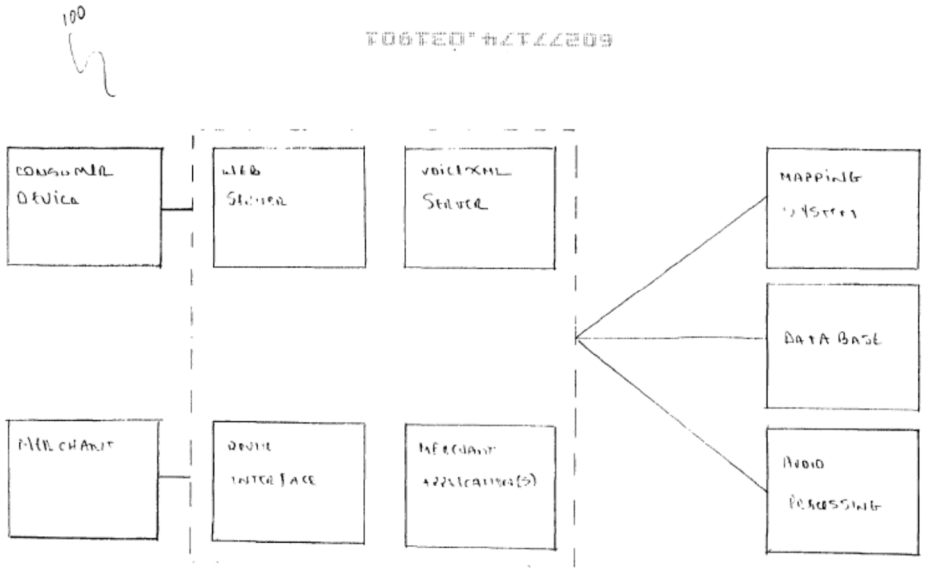
Item	Detail
Latitude	geolocation
Longitude	geolocation
Altitude	geolocation
Radius	Optional definition of how "big" this location is. Describes a circle from the origin points of lat, long.
Rectangle	Optional definition of how "big" this location is. Describes a rectangle from reference of the lat, long.
ServiceList	Reference to a list of Services
OnEnter	Reference to an executable to run when a User enters this location.
OnIn	Reference to an executable that will run when the User stays within the location area for a specified period of time
OnExit	Reference to an executable that will be run when the User exits from this location.
Rating	Accumulates the overall rating of this Location. A summary of all ratings.

Id., 23-24.

"Origin: the latitude and longitude (perhaps Z) that describes the reference point for the center of the location region."

Id., 16.

	"A *database* and respective application software are implemented to create the information system of 'locations' and 'content.'" *Id*., 17.
	"The system 100 includes a number of applications, such as merchant applications. These merchant applications include applications that allow *the merchant* to interface with the presence server to create the merchant presence. The presence server may use a number of other systems to provide the merchant presence. These other systems include a mapping system. The mapping system provides geographic addresses and routing methods to define the geographic area of the merchant presence. It may also be used by the consumer to search for a desired merchant presence within an area of interest. *The database keeps information that is generated to provide the merchant presence*. In one embodiment, the database is implemented using Oracle, but any suitable database technology can be used, such as Microsoft SQL server." *Id*., 7.

	"Acquire and link information and location from Users into an [sic] meaningfully organized *database*." *Id*., 19, Fig. 1 (reproduced below, depicting the system 100, including the "database").  "A restaurant owner has a web site on the world wide web. The owner places a reference (URL) along with location data to this system. When people are in the area and are attempting to sense a restaurant or this restaurant, this page becomes accessible via whatever device the potential customer or interest is using." *Id*., 33.

1[b] receiving an indication from a consumer device that includes a location defined by a second user; and	"A restaurant owner has a web site on the world wide web. The owner places a reference (URL) along with location data to this system. When people are in the area and are attempting to sense a restaurant or this restaurant, this page becomes accessible via whatever device the potential customer or interest is using…Potential patrons *coming into that location* will now have an option to view (WAP) the home page of the restaurant, listen to today's specials, or receive an SMS message *on their device*." *Id*., 9, 33. **4) Supporting or Relevant Aspects** ***My Neutrac – Visualization/Search/Location/Filter Interface*** The following figure illustrates a web based user interface for interacting with various applications/services and content. Note that this also preps many things up to enrich the wireless/device experience. It provides for example an easy to use location bookmarking functional and filter creation tool. Figure My Neutrac Page  *Id*., Fig. 4(annotated).

1[c] presenting the journal entry in electronic medium to the consumer device if the defined location received from the second user overlaps with the geographic point of origin defined by the first user.	"An illustrative aspect of the invention includes a method for providing a journal. The method includes creating a journal entry that is virtually affixed to a location of interest. The method also includes *presenting the journal entry to a selected person when the selected person is within the vicinity of the location of interest*." *Id*., 5, 36. "A restaurant owner has a web site on the world wide web. The owner places a reference (URL) along with location data to this system. When people are *in the area* and are attempting to sense a restaurant or this restaurant, this page *becomes accessible via whatever device* the potential customer or interest is using…. Potential patrons *coming into that location* will now have an option to view (WAP) the home page of the restaurant, listen to today's specials, or receive an SMS message *on their device*." *Id*., 33, 9. "The consumer interacts with the merchant through a *consumer device*. The consumer device includes any computing device that will allow the consumer to interact with the merchant, such as a wired device or a wireless device." *Id*., 6-7, Fig. 1.

Callegari is therefore entitled to the filing date of its provisional applications, March 19, 2001, making it prior art under §102(e). *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1380 (Fed. Cir. 2015); *see* Williams, ¶102.

Callegari describes a system for sharing the location of a GPS-enabled mobile consumer device with others. *Callegari*, ¶¶[0006]-[0007], [0009]-[0011]. The consumer device, when in a "sensing mode," *id.,* ¶¶[0042]-[0044], performs the following continuous functions: (1) it tracks user location as a user moves from one place to another; (2) allows users to create, share, and receive virtual content, including "a definition of a geographic location" based on the tracked location (i.e., "journal entr[ies]") (*id.*, ¶[0024]) where the virtual content can be designated "private, public, [or] semi-public" (*id.*, ¶[0011]); and (3) presents virtual content created by other users relevant to the user's location when the user meets the requirement ("Context criteria") to view the virtual content (*id.*, ¶¶[0027], [0033]-[0036]).

As shown in Fig. 5B, *Callegari*'s system enables a mobile consumer device 20 to determine its location via a "GPS 74," which "allows the user's location to be tracked." *Id.*, ¶¶[0044], [0050]. When the consumer device 20 is GPS-enabled, location data is transmitted automatically and periodically to a presence server 30. *Id.*, ¶¶[0044], [0057]-[0058]. The user can choose to share content from the

presence server, including location data, with other users in designated "buddy lists" based on "individual personalized settings" defined in the user's account. *Id.*, ¶[0010].

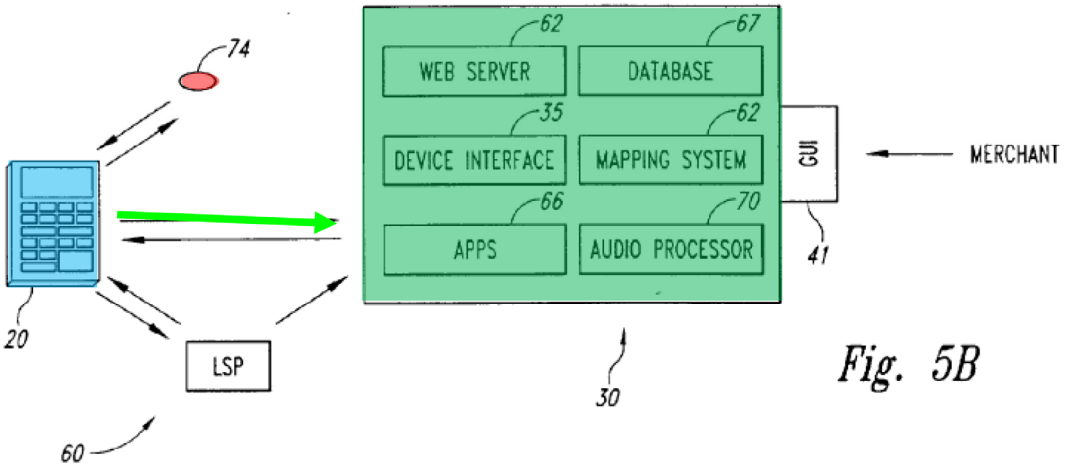


Fig. 5B

Id., Fig. 5B(annotated).

Callegari's location-tracking and location-sharing system has numerous implementations. For example, *Callegari*'s system can be used to receive location information of other users with mutual interests (*id.*, ¶¶[0112]-[0113]), to receive "electronic coupon message[s]" from retailers (*id.*, ¶[0102]), to "[a]rchive" visited locations by automatically timestamping journal entries and attaching them to a location (*id.*, ¶[0104]), and to comment on visited locations (*id.*, ¶[0108]).

B. *Friedman*

U.S. Patent No. 6,714,791 (Ex-1006, "*Friedman*") was filed on February 23, 2001, making it prior art under §102(e).

Friedman describes a system for location-based messaging that enables users to transmit positional data to other users. *Friedman*, 12:60-13:9. As an initial step using *Friedman*'s system, shown in Fig. 10, users are prompted to register with a "portal server" via a "portal device." *Id.*, 7:43-58, Fig. 6. To register, a user provides a "user ID and/or password" and information to the portal server to configure the portal server to "gather and manage specific information on behalf of the user" in a user profile. *Id.* Once registered, users may configure their portal device or the portal server "to transmit positional data" on a "periodic basis" or whenever they send a message to other users within a "specif[ied] subset of other users who should receive positional data," such as a "buddy list." *Id.* 12:65-13:3.

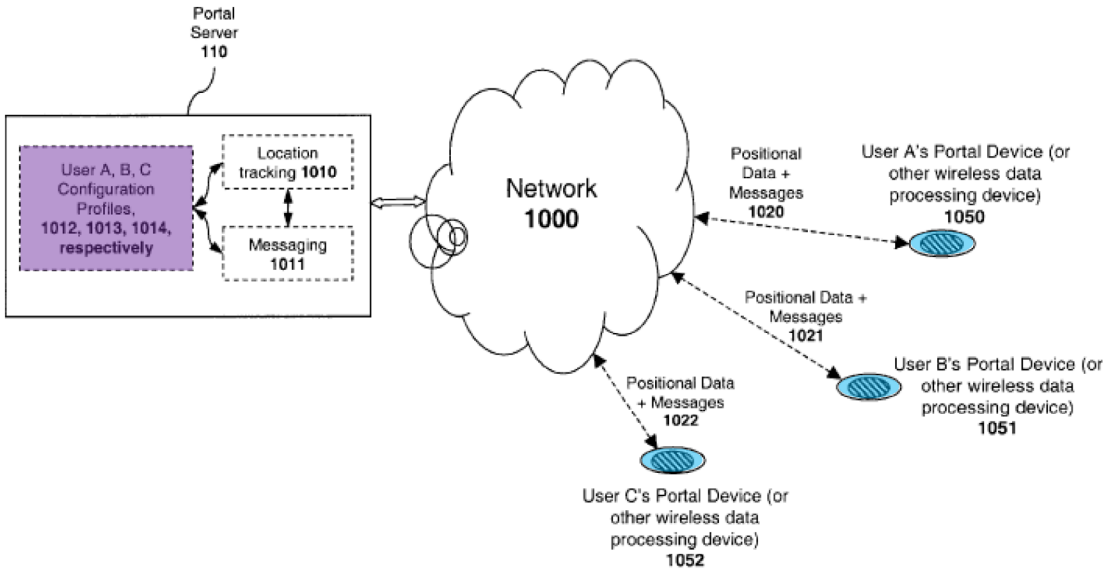


FIG. 10

Friedman, Fig. 10(annotated).

C. *Eschenbach*

U.S. Patent No. 6,373,429 (Ex-1007, "*Eschenbach*") was filed on February 6, 2001, making it prior art under §102(e).

Eschenbach teaches a differential global positioning system (DGPS) that uses almanac data, in addition to GPS signals, to determine the location of tracked GPS receivers. *Eschenbach*, Abstract, Fig. 2A. DGPS improves the location data accuracy for a GPS receiver using almanac data to correct the determined location of the user GPS receiver. *Id.*, 3:4-25; 6:17-7:64.

IV. THE '543 PATENT

A. Overview

Like *Callegari*, the '543 patent describes "tracking and selectively sharing user experiences," including location data. '543 patent, Abstract, 1:50-52, 17:43-44; *Callegari*, ¶¶[0009]-[0011]. Fig. 23 shows an embodiment of the system directed to wireless consumer devices enabled to determine location via a GPS. *Id.*, 16:53-17:28. The wireless device periodically determines its location and "logs it as an entry in a visited location database" (VLD), along with associated comments or ratings, or adds it "to the buffer for later addition to the VLD." *Id.* 17:2-5; 17:15-27; 19:30-39.

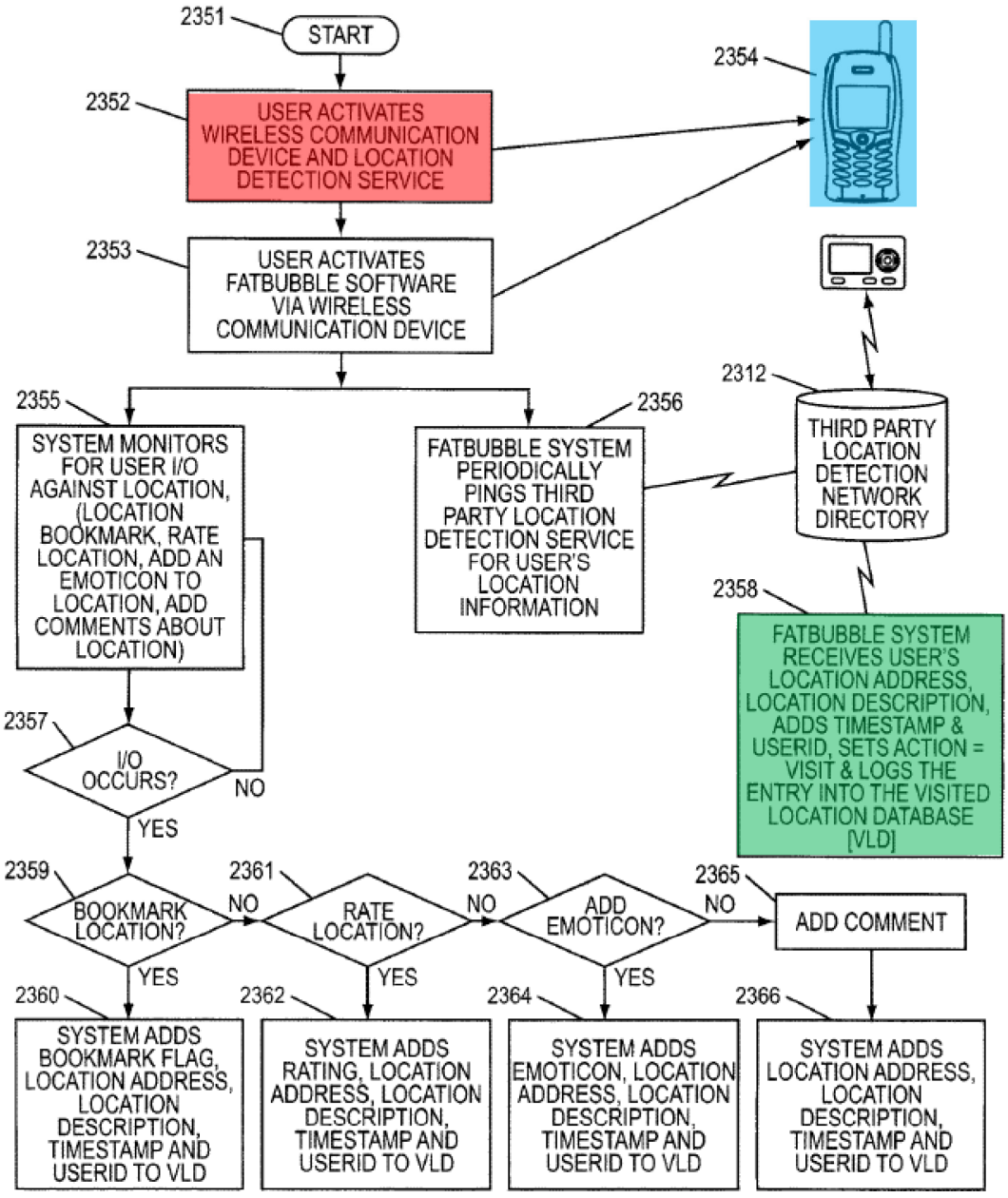


FIG. 23

'543 Patent, Fig. 23(annotated).

To use the system, like *Callegari* and *Friedman*, Fig. 2 shows how a user must register and log in. *Id.*, 5:50-64.

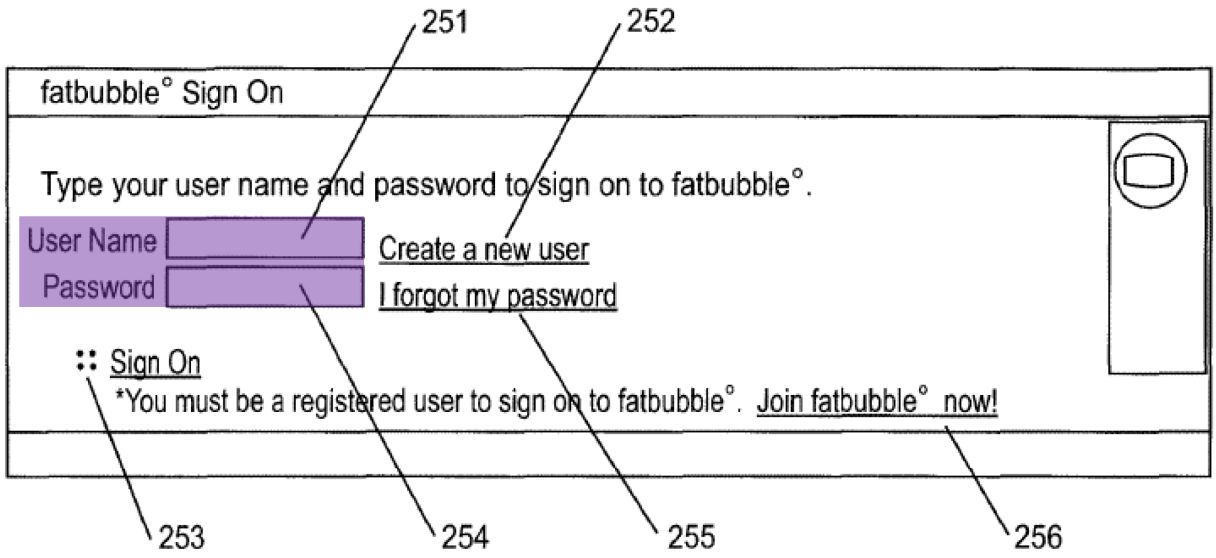


FIG. 2

'543 Patent, Fig. 2(annotated). Once registered and logged in, a user configures a buddy list to select categories of information to share with buddies. *Id.*, 8:12-29; 8:56-63.

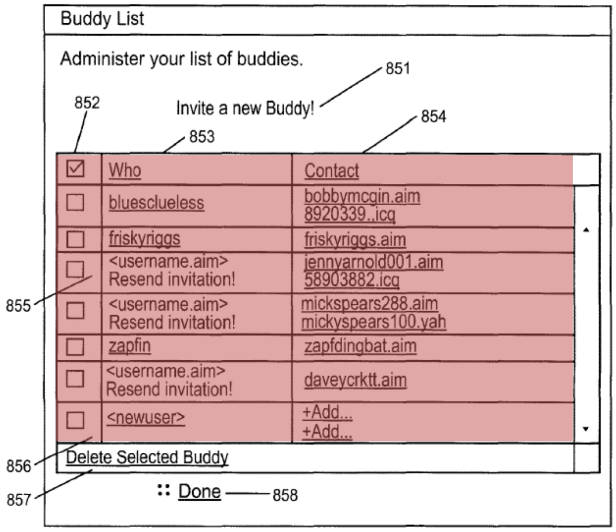


FIG. 8A

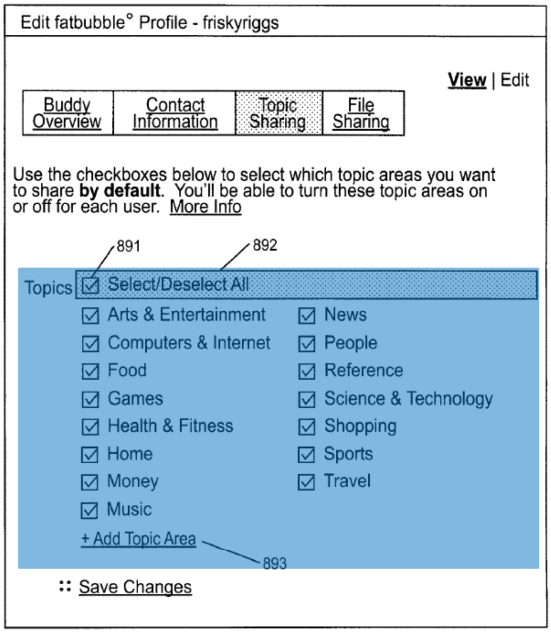


FIG. 8D

'543 Patent, Figs. 8A, 8D(annotated).

One of the topics that can be shared is location, including a category of location data. *Id.*, 16:53-17:27; 19:53-67; Fig. 9. Data collected at the VLD, such as location, is shared with appropriate buddies, including the location and category as well as a date and timestamp and any comments the user indicated. *Id.*, 16:53-17:27.

B. Summary of the Claims

The '543 patent is a reissue of U.S. Patent No. 7,080,139 (Ex-1011) where applicant canceled claims 1-31, amended claim 32, and added claims 33-76. Ex-1002, 30-51. This petition challenges fifteen independent claims that contain common core elements arranged in different ways to create the various permutations claimed. These Core Elements include:

A. registering a device with a server;

B. accessing lists of other users;

C. defining rights for sharing data with the other users;

D. collecting data at a user device;

E. reporting data to a server; and

F. sharing data with the other users.

This Petition uses these Core Elements to simplify the analysis of the claims and prior art, despite the number of independent claims challenged.

V. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art ("POSA") would have had either: (1) a Bachelor of Science degree in Electrical Engineering or an equivalent field, with at least three years of academic or industry experience in the wireless mobile location industry or comparable industry experience; or (2) a Master of Science degree in Electrical Engineering or an equivalent field, with at least two years of academic or industry experience in the same field. Williams, ¶¶35-38.

VI. CLAIM CONSTRUCTION

No claim terms need to be construed by the Board at this time.

VII. STATEMENT OF PRECISE RELIEF REQUESTED

Petitioner requests *inter partes* under the following grounds:

Ground	References	Basis	Challenged Claim(s)
1	*Callegari*	§103	76
2	*Callegari*, *Friedman*	§103	32, 34, 36, 39, 41, 43-49, 51, 53-62, and 72
3	*Callegari*, *Friedman*, *Eschenbach*	§103	38

VIII. *CALLEGARI* AND *FRIEDMAN* DISCLOSE THE CORE ELEMENTS OF THE CLAIMS

The challenged independent claims are all generally directed to various combinations of six core elements:

A. registering a device with a server;

B. accessing lists of other users;

C. defining rights for sharing data with the other users;

D. collecting data at a user device;

E. reporting data to a server; and

F. sharing data with the other users.

Callegari alone or with *Friedman* discloses each of these elements as claimed.

A. Core Element A (registering): "registering a location-aware device with a server"

Callegari discloses a "location aware device" (consumer device) for tracking and sharing the location of a GPS-enabled mobile consumer device with a presence server and selected individuals. *Callegari*, ¶¶[0006]-[0007], [0009]-[0011]; Ex-1007, 15, 19-20. Fig. 5B shows the architecture of *Callegari*'s system. As shown in Figure 5B, *Callegari*'s system enables a mobile consumer device to determine its location via position determining equipment ("PDE") including a "GPS." The PDE "allows the user's location to be tracked" and transmitted periodically from the consumer device to a presence server. *Callegari*, ¶¶[0024], [0044], [0050], [0057]-[0058]; Ex-1007, 1, 5, 11, 13-14, 19-20, 25-26, and Fig. 3.

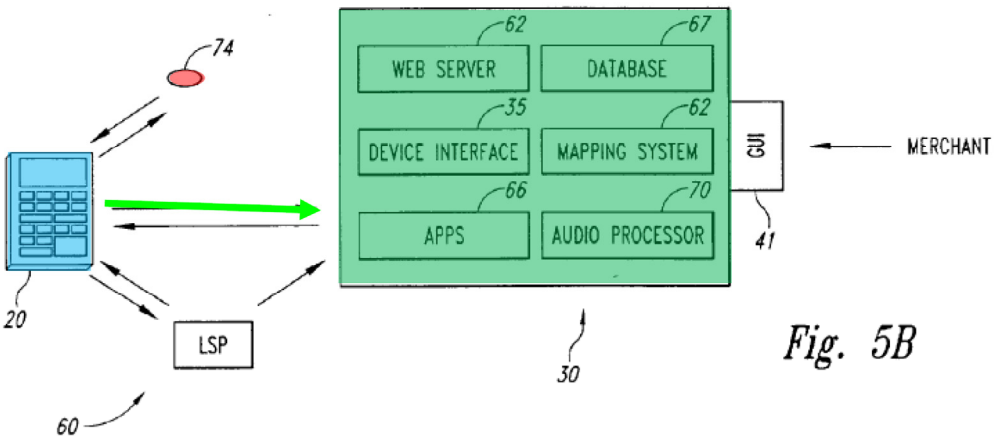


Fig. 5B

Callegari, Fig. 5B(annotated).

Callegari's consumer device is a "mobile telephone[]" (*id.*, ¶[0035]) that is "equipped with position detection equipment, such as a GPS" (*id.*, ¶[0044]). *See also* Ex-1007, 2-3, 11, 13-14, and 19. A POSA would have understood that the consumer device of *Callegari* is a location-aware device because it is a mobile telephone equipped with PDE. Williams, ¶¶122-123.

Callegari also discloses that the "location-aware device [ ] is capable of being registered with a registration server." *Callegari* teaches that a consumer device (location-aware device) communicates with a presence server (registration server) during a subscription process. *Callegari*, ¶[0025], [0050]; Ex-1007, 5, 25, 29, Fig. 7.

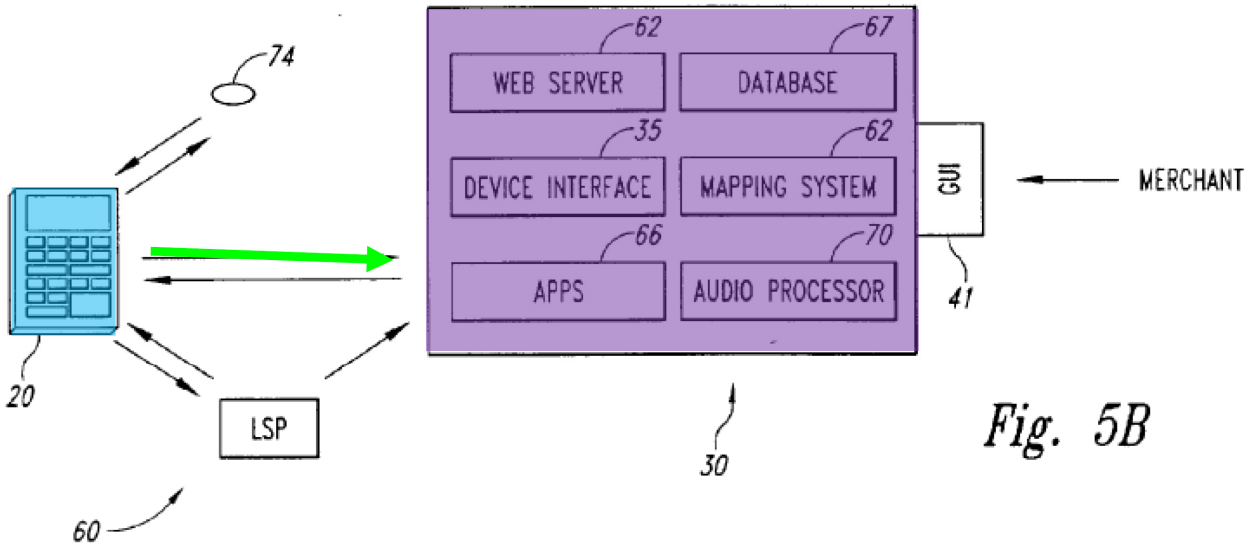


Fig. 5B

Callegari, Fig. 5B(annotated).

The presence server includes a "storage medium [to] store subscriber information" (registration information). *Id.*, ¶[0053]; Ex-1007, 3. Subscriber

information (registration information) includes user "identification, account information for billing, telecommunication details such as type of communication device, telephone number, communication protocol, format, device type or model, and positioning capacity." *Callegari*, ¶[00179]; Ex-1007, 5, Fig. 7. A POSA would have understood that a user would provide the subscriber information stored on the presence server via the consumer device during a subscription (registration) process because the consumer device is configured to allow users to communicate with the presence server. *Callegari*, ¶¶[0050]-[0052]; Ex-1007, 1-5, 11, and Figs. 2-7; *see also* Ex-1029 (explaining that users register with a service by providing information about themselves and their device); Williams, ¶¶124-125. A POSA would further have understood that user registration with a server was well-known in the art as of the '543 patent. Williams, ¶¶124-125; *see also* Ex-1026, Ex-1035 through Ex-1039.

The presence server of *Callegari* performs both registering a user and tracking a registered user's visited geographic locations. *Callegari*, ¶¶[0025], [0050]-[0053]; Ex-1007, 1-5, 11, and Figs. 2-7. While the '543 patent does not further describe the claimed registration server, the '543 patent specification, including the originally filed claims during prosecution, evidence claim scope that allows for the registration server to perform additional functions beyond

registration, including tracking. Ex-1002, 32 (Original Claim 2: "wherein the registration server and the tracking server are a single server"); Williams, ¶126.

Should the Board determine that these claims require a distinct registration server and that *Callegari* does not teach a distinct registration server, then *Friedman* does. *Friedman* discloses a user registration and authentication process. *Friedman*, 7:15-57. Using *Friedman*'s system, shown in Fig. 10, the user connects to a "portal server" from a "portal device" which, if registered, "will automatically log the user in." *Friedman*, 7:35-37. If the device is not registered, then "portal server 110 may implement a standard user name/password login procedure and/or may register the user." *Friedman*, 7:43-58, Fig. 6. To register, a user provides a "user ID and/or password" and information to the portal server to configure the portal server to "gather and manage specific information on behalf of the user" in a user profile. *Id.* Once registered, users may configure their portal device or the portal server "to transmit positional data" whenever they send a message to other users within a "specif[ied] subset of other users who should receive positional data," such as a "buddy list." *Id.* 12:65-13:3.

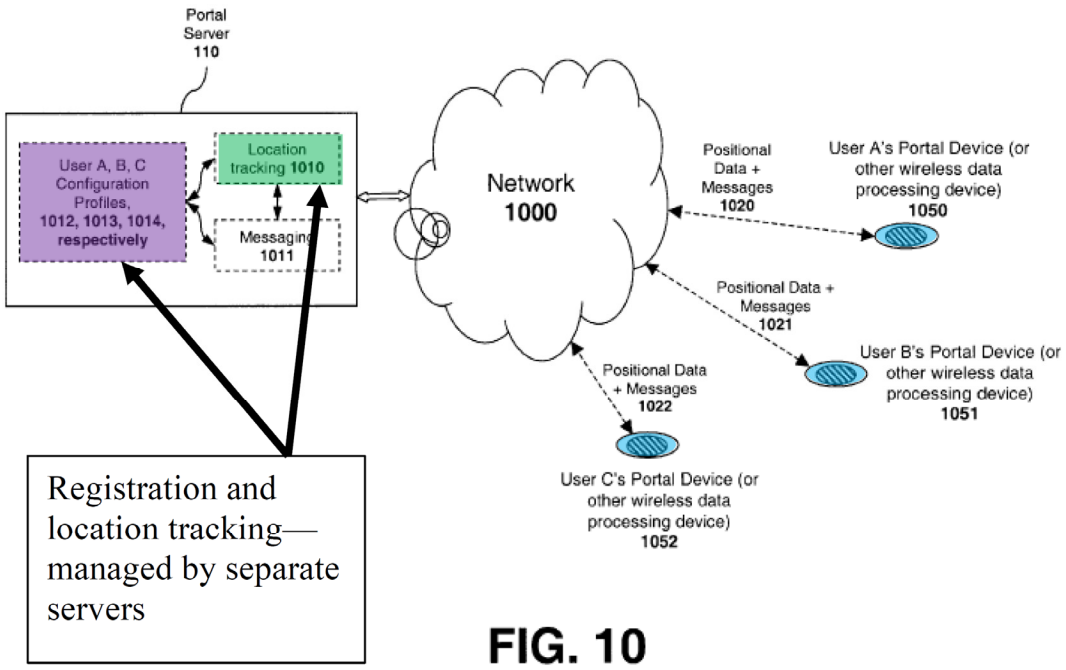


FIG. 10

Friedman, Fig. 10(annotated).

Friedman further explains that the portal server may comprise "numerous different servers," divided by function "(e.g., database servers, web servers, etc.)." *Friedman*, 14:40-44. A POSA would have understood that the portal server could comprise a separate registration server that performs the function of registering a user with the system and maintaining the user configuration profiles while employing a separate server to perform location tracking and messaging because distributing registration onto a separate server would provide benefits to efficiency, fault-proofing, and scalability, as discussed in §X.A. Williams, ¶¶128-129.

B. Core Element B (accessing): "accessing lists of other users"[1]

Callegari teaches configuring buddy lists (comprising lists of other users), which it defines as "a user defined list of other Users with whom User defined location specific information is shared." *Callegari*, ¶[0079]; Ex-1007, 5, Figs. 3 and 7. Buddy lists are stored on the presence server. *Id.* A user can access defined buddy lists through the "Buddy List GUI" that "lists names for a variety of buddy lists that may be established" by the user. *Callegari*, ¶[0038]; Ex-1007, 19. Fig. 9 shows how each buddy list can contain different groups of buddies. For example, "one buddy list may include business associates, another may include friends and another may include family." *Callegari*, ¶¶[0038], [0089], Fig. 9; Ex-1007, 19, Fig. 2.

[1] Some challenged claims use the term "enabl[ing] access" rather than "access." A POSA would have understood that *Callegari* and/or *Friedman* disclose "accessing" as well as, "enabling access" to lists of other users. Williams, ¶132; *see also* Section X.B.2.

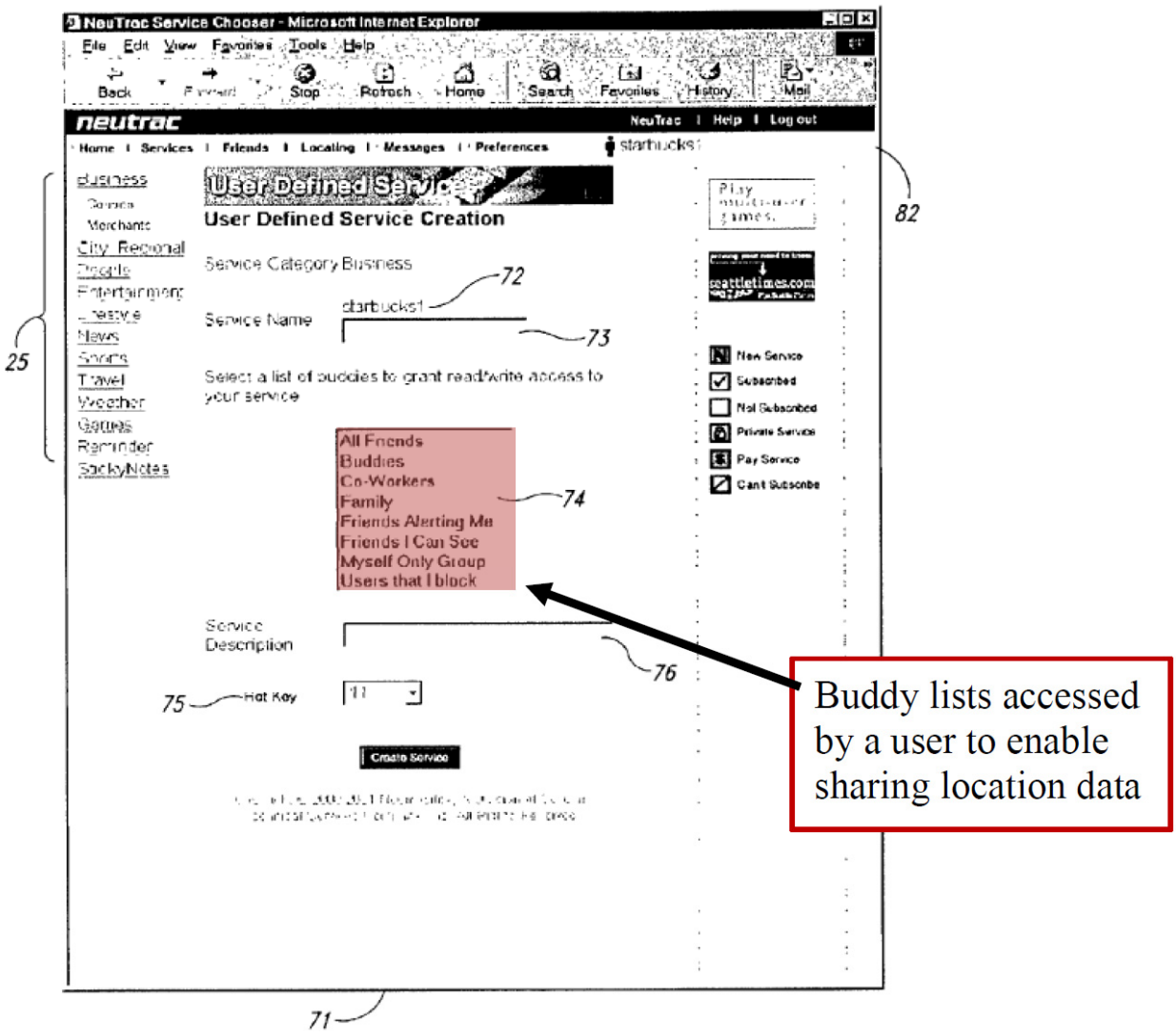


Fig. 9

Callegari, Fig. 9(annotated).

A POSA would have understood that a user would access the buddy lists via the consumer device because the consumer device is the only disclosed means for users to communicate with the presence server. *Callegari*, ¶¶[0038], [0052]; Ex-1007, 19, Fig. 2; Williams, ¶¶130-132.

C. Core Element C (defining): "defining rights for sharing data with the other users"[2]

In addition to configuring buddy lists, *Callegari* teaches defining a "Context criteria" for a particular buddy or buddy list. *Callegari*, ¶¶[0038], [0066]; Ex-1007, 14-16, 19, Fig. 2. A user defines "Context" to "characterize the attributes of access and/or electronic interactions allowed between users and locations" (access rights). *Callegari*, ¶[0066]; Ex-1007, 14-16. *Callegari*'s buddy lists "have different levels of Context for different levels of access, i.e., some maybe [sic] private, other[s] semi-private, and still other[s] public." *Callegari*, ¶[0038]; Ex-1007, 19. Location data is only presented to a second user "if the second user fulfills the Context criteria" assigned to the buddy list. *Callegari*, ¶[0027]; Ex-1007, 19. For example, an individual on a buddy list has access to shared data when the context of the data matches the context assigned to the buddy list. *Callegari*, ¶¶[0038], [0066]; Ex-1007, 14-16. A POSA would have understood that defining access rights was a

[2] Some challenged claims use the term "enabl[ing] definition" rather than "defining." A POSA would have understood that *Callegari* and/or *Friedman* disclose "defining" and "enabling users to define" rights for sharing data. Williams, ¶135; *see also S*ection X.B.1.

common way to manage sharing information. Williams, ¶¶133-135; Ex-1038 (showing "permissions-based" access to and delivery of private information).

D. Core Element D (collecting): "collecting data at the device"[3]

Callegari discloses that, in sensing mode, the consumer device collects geographic location data using its PDE, including a GPS. *Callegari*, ¶¶[0024], [0044], [0050], [0057]-[0058]; Ex-1007, 1, 5, 11, 13-14, 19, 25-26, and Fig. 3. Location data is collected at the consumer device *before* being reported to the presence server. *See, e.g., Callegari*, ¶¶[0042], [0044] ("In the sensing mode, the consumer device continuously or (periodically) *transmits* changing indications of the user's point of origin as the user moves from location to location."), [0057] ("The presence server 30 may then utilize the positioning coordinates *provided from the PDE 72 directly from the consumer device 20* to automatically detect the consumer's point of origin as it changes.") (emphases added); Ex-1007, 11, 13-14, 19, 20, and 25.

[3] Not all challenged claims require data to be collected automatically. *Callegari* discloses automatic collection, which covers all challenged claims.

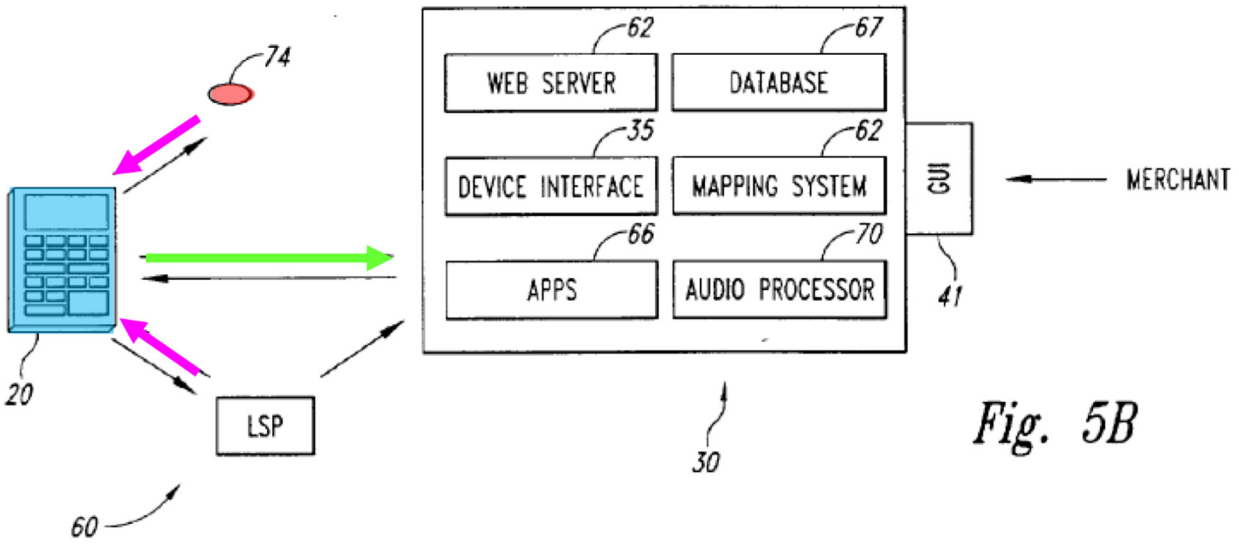


Fig. 5B

Callegari, Fig. 5B(annotated).

A POSA would have also understood that continuously receiving location data from PDE and periodically transmitting location information to the presence server requires the consumer device to collect location data between transmissions to the presence server because, when transmission to the server is not continuous in real-time, the data must be stored somewhere to be retained. Williams, ¶¶136-138; *see also* Ex-1030.

To the extent the claims require collecting geographic location data from multiple geographic locations, *Callegari's* sensing mode also collects data that includes more than one geographic location when a user is moving. *Callegari*, ¶¶[0042]-[0044]; Ex-1007, 15, 17-18, and 23. Fig. 1 shows a route traversed by a user of the *Callegari* system. *Callegari*, ¶[0033]; Ex-1007, 7, 23-24, and 29. The

user travels between points A and B, encountering a plurality of geographic locations (e.g., 2 and 4) (yellow) along the way. *Callegari*, ¶[0033]. The consumer device collects location data for these locations as the user's location changes. *See, e.g., Callegari*, ¶¶[0042], [0057]; Ex-1007, 15, 17-18, 23-24, and 29.

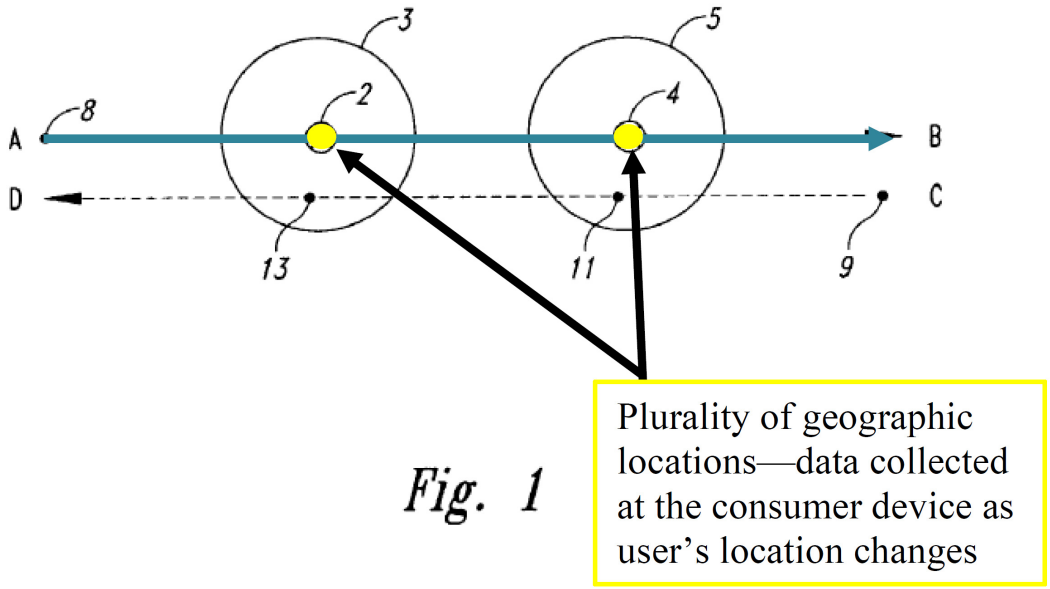


Fig. 1

Callegari, Fig. 1(annotated); Williams, ¶138.

E. Core Element E (reporting): "reporting[4] data to a server"[5]

Callegari discloses both a site mode and a sensing mode. In site mode, "the consumer [device] transmits a single indication of a particular location" to the presence server. *Callegari*, ¶[0043]; Ex-1007, 11, 13-14, and 19. In sensing mode, "the consumer's location is tracked and the positioning coordinates are transmitted to the presence server 30 automatically." *Callegari*, ¶[0058]; Ex-1007, 11, 13-14, and 19. "[T]he consumer device continuously or (periodically) transmits changing indications of the user's point of origin as the consumer mode moves from location to location" to the presence server. *Callegari*, ¶¶[0044], [0058]; Ex-1007, 11, 13-14, and 19. The periodic transmission would comprise all changed location data between periodic transmissions, or data for multiple locations based on the user's

[4] Some challenged claims use the term "sending" instead of "reporting." A POSA would have understood that *Callegari* discloses "sending" data to a server for the same reason it discloses "reporting" data to a server because both terms cover the transmission of data over a wireless network between the consumer device and presence server of *Callegari*. Williams, ¶¶139-141.

[5] The challenged claims do not require reporting data to a server to be automatic, but also do not exclude automatic reporting. *Callegari* discloses both manual and automatic reporting, which covers all challenged claims.

movement between transition periods. *Id.*, ¶¶[0044], [0058]; Ex-1007, 11, 13-14, and 19.

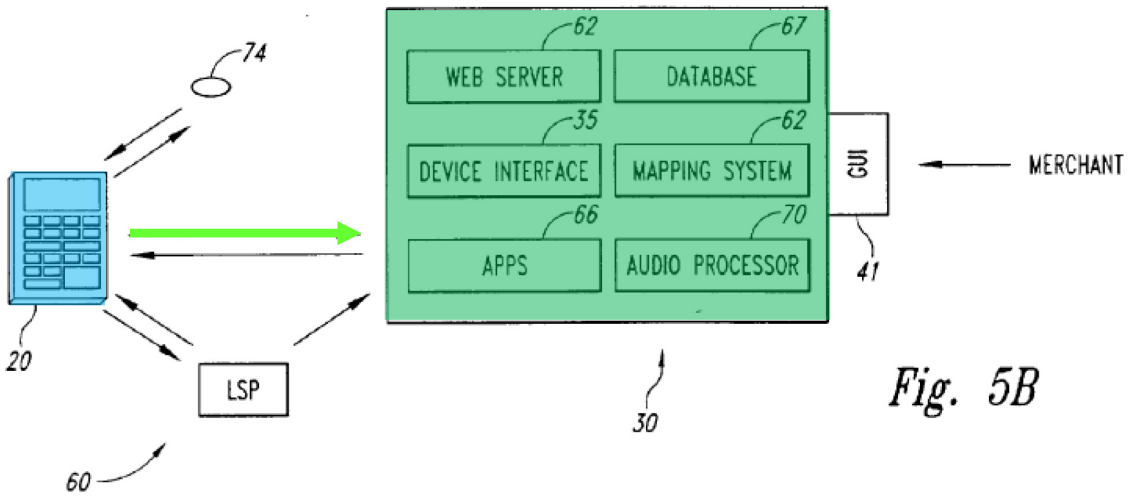


Fig. 5B

Callegari, Fig. 5B(annotated).

F. Core Element F (sharing): "sharing data with the other users"

Callegari discloses that the presence server shares the geographic location data with the other users (e.g., buddies). Williams, ¶142. For example, "if the second user fulfills the Context criteria" assigned to the buddy list, *Callegari*'s presence server shares stored content with that user by pushing the content to them. *Callegari*, ¶¶[0027], [0038], [0046], [0066]; Ex-1007, 6, 19, 38. *Callegari* discloses that users enable what content may be pushed to them. *Callegari*, ¶[0046], Figs. 5A-B; Ex-1007, 6, 19, 38. If enabled, and if another user meets the designated Context criteria for particular content, the content is pushed to the other users, and thus shared. *Callegari*, ¶¶[0038], [0066]; Ex-1007, 14-16.

IX. GROUND 1: CLAIM 76 IS UNPATENTABLE OVER *CALLEGARI*

A. Claim 76 (Core Elements A-B-C-D-E-F)

Callegari renders obvious claim 76. Williams, ¶¶143-156.

1. [76p] "A system for collecting and sharing visited geographic location data, comprising:"

Should the preamble be limiting, *Callegari* teaches it. Williams, ¶¶144-145.

As shown in Figure 5B, *Callegari* discloses a system that enables a mobile consumer device to collect its location via "GPS and transmits the location data periodically from a presence server. *Callegari*, ¶¶[0024], [0044], [0050], [0057]-[0058]; Ex-1007, 1, 5, 11, 13-14, 19-20, 25-26, and Fig. 3. Williams, ¶145.

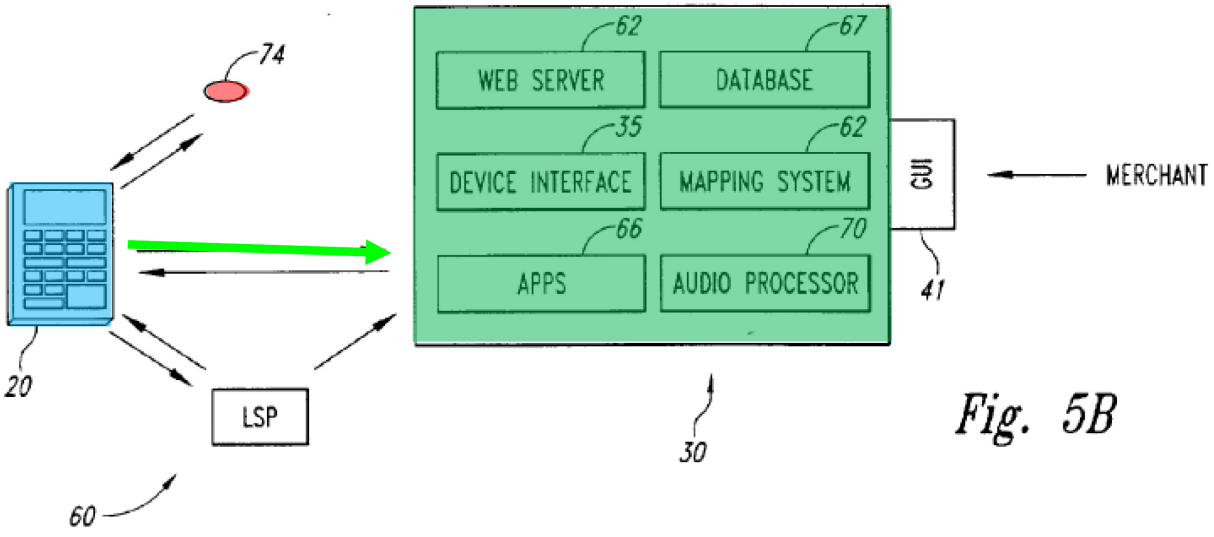


Fig. 5B

Callegari, Fig. 5B(annotated).

2. [76a] "a location-aware device adapted to:" (Core Element A)

Core Element A (registering) is discussed in §VIII.A. Williams, ¶146.

3. [76b] "record geographic location data while visiting geographic locations using a satellite-based location fixing protocol" (Core Element D)

Core Element D (collecting) is discussed in §VIII.D. Williams, ¶¶147-148. *Callegari*'s consumer device "records" the data for the same reason it "collects" it. A POSA would have understood that continuously receiving location data from PDE and periodically transmitting location information to the presence server requires the consumer device to record location data between transmissions to the presence server because, when transmission to the server is not continuous in real-time, the data must be stored somewhere to be retained. Williams, ¶148; *see also* Ex-1030.

4. [76c] "enable access to one or more lists of other users to identify one or more other users with whom the geographic location data may be shared;" (Core Element B)

Core Element B (accessing) is discussed in §VIII.B. Williams, ¶149.

5. [76d] "enable definition of rights of the one or more other users to access the geographic location data, and" (Core Element C)

Core Element C (defining) is discussed in §VIII.C. Williams, ¶150.

6. [76e] "send at least a portion of the geographic location data to a tracking server; and" (Core Element E)

Core Element E (reporting) is discussed in §VIII.E. Williams, ¶151.

7. [76f] "the tracking server adapted to:" (Core Element E)

Core Element E (registering) is discussed in §VIII.E. Williams, ¶¶152-153. A POSA would have understood that *Callegari*'s presence server is a tracking server because it tracks the consumer device's location based on periodic transmission of location data. Williams, ¶153.

8. [76g] "receive the at least a portion of the geographic location data from the location-aware device; and" (Core Element E)

Core Element E (reporting) is discussed in §VIII.E. Because *Callegari*'s consumer device reports data to the presence server, the presence server also receives the data from the consumer device. Williams, ¶¶154-155.

9. [76h] "share the at least a portion of the geographic location data with the one or more other users in accordance with the rights of the one or more other users." (Core Element F)

Core Element F (sharing data) is discussed in §VIII.F. Williams, ¶156.

X. GROUND 2: CLAIMS 32, 34, 36, 39, 41, 43-49, 51, 53-62, AND 72 ARE UNPATENTABLE OVER *CALLEGARI* IN VIEW OF *FRIEDMAN*

Callegari and *Friedman* render obvious every element of claims 32, 34, 36, 39, 41, 43-49, 51, 53-62, and 72. Williams, ¶¶157-261.

A. A POSA Would Have Combined *Callegari* and *Friedman*

Friedman discloses a portal device communicating with a portal server, both of which include controllers executing instructions from software stored in memory. *Friedman*, 5:48-67, 11:21-33, 14:11-34. A POSA would have been

motivated to combine *Friedman*'s portal server performing registration functions and the controllers and software of *Friedman*'s portal device and portal server with the system of *Callegari*. Williams, ¶¶158-159.

1. A POSA would have understood that *Callegari*'s consumer device and presence server would have processors executing software stored in memory, as disclosed by *Friedman*

Callegari discloses a consumer device such as cell phones, portable computers, portable digital assistants, 'BLACKBERRIES' and the like." *Callegari*, ¶[0006]; *see also id.*, ¶[0035]; Ex-1007, 2-3. A POSA would have understood that the consumer device of *Callegari* would have included a processor running software, as discussed in *Friedman* because *Friedman* teaches that its processor and software combinations were commonly used in cellphones and PDAs like those of *Callegari*. *Friedman*, 11:26-27, 14:13-15, 14:21-28. From *Friedman*'s express teaching that its processor and software was compatible with the consumer device of *Callegari*, a POSA would have been motivated to combine the processor and software of *Friedman* with the consumer device of *Callegari* and would have had a reasonable expectation of success in doing so. Williams, ¶160.

Similarly, *Callegari* discloses a system, including a presence server, that "includes various pieces of software and hardware." *Callegari*, ¶[0048]; Ex-1007, 5, Fig. 2. A POSA would have understood that the presence server of *Callegari* would, therefore, have included a processor running software. Williams, ¶161.

Friedman further explains that servers, such as its portal server, perform steps embodied in machine-executable instructions that "can be used to cause a general-purpose or special-purpose processor to perform certain steps." *Friedman*, 14:11-19. *Friedman* discloses that the executable instructions are stored in a storage medium. *Id.*, 14:21-34. A POSA would have been motivated to combine *Friedman*'s processor executing software instructions with *Callegari*'s presence server based on *Callegari*'s express teaching that its server includes various pieces of software and hardware. Williams, ¶161.

2. A POSA would have combined *Friedman*'s registration server into *Callegari*'s system to form a distributed system

Callegari discloses using a single server for registering new system users and tracking the location of the system users. *Callegari*, ¶¶[0024], [0025], [0044], [0050], [0057]-[0058]; Ex-1007, 1, 5, 11, 13-15, 19-20, 25-26, and Fig. 3. *Friedman* discloses a similar system for registering users and tracking the location of system users but further explains that separate servers can be used to perform different functions. *Friedman*, 7:43-58, 14:40-44. The registration server of *Friedman* could easily be implemented into the system of *Callegari* by simply distributing the tracking and registration functions across two servers and a POSA would have been motivated to do so. Williams, ¶162; *see also Callegari*, ¶[0077]; Ex-1007, 18. The following figure shows one configuration of the combined

Callegari-Friedman system that a POSA would have been motivated to create. Williams, ¶162.

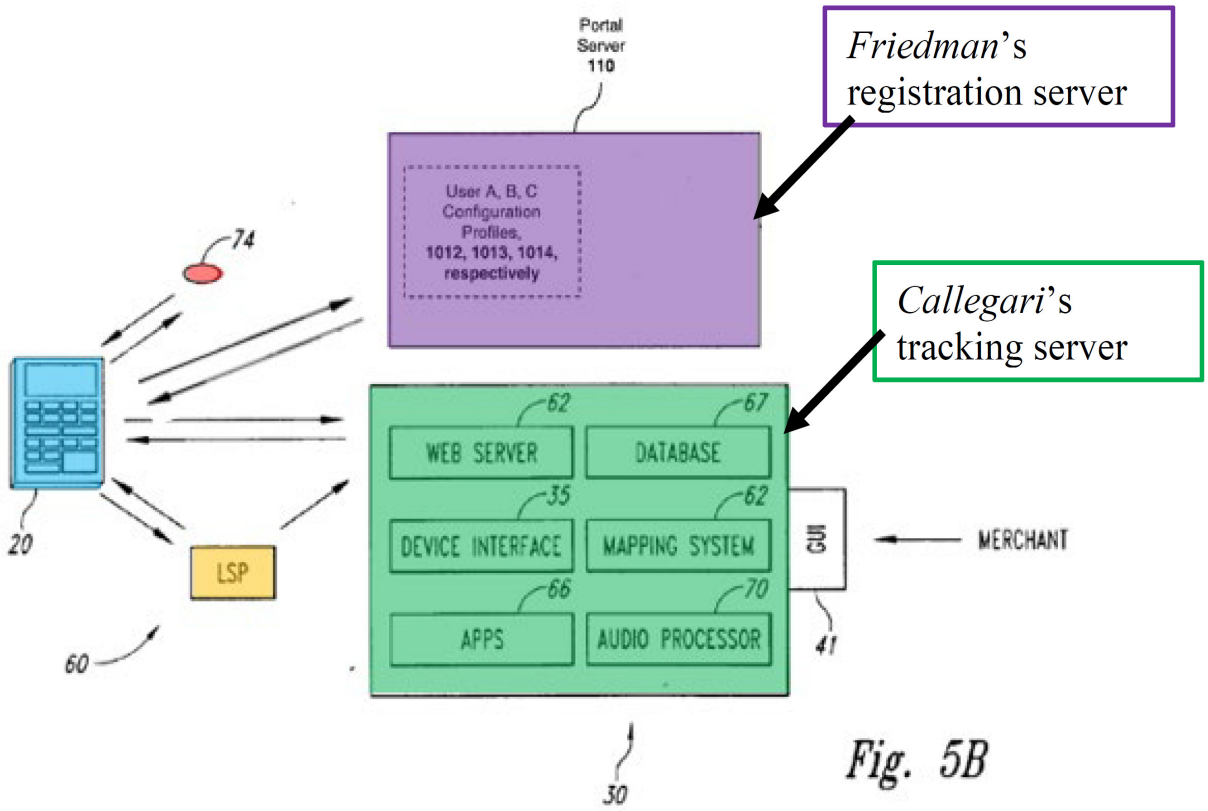


Fig. 5B

Callegari, Fig. 5B(annotated).

Using multiple servers to perform functions of a collective system, as suggested by *Friedman*, was known as distributed computing. Williams, ¶163, *Friedman*, 14:40-44; Ex-1031 through Ex-1034. Distributed computing systems were well known in the art before the priority date of the '543 patent, and provided several advantages over centralized, single-server systems. Williams, ¶163; Ex-1031 (discussing the "tremendous flexibility" of distributed systems). First,

distributed systems allow the flexibility of using hardware and software of different vendors. Williams, ¶163; Ex-1031. Second, distributed systems allow concurrent processing, which enhances the speed and performance of the overall system. Williams, ¶163; Ex-1032 (describing distributed systems as "high performance, [with] availability, and extensively low cost"). Third, distributed systems provide scalability benefits. Williams, ¶163; Ex-1032, 1; Ex-1033, 3 (explaining that distributed systems "allow more flexibility for growth of capability and function"). That is, distributed systems are easily expandable and able to add new resources and meet growing demand. Williams, ¶163; Ex-1032, 1; Ex-1033, 3. Finally, a distributed system provides a level of fault tolerance. Williams, ¶163; Ex-1034, 57 ("To achieve fault tolerance, a distributed system architecture incorporates redundant processing components."). If a single server fails, those functions performed by separate servers are still able to operate. Williams, ¶163; Ex-1034, 57. Each of these general benefits of distributed computing would improve the *Callegari* system if implemented in a registration server separate from the presence server, as *Friedman* teaches. Williams, ¶163.

Callegari discloses a broad system that includes many "various features, services or other aspects of the invention that may be implemented," providing twelve exemplary services in which the system could be used. *Callegari*, ¶[0094], *see also* ¶¶[0095]-[0119]; Ex-1007, 30-35. First, with such a wide range of service

offerings, the added flexibility to outsourcing aspects, such as registration, to a vendor would be an added benefit. Second, again because of *Callegari*'s wide selection of services, a POSA would have understood that the *Callegari* system would benefit from concurrent processing, which would allow the system to operate more efficiently by allowing new users to register without occupying resources needed by already registered users sharing journal entries. Williams, ¶164. Third, scalability would allow *Callegari* to easily expand their system to meet the demands of increased users. Williams, ¶164. Finally, fault tolerance also would improve *Callegari*'s system by allowing, for example, the presence server to continue supporting tracking and sharing functionality, even if there is a failure in the registration server. Williams, ¶164.

These advantages would have motivated a POSA to improve the *Callegari* system to use multiple servers as suggested by *Friedman*. Williams, ¶165. A POSA looking to improve upon the system of *Callegari* would have been motivated to implement a distributed system, including using a separate registration server as taught by *Friedman*, to improve the efficiency and robustness of the *Callegari* system. Williams, ¶165; Ex-1031 through Ex-1034; *see also Jazz Pharms, Inc. v. Amneal Pharms, LLC*, 895 F.3d 1347 (Fed. Cir. 2018) (affirming the PTAB's finding that a POSA would have been motivated to modify a system to include

multiple computers in a distributed database system for reasons of cost, efficiency, and the anticipated volume of information).

B. Claims 45-49, and 51 (Core Elements A-B-C-D-E)

Callegari and *Friedman* render obvious claims 45-49, and 51. Williams, ¶¶166-192. Claims 45-49, and 51 relate to a location-aware device and are identical aside from the last element of each claim. Williams, ¶166. Each Core Element is addressed collectively, and the final claim elements are addressed separately.

1. [45-49p, 51p] "A non-transitory computer-readable medium storing software for instructing a controller of a location-aware device that is capable of being registered with a registration server to:" (Core Element A)

Should the preambles be limiting, *Callegari* and *Freidman* teach them. Core Element A (registering) is discussed in §VIII.A.[6] Williams, ¶¶167-169.

Callegari explains that its system, including the consumer device, "includes various pieces of software and hardware." *Callegari*, ¶[0048]; Ex-1007, 5, Fig. 2.

[6] Claims 45-49 and 51 require only that the location-aware device be "capable of registering with a registration server." Because *Callegari* and *Friedman* disclose registering the device with a registration server, the device is also capable of registration.

The consumer device comprises "cell phones, portable computers, portable digital assistants, 'BLACKBERRIES' and the like." *Callegari*, ¶[0006]; *see also id.*, ¶[0035]; Ex-1007, 2-3. A POSA would have understood that these types of devices include controllers that operate in conjunction with software. Williams, ¶170. Devices such as computers, cell phones, and portable digital assistants "use a varied assortment of protocols and/or formats" to receive and transmit information, such as "Wireless Application Protocol, HTML, and E-mail" by connecting to the World Wide Web. *Callegari*, ¶[0006]; *see also id.*, ¶[0035]; Ex-1007, 2-3. A POSA would have understood that *Callegari*'s consumer device includes a controller and software that instructs the controller to perform functions, including "transmitting information." *Callegari*, ¶[0006]; Ex-1007, 2-3; Williams, ¶170.

Should the Board determine that *Callegari* does not sufficiently disclose a "non-transitory computer-readable medium storing software for instructing a controller of a location-aware cellular phone device," *Friedman* does. *Friedman* discloses a portal device that "employs a 32-bit RISC-based microprocessor such as an ARM processor." *Friedman*, 11:26-27. It explains that "ARM processors are widely used in PDAs, cell phones and a variety of other wireless devices." *Id.*, 11:27-28. *Friedman* further discloses that the processor performs steps "embodied in machine executable instructions" that are "stored on "a machine-readable medium." *Id.*, 14:13-15, 14:21-28.

2. [45-49a, 51a] "enable access to one or more lists of other users to identify one or more other users with whom visited geographic location data is capable of being shared;" (Core Element B)

Core Element B (accessing) is discussed in §VIII.B. Williams, ¶172.

3. [45-49b, 51b] "enable definition of access rights for the one or more other users to enable access to the visited geographic location data;" (Core Element C)

Core Element C (defining) is discussed in §VIII.C. Williams, ¶173.

4. [45-49c, 51c] "collect the visited geographic location data for geographic locations visited by the location-aware device using a client-side application; and" (Core Element D)

Core Element D (defining) is discussed in §VIII.D. Williams, ¶174.

5. [45-49d, 51d] "report information indicating at least a portion of the visited geographic location data to a tracking server." (Core Element E)

Core Element E (reporting) is discussed in §VIII.E. Williams, ¶175.

6. [45e] "wherein…receive, via a user interface of the location-aware device, input that defines at least one user of the one or more other users from the one or more lists of other users that is to have access to the visited geographic location data."

Callegari discloses the narrower subset of buddy lists (e.g., at least one user of the one or more other users from the one or more lists of other users). *Callegari*, ¶[0038]; Ex-1007, 19; Williams, ¶¶176-177.

Callegari further discloses a locating GUI that allows a user via the user interface of the consumer device to "select other users, buddy lists, businesses, or

other categories of users that will be allowed to locate the identified user." *Callegari*, ¶[0046]; Ex-1007, Figs. 2-7. Fig. 9, and associated disclosure of Paragraph [0089], shows an exemplary GUI that allows users to select other users to share location data from one or more lists. *Callegari*, ¶[0089], Fig. 9; Ex-1007, 23, Fig. 2.

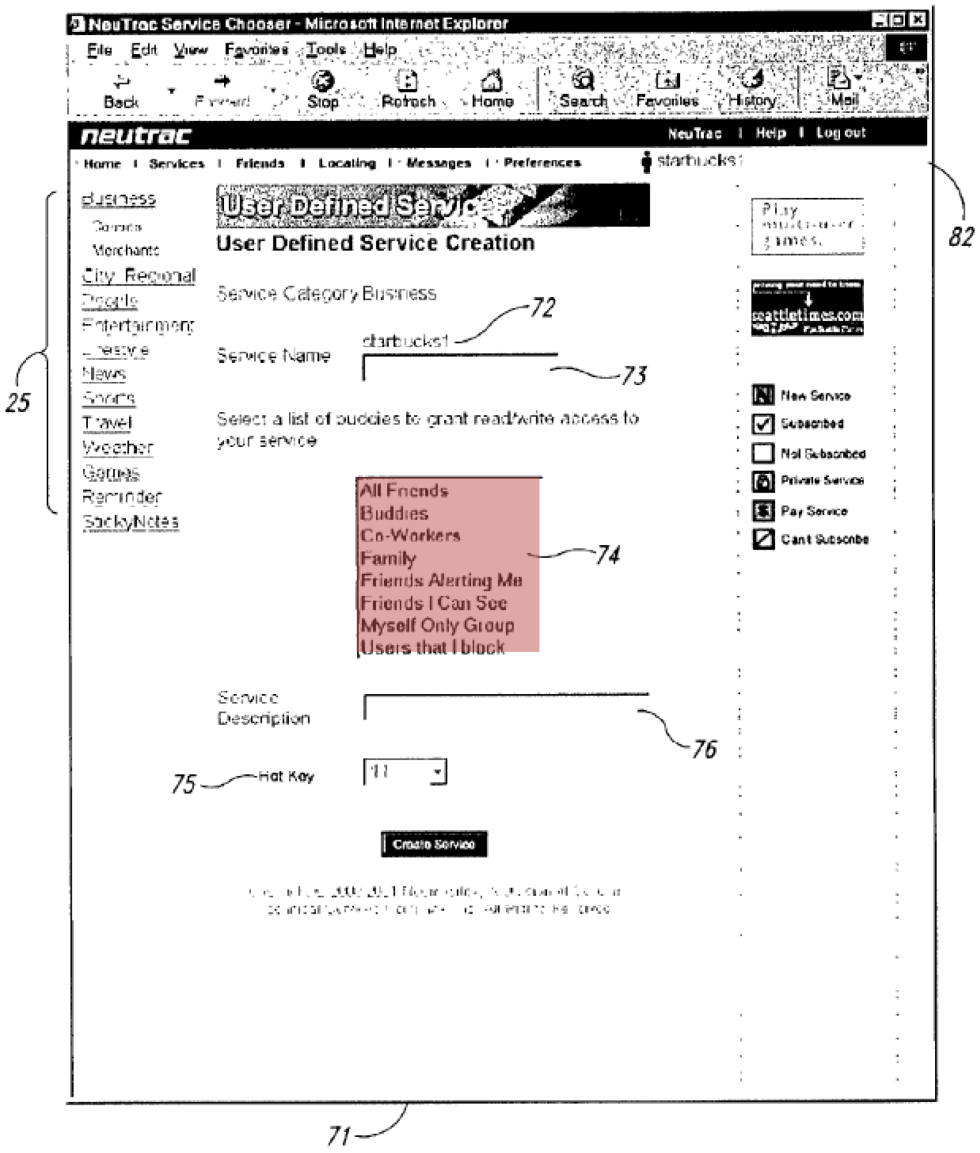


Fig. 9

Callegari, Fig. 9(annotated). A POSA would have understood this user interface to have been displayed on the consumer device because *Callegari*'s disclosed consumer devices—"cell phones, portable computers, portable digital assistants, 'BLACKBERRIES' and the like"—all include user interfaces such as keyboards or

touchscreens. *Callegari*, ¶[0006]; *see also id.*, ¶[0035]; Ex-1007, 2-3; Williams, ¶178.

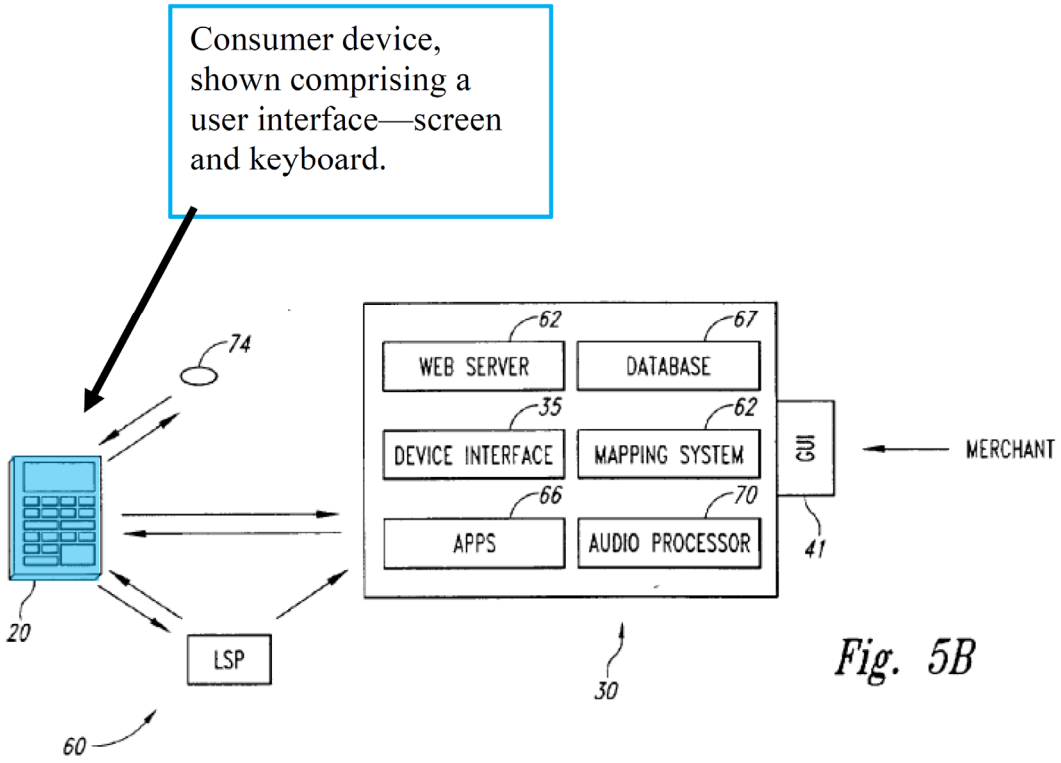


Fig. 5B

Callegari, Fig. 5B(annotated).

Callegari's consumer devices with user interfaces are similar to those described in the '543 patent specification. The '543 patent describes the "user interface of the location-aware device" as including a user-facing web browser for capturing and monitoring user visited URLs, and provides that appropriate devices for interfacing with the web browser include "a PC, telephone, PDA, or other devices." '543 patent, 11:10-16; *see also* Fig. 16A (element 100), and Fig. 23 (element 2353); Williams, ¶179.

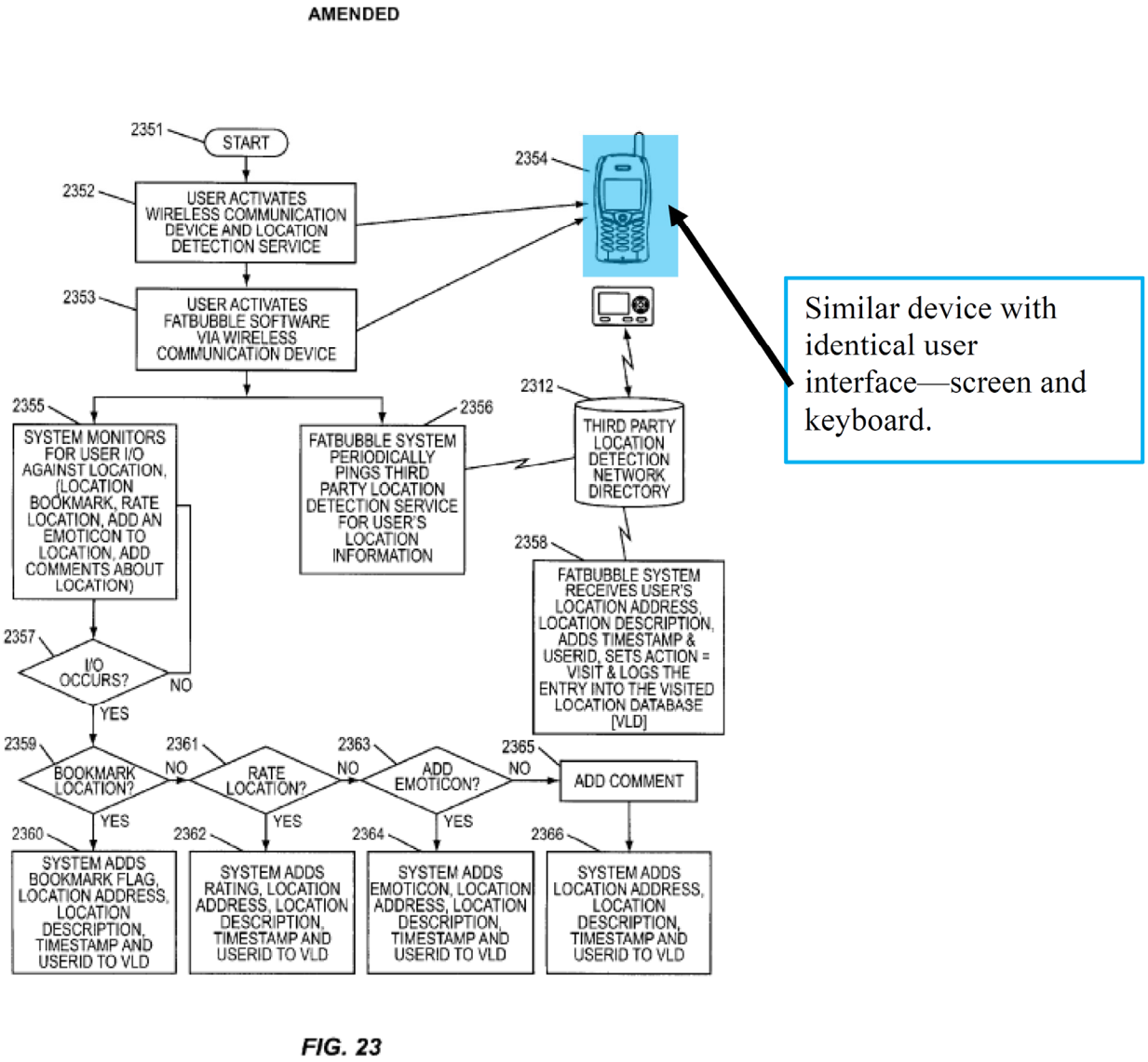


FIG. 23

'543 Patent, Fig. 23(annotated).

7. [46e] "wherein…receive, via a user interface of the location-aware device, input that defines categories of the visited geographic location data that can be shared with the other user."

Section X.B.6 explains that *Callegari* discloses a user interface of the location aware device where a user may provide input on what data to share with other users. Williams, ¶180.

Callegari further discloses that the user interface enables users to select sharable content based on categories. *Callegari*, ¶[0046]; Ex-1007, Figs. 2-7; Williams, ¶181. *Callegari* discloses allowing a user to associate particular shared information, including location information, with a specific "category." *Callegari*, ¶[0024] ("'journal entry' … includes a definition of a geographic location"), ¶[0047], claim 5. *See also* Ex-1007, 6, 9, 29-30, and Fig. 3. A "category" association restricts who will receive a user's journal entry, including the location information. *Callegari*, ¶¶[0090]-[0091] ("When Context and Topic are combined, they may function like 'channels' which limit the type of content transmitted to users 134 … Context broadly describes the accessibility and control of a Topic. Topic describes the content theme."); Ex-1007, 5, 9, 29-30, and Fig. 3. Categories include "user defined types and subtypes of information related to a location." *Callegari*, ¶[0067], claim 5; Ex-1007, 18-20. Only other users wishing to receive a particular category of journal entry will receive the journal entry and associated

location information, assuming these other users also meet all context criteria set by the user. *Callegari*, ¶¶[0027], [0029], [0033]-[0036], [0040], [0047]; Ex-1007, 5, 9, 15-20, 23-24, 29-30, and Fig. 3.

Callegari explains that, in one example, a user may associate artistic expressions with a particular location and share them with other interested individuals by "creat[ing] such expressions in electronic form and associat[ing] them with a location under a category topic designated as 'graffiti' on the system." *Callegari*, ¶[0116]; *see also id.*, ¶[0029] ("[T]he information content associated with the geographic point of origin may include an indication of a first category of interest so that the journal entry is presented to the consumer device only if the second user indicates a second category of interest that overlaps with the first category of interest."); *id.*, ¶[0040]; Ex-1007, 15-16, 18, 24-25; Williams, ¶182.

In another example, shown in Fig. 9, *Callegari* explains that users can "establish a private moderated Context for other users that will have access to the location-specific content." *Callegari*, ¶[0089]; Ex-1007, Fig. 2. A business may "create a private moderated context to enable only certain types of other users, for example employees, business associate[s], vendors and the like, to access information content concerning the business." *Callegari*, ¶[0089]. A POSA would have understood that "content concerning the business" is one or more categories of content selected for sharing only with subsets of users, because it designates a

particular topic of content (e.g., business-related content) to be shared with a particular subset of users (e.g., employees). Williams, ¶¶183-184.

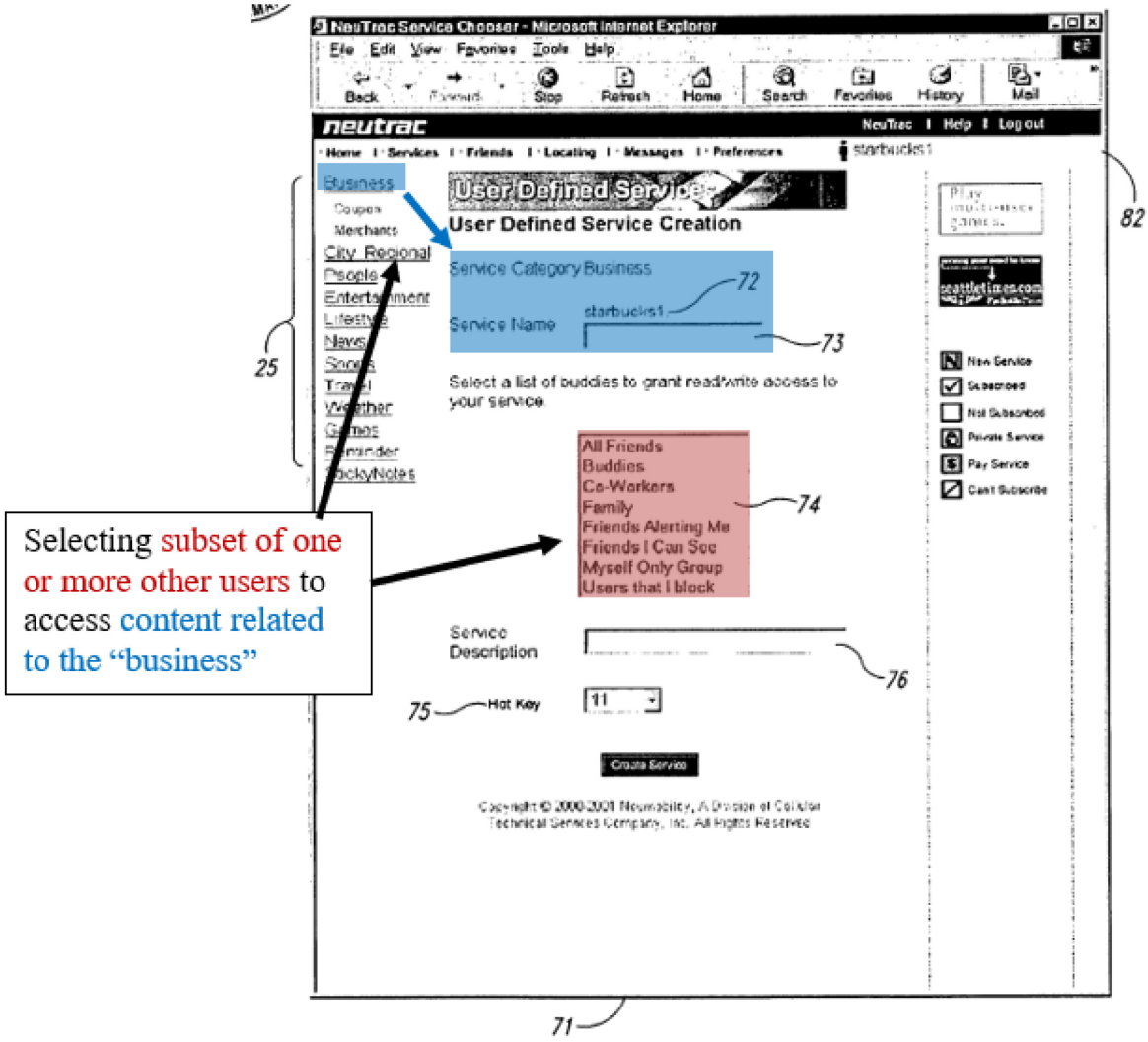


Fig. 9

Callegari, Fig. 9(annotated); Williams, ¶¶183-184.

8. [47e] "wherein the one or more lists of other users comprises an Instant Messaging buddy list of the user…"

Callegari discloses that its system may be implemented in an "instant messaging" service, in which content "may be shared with others in 'buddy lists.'" *Callegari*, ¶¶[0009]-[0010]; Ex-1007, 11-12, 14, 20-21. Journal entries including location information are shared with "second users" including a "buddy list of a plurality of second users." *Callegari*, ¶[0027]; *see also id.*, ¶[0038]; Ex-1007, 5, 19, 36.

A POSA would have understood that "buddy lists" disclosed by *Callegari* could be within a messaging platform because it discloses, in one application, that "instant messaging" is "made location sensitive" and content "may be shared with others in 'buddy lists.'" *Id.*; *Callegari*, ¶[0027]; *see also id.*, ¶[0038]; Ex-1007, 9, 23, 40; Williams, ¶¶185-186. "Buddy list" was a term commonly used to refer to instant messaging contacts. Williams, ¶186; Ex-1053. Alternatively, a POSA would have been motivated to modify *Callegari* to include instant messaging buddy lists because it discloses both buddy lists and instant messaging applications. Williams, ¶¶186.

9. [48e] "wherein the one or more lists of other users comprises a contact list…"

A POSA would have understood that a buddy list is a type of contact list because it provides contact information and a means to contact for each buddy.

Williams, ¶187. The '543 patent similarly explains that a buddy list is a type of contact list. '543 patent, 4:50-5:2, 8:8-13, 8:26-30, 18:5-15.

Additionally, *Callegari* discloses that the user may maintain the buddy list through the client-side GUI application to "edit an existing buddy list," "create an entirely new buddy list," "remove an existing buddy list," and "manage buddy lists." *Callegari*, ¶[0038]; Ex-1007, 5, 11, Figs. 2-7; Williams, ¶188.

10. [49e] "wherein the one or more lists of other users comprises an e-mail contact list of the user…"

A POSA would have further understood that the buddy list of *Callegari* would include email contacts because *Callegari* discloses sharing content with others by email. *Callegari*, ¶¶[0006], [0031], [0053]; Ex-1007, 3, Fig. 2; Williams, ¶189. *Callegari* discloses that its consumer devices are configured to receive and transmit information by email. *Callegari*, ¶¶[0006], [0031]; Ex-1007, 3, Fig. 2. *Callegari*'s journal entries can be presented to other users by email. *Callegari*, ¶[0031] ("the journal entry is presented as an E-mail message to the second user if the consumer device has the ability to receive E-mail"); *see also id.*, ¶[0053]; Ex-1007, 3, Fig. 2. Because it discloses presenting journal entries to second users on a buddy list and discloses presenting journal entries to second users via email, a POSA would have understood that the buddy list of *Callegari* includes an email contact list. Williams, ¶189.

Alternatively, a POSA would have been motivated to modify *Callegari* to implement its "buddy lists" as email contact lists because of its disclosure of contact lists and disclosure of disseminating information via email. *Callegari*, ¶¶[0006], [0031], [0053]; Ex-1007, 7, Fig. 2. Williams, ¶190.

11. [51e] "wherein the visited geographic location data further defines comments on one or more of the geographic locations visited by the location-aware device."

Callegari discloses journal entries that "include[] a definition of a geographic location and a message or other note associated with that geographic location." *Callegari*, ¶[0024]; *see also id.*, ¶[0035]; Ex-1007, 1-3, 5, 25-26, and Fig. 3. *Callegari* further discloses that the journal entries may include "comments left" by other users from the buddy list. *Callegari*, ¶[0111]; *see also* Ex-1007, 29-30. *Callegari* also discloses an exemplary implementation for its system that allows a user to "enter a voice message that is stored with an indication of the particular geographic location. *Callegari*, ¶[0104]; Ex-1007, 16, 32. A POSA would have understood that the "message or other note" or the "voice message" comprise comments because they are user-provided remarks related to the geographic location where it was recorded. Williams, ¶¶191-192.

Like *Callegari*, the specification of the '543 patent similarly discloses periodic reporting of comment data. It states, "when a user makes a comment on a location [ ], the system adds the comment, location address, location description, a

timestamp and the user ID to the VLD or to a buffer for later addition." '543 patent, 17:23-26.

C. Claim 56 (Core Elements A-B-C-D-E)

Claim 56 requires software instructions performing Core Elements A-E. Williams, ¶¶193-200.

1. [56p] "A non-transitory computer-readable medium storing software for instructing a controller of a device to:"

Should the preamble be limiting, *Callegari* and *Friedman* teach it. Williams, ¶194.

Section X.B.1 explains that *Callegari*'s consumer device and *Friedman*'s portal device include controllers that operate in conjunction with software. Williams, ¶195.

2. [56a] "communicate with a registration server to register with the registration server to collect visited geographic location data from a client-side application while visiting geographic locations with a location-aware device that records the geographic locations using a satellite-based location-fixing protocol;" (Core Elements A & D)

Core Elements A (registering) and D (collecting) are discussed in §§VIII.A and VIII.D. A POSA would further have recognized that the consumer device of *Callegari* collects the visited geographic location data while visiting the geographic location because it uses a GPS to determine the current location of the consumer device. Williams, ¶¶196-197.

3. [56b] "enable a user to select one or more other users with whom the visited geographic location data may be shared from one or more lists of other users;" (Core Element B)

Core Element B (accessing) is discussed in §VIII.B. Williams, ¶198.

4. [56c] "enable the user to define rights of the one or more other users to access the visited geographic location data; and" (Core Element C)

Core Element C (defining) is discussed in §VIII.C. Williams, ¶199.

5. [56d] "report information indicating at least a portion of the visited geographic location data for the one or more other users to a tracking server;" (Core Element E)

Core Element E (reporting) is discussed in §VIII.E. Williams, ¶200.

D. Claim 32, 39, and 54[7] (Core Elements A-B-C-D-E-F)

Claims 32, 39, and 54 require a computer-implemented method and application or software on a device covering Core Elements A-F.

1. [32p], [39p], [54p] "A computer-implemented method of sharing computer usage experiences, including:"

Should the preambles be limiting, *Callegari* and *Friedman* teach them. Williams, ¶¶201-202.

[7] Only the claim language for claim 32 is listed. Claims 39 and 54 are broader in scope but recite similar limitations. Substantive differences between the claims are addressed within each section.

Section X.B.1 explains that *Callegari*'s consumer device and *Friedman*'s portal device include controllers performing methods based on software stored therein. Williams, ¶203.

2. [32a], [39a], [54a] "sending registration information of a user to a registration server to collect and share visited geographic location data using a client-side application while visiting geographic locations with a location-aware device that records the visited geographic locations using a satellite-based location fixing protocol;" (Core Elements A, D, & F)

Core Elements A (registering), D (collecting), and F (sharing) are discussed in §§VIII.A, VIII.D, and VIII.F. A POSA would further have recognized that the consumer device of *Callegari* collects the visited geographic location data while visiting the geographic location because it uses a GPS to determine the current location of the consumer device. Williams, ¶¶204-205.

3. [32b], [39b], [54b] "enabling access to one or more messaging buddy lists of the user to identify one or more buddies with whom the visited geographic location data may be shared;" (Core Element B)

Core Element B (accessing) is discussed in §VIII.B. Williams, ¶¶206-207. *Callegari* further discloses that the list of other users is a messaging buddy list, as explained in §X.B.2.

4. [32c], [39c], [54c] "enabling definition of access rights for the one or more buddies to access the visited geographic location data; and" (Core Element C)

Core Element C (defining) is discussed in §VIII.C. Williams, ¶208.

5. [32d], [39d], [54d] "sending information indicating at least a portion of the visited geographic location data to a tracking server to enable sharing of the information with the one or more buddies in accordance with the defined rights." (Core Element E)

Core Element E (reporting) is discussed in §VIII.E. Williams, ¶209.

E. Claims 34 and 41—"wherein the visited geographic location data comprises the [visited] geographic locations and a comment on the [visited] geographic locations." (Core Elements D & E)

Claims 34 and 41 are similar. Williams, ¶¶210-211. Claim 34 is further limited by requiring "wherein the visited geographic location data comprises the *visited* geographic locations." *Callegari* and *Friedman* teach all elements of claims 34 and 41 for the same reasons because the discussion of Core Elements D and E (§§VIII.D and VIII.E) explain that *Callegari* discloses collecting and reporting data on *visited* geographic locations. Williams, ¶210. Section X.B.5 further explains that the visited geographic location data includes comments on the visited locations. Williams, ¶211.

F. Claims 36 and 43—"…display of advertising information."

Callegari discloses the receipt and display of advertising information. Williams, ¶¶212-214. *Callegari* discloses that the consumer device may be configured to display an electronic coupon. *Callegari*, ¶¶[0102], [0039]; Ex-1007, 5, 13, and Fig. 7. *Callegari* explains, in one example, that "retail locations create an electronic coupon message Content for their location." *Callegari*, ¶[0102]; Ex-

1007, 5, Fig. 7. Then, a consumer device "that comes to a location in the vicinity of the business will be sent the coupon message." *Id.* A POSA would have understood that a coupon is a type of advertising information because it is a promotional offer intended to promote a business. Williams, ¶212.

In another example, *Callegari* discloses that its system allows a user to "advertise a ticket for sale at a location outside a crowded event and be contacted by people at the event who set up their profile to indicate they are interested in tickets, and/or are also located near the event." *Callegari*, ¶[0113]; Ex-1007, 34.

A POSA would have understood that the advertisements, such as the virtual coupon and ticket sale, would be displayed because *Callegari* discloses "presenting" content such as a journal entry. *Callegari*, ¶¶[0026]-[0027], [0031]; Ex-1007, 5, 36, and Fig. 2; Williams, ¶214. A POSA would have understood the presented content is displayed because the consumer devices have display screens to present the content. Williams, ¶214.

G. Claim 44—"….wherein the advertising is capable of moving."

Callegari discloses means for distributing content to users in various file formats—including advertising, discussed in §X.F. The distributed file format content may "include text, voice, video, graphics, audio files, and the like." *Callegari*, ¶[0010]; Ex-1007, 5. A POSA would have understood that the advertising, as video, and graphic files, may move. Williams, ¶215.

H. Claims 53 and 55[8] (Core Elements A-B-C-D-E-F)

Unlike the preceding claims, claims 53 and 55 are written from the server perspective, but still cover a combination of the same Core Elements A-F. Claims 53 and 55 require a method of operating a server and software, and a controller for performing the method of operating a server. Williams, ¶¶216-232.

1. [53p], [55p] "A method of operation of a server to share computer usage experiences, comprising the following computer implemented steps:"

Should the preambles be limiting, *Callegari* and *Friedman* teach them. Williams, ¶217.

Callegari's presence server and *Friedman*'s portal server include controllers operating in conjunction with software. Williams, ¶218. A POSA would have understood that servers include controllers and software stored in memory for instructing the controllers to perform the intended functions. Williams, ¶218. *Callegari* discloses that the presence server includes "a device interface," "a merchant interface," "a communication port," "a storage medium," "an audio processing application," and "a network of servers." *Callegari*, ¶¶[0049], [0053],

[8] Only the claim language for claim 53 is listed. Claim 55 is broader in scope but recites similar limitations. Substantive differences between the claims are addressed within each section.

[0055], [0077]; Ex-1007, 3, 14, 18. A POSA would have understood that these types of devices include controllers that operate in conjunction with software. Williams, ¶¶218-220.

Similarly, *Friedman* discloses a portal server and explains that servers, such as its portal server, perform steps embodied in machine-executable instructions that "can be used to cause a general-purpose or special-purpose processor to perform certain steps." *Friedman*, 14:11-19. *Friedman* discloses that the executable instructions are stored in a storage medium. *Id.*, 14:21-34.

Additionally, *Callegari* discloses systems and methods for operating the presence server to allow sharing computer usage experiences, such as, "sharing journal entries between users." *Callegari*, Claim 21.

2. [53a], [55a] "receiving, a registration for automatic client side collection and sharing of visited geographic location data from a client-side application while visiting geographic locations with a location-aware device that records the visited geographic locations using a satellite-based location-fixing protocol;" (Core Elements A & D)

Core Elements A (registering) and D (collecting) are discussed in §§VIII.A and VIII.D. Williams, ¶¶221-226. A POSA would have understood that the process for registering *Callegari*'s consumer device with the presence server, or *Friedman*'s portal device with the portal server, includes the server receiving the

registration information because the devices transmit the registration to the servers. Williams, ¶222.

Claim 55 requires that the client-side application collect location data automatically. *Callegari* discloses that the client-side software (implemented on the consumer device) collects its geographic positioning coordinates and shares them with the presence server automatically "as the location of the consumer device changes" while visiting the locations. *Callegari*, ¶[0030]; Ex-1007, 11, 13-14, and 19; Williams, ¶223.

Callegari's sensing mode records geographic locations automatically because it does not require user interaction. Williams, ¶224. In *Callegari*'s sensing mode, the consumer device's location is both tracked and transmitted to the presence server automatically. *Callegari*, ¶[0058]; Ex-1007, 11, 13-14, and 19. When equipped with PDE (*see* §X.B.1), the consumer device collects location data automatically as location changes, as opposed to "manual" positioning "where the user sets their position" manually. *Callegari*, ¶[0057]; Ex-1007, 19-20, and 25.

Callegari also discloses automatically reporting collected location data to the presence server. *Callegari*, ¶[0044] ("In the sensing mode, the consumer device *continuously or (periodically)* transmits changing indications of the user's point of origin as the user moves from location to location."); ¶[0057] ("The presence server 30 may then utilize the positioning coordinates provided from the PDE 72

directly from the consumer device 20 to *automatically* detect the consumer's point of origin as it changes.)" (emphases added); Ex-1007, 13-14, 19-20, and 25. To transmit location data to the presence server automatically periodically, a POSA would have understood that the location data would be continuously recorded automatically as well. Williams, ¶225; Ex-1028 (in a system implementing automatic geo-targeted advertisement delivery, also having a "geographic indicator [that] may be automatically sent to the location-based application server").

Like *Callegari*, the specification of the '543 patent suggests that automatic activity occurs without user interaction. Williams, ¶226. The term "automatic" appears only twice in the '543 specification, both indicating that the device is performing a function without requiring user interaction. *See, e.g.,* '543 patent, 5:37-42 (discussing "automatic" data reporting), *id.*, 13:47-51 (discussing "automatically" refreshing the user's visual display). A POSA would have understood these limited disclosures to suggest actions taking place on the system or user device without user interaction. Williams, ¶226; *Decisioning.com, Inc. v. Federated Department Stores, Inc.*, 527 F.3d 1300, 1308 (Fed. Cir. 2008) (reading claims in light of the specification as a whole when terms appear only once or twice in the specification).

3. [53b], [55b] "enabling access to one or more messaging buddy lists and selection of one or more buddies with whom the visited geographic location data may be shared from the one or more messaging buddy lists;" (Core Element B)

Core Element B (accessing) is discussed in §VIII.B. Williams, ¶¶227-228. *Callegari* further discloses that the list of other users is a messaging buddy list, as explained in §X.B.2.

4. [53c], [55c] "obtaining defined rights of the one or more buddies to access the visited geographic location data; and" (Core Element B)

Core Elements B (accessing) and C (defining) are discussed in §§VIII.B and VIII.C. A POSA would have understood that defined rights for sharing data with users on one or more lists would be obtained by *Callegari*'s presence server because *Callegari* explains that its presence server only shares data with other users when it determines that the Context criteria matches. *Callegari*, ¶¶[0027], [0038], [0046], [0066]; Ex-1007, 6, 19, 38; Williams, ¶¶229-230. Therefore, a POSA would have understood that the presence server would obtain the defined rights for particular buddies to be able to determine when it matches the Context criteria for particular content. Williams, ¶230.

5. [53d], [55d] "reporting information indicating at least a portion of the visited geographic location data for the one or more buddies to access according to the rights defined for the one or more buddies." (Core Elements E & F)

Core Elements E (reporting) and F (sharing data) are discussed in §§VIII.E and VIII.F. Williams, ¶¶231-232. Claim 55 requires reporting to a tracking server, which is also a part of Core Element E, §VIII.E.

I. Claim 57 (Core Elements A-B-C-D-E-F)

Like claims 53 and 55, claim 57 is written from the server perspective, and covers a combination of the same Core Elements A-F.

1. [57p] "A method of operation of a server computer comprising:"

Should the preamble be limiting, *Callegari* teaches it, as explained in §X.H.1 (explaining that *Callegari* teaches a method for operating a server). Williams, ¶234.

2. [57a] "receiving registration information from a location-aware device;" (Core Element A)

Core Element A (registering) is discussed in §VIII.A. Williams, ¶235. A POSA would have understood that the process for registering *Callegari*'s consumer device with the presence server, or *Friedman*'s portal device with the portal server, includes the server receiving the registration information because the devices transmit the registration to the servers. Williams, ¶236.

3. [57b] "receiving information indicating visited geographic location data from the location-aware device, the visited geographic location data being data defining geographic locations collected at the location-aware device from a client-side application, wherein the location-aware device records the geographic locations using a satellite-based location-fixing protocol;" (Core Elements D & E)

Core Elements D (collecting) and E (reporting) are discussed in §§VIII.D and VIII.E. A POSA would have understood that *Callegari*'s presence server receives the visited geographic location data from the consumer device because, as explained in §§VIII.D and VIII.E, the consumer device collects geographic location data based on a GPS protocol and transmits it periodically to the presence server. Williams, ¶¶237-238.

4. [57c] "obtaining access rights for one or more other users to allow for access to the visited geographic location data, the one or more other users being one or more other users from one or more lists of other users with whom the visited geographic location data is to be shared; and" (Core Elements B & C)

Core Elements B (accessing) and C (defining) are discussed in §§ VIII.B and VIII.C. Section X.H.4 further explains that a POSA would have understood that defined rights for sharing data with users on one or more lists would be obtained by *Callegari*'s presence server. Williams, ¶¶239-240.

5. [57d] "sharing at least a portion of the visited geographic location data with the one or more other users according to the access rights defined for the one or more other users." (Core Element F)

Core Element F (sharing) is discussed in §VIII.F. Williams, ¶241.

J. Claim 58—"wherein the access rights for the one or more other users to access the visited geographic location data comprises, for each other users of at least a subset of the one or more other users, information that defines one or more categories of the visited geographic location data to be shared with the other user."

Sections X.I.1-X.I.5 explain that *Callegari* and *Friedman* teach a server in communication with client-side software (implemented on a consumer device) for defining a list of user access rights. Williams, ¶¶242-243.

Section X.B.6 explains that *Callegari* discloses that the defined access rights may be defined by categories of the shared visited geographic information. Williams, ¶243.

K. Claim 59—"… access rights … defines at least one other user …. to have access to the category of the visited geographic location data."

Sections X.I.1-X.I.5 explain that *Callegari* discloses a presence server in communication with client-side software (implemented on a consumer device) for defining a list of user access rights. Williams, ¶244.

Section X.B.6 explains that *Callegari* discloses the defined access rights may be defined by a plurality of categories of the shared visited geographic information. Williams, ¶245.

L. Claim 60—"…an Instant Messaging buddy list of the user of the location-aware device."

Callegari and *Friedman* teach all elements of claims 60 and 62. Williams, ¶246. Section X.B.2 explains that *Callegari* discloses both IM buddy lists and e-mail contact lists. *See*; Williams, ¶¶246-248. Sections X.I.1-X.I.5 explain that *Callegari* and *Friedman* teach a server in communication with client-side software (implemented on a consumer device) for defining a list of users. Williams, ¶¶246-248.

M. Claim 61—"…a contact list maintained on the location-aware device."

Sections X.I.1-X.I.5 explain that *Callegari* and *Friedman* teach a server in communication with client-side software (implemented on a consumer device) for defining a list of users. Williams, ¶249.

Section X.B.2 explains that *Callegari* further discloses a contact list maintained on the location-aware device. Williams, ¶250.

N. Claim 62—"…an e-mail contact list of the user of the location-aware device."

Callegari and *Friedman* teach all elements of claims 60 and 62. Williams, ¶251. Section X.B.2 explains that *Callegari* discloses both IM buddy lists and e-mail contact lists. *See*; Williams, ¶¶251-253. Sections X.I.1-X.I.5 explain that *Callegari* and *Friedman* teach a server in communication with client-side software

(implemented on a consumer device) for defining a list of users. Williams, ¶¶251-253.

O. Claim 72 (Core Elements A-B-C-D-E)

1. [72p] "A location-aware mobile device having a controller and memory, wherein the controller is configured to:"

Should the preamble be limiting, *Callegari* and *Friedman* teach it. Williams, ¶¶255-256.

Section X.B.1 explains that *Callegari*'s consumer device and *Friedman*'s portal device include controllers that operate in conjunction with software. Williams, ¶¶255-256.

2. [72a] "send location information comprising geographic data recorded by the location-aware mobile device using a satellite-based location-fixing protocol;" (Core Elements D & E)

Core Elements D (collecting) and E (reporting) are discussed in §§VIII.D and VIII.E. Williams, ¶257. A POSA would have understood that *Callegari* discloses "sending" data to a server for the same reason it discloses "reporting" data to a server because both terms cover the transmission of data over a wireless network between the consumer device and presence server of *Callegari*. Williams, ¶258.

3. [72b] "enable access to one or more lists of other users to identify one or more other users with whom the visited geographic location data may be shared;" (Core Element B)

Core Element B (accessing) is discussed in §VIII.B. Williams, ¶259.

4. [72c] "enable definition of rights of the one or more other users to access the visited geographic location data; and" (Core Element C)

Core Element C (defining) is discussed in §VIII.C. Williams, ¶260.

5. [72d] "send information indicating at least a portion of the visited geographic location data to a server" (Core Element E)

Core Element E (reporting) is discussed in §VIII.E. Williams, ¶261.

XI. GROUND 3: CLAIM 38 IS UNPATENTABLE OVER *CALLEGARI* IN VIEW OF *FRIEDMAN* AND *ESCHENBACH*

Callegari, *Friedman*, and *Eschenbach* render obvious every element of claim 38. Williams, ¶¶262-272.

A. Claim 38—"wherein the satellite-based location-fixing protocol is selected from a group consisting of a GPS protocol and a DGPS protocol;"

Section X.B.1 explains that *Callegari* teaches GPS protocol.

Eschenbach teaches a differential global positioning system (DGPS) that uses almanac data in addition to GPS signals to allow a GPS user receiver to calculate its location. *Eschenbach*, Abstract. Differential GPS uses "almanac data" stored in a reference receiver to correct measured location data. *Id.*, 3:4-25. Almanac data is satellite-location data broadcast by GPS satellites periodically

(e.g., every 12 minutes). *Id.*, 1:41-52. *Eschenbach* explains that a GPS reference receiver receives and stores almanac data in memory from a GPS signal source. *Id.*, 6:3-9.

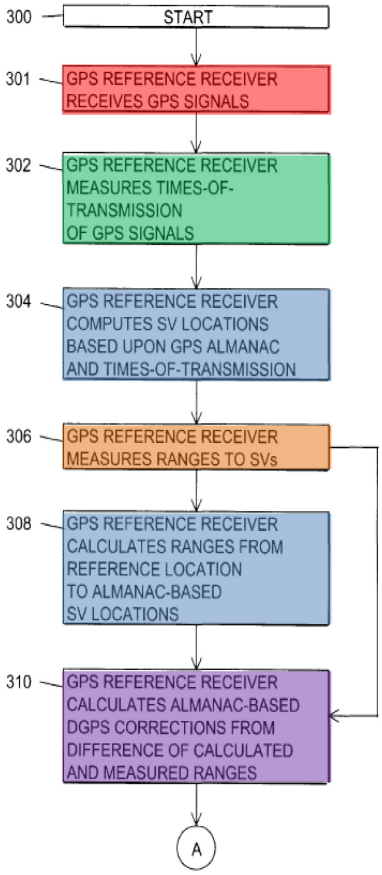


Fig. 3A

Eschenbach, Figs. 2A, 3(annotated).

Along with the stored almanac data, the reference receiver receives GPS signals for its location from GPS signal sources (301). *Id.* The reference receiver measures the transmission time for the signals (302) and, using almanac data, computes the location of the signal sources and ranges from the known reference receiver to the almanac-based source signal (304, 308). *Id.*, 6:17-33, 6:62-7:2. The

reference receiver also measures the ranges from the known reference receiver to the almanac-based signal source locations (306). *Id.*, 6:53-61. The reference receiver uses the difference between the measured and calculated ranges to correct the detected location (310) and transmits these corrections to the user GPS receiver. *Id.*, 6:62-7:2, 7:60-64.

B. A POSA Would Have Combined *Callegari*, *Friedman*, and *Eschenbach*

Section X.A explains that a POSA would have been motivated to combine *Callegari* and *Friedman* to improve the efficiency and fault tolerance of *Callegari*'s system. Williams, ¶266.

A POSA would have been motivated to combine *Callegari* and *Eschenbach*. Williams, ¶267. *Callegari* describes using a GPS receiver in a consumer device to track the location of the system users. *Callegari*, ¶[0007], [0044], [0057]; Ex-1007, 11, 13-15, and 19-20. But *Callegari* does not elaborate on the specific functioning of the GPS and the consumer device using it to determine its location. Williams, ¶267.

GPS technology was well-known before the '543 patent. Williams, ¶268. For example, *Eschenbach* discloses a particular improvement upon GPS functionality—differential GPS—that allows a user GPS receiver to correct for errors in the GPS location signals received from the satellites by providing an error correction signal based on stored almanac data to the user receiver from a reference

GPS receiver located nearby. *Id.*, 6:16-33. Williams, ¶268. The reference receiver of *Eschenbach* could have been easily implemented within the system of *Callegari* to correct the GPS data and improve the consumer device's collected geographic location data. Williams, ¶268. The following figure shows the combined *Callegari-Eschenbach* system. Williams, ¶268.

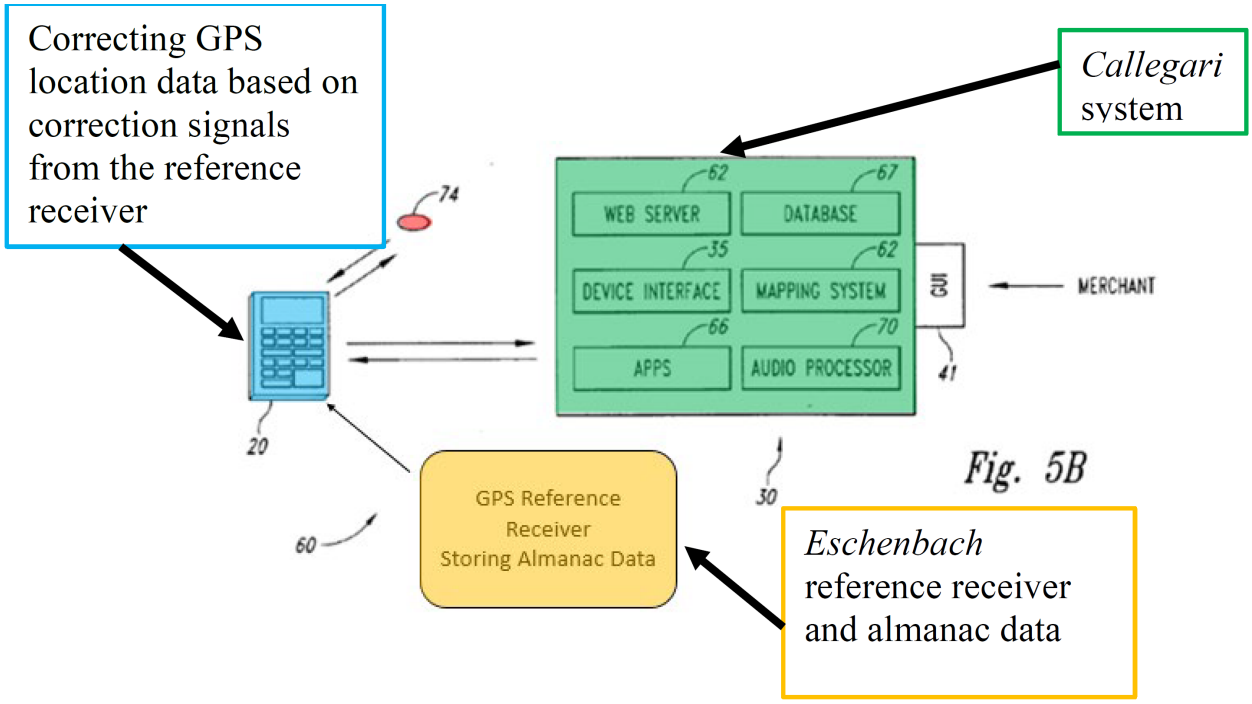


Fig. 5B

Callegari, Fig. 5B(annotated).

1. Based on *Callegari*, a POSA would have been motivated to look for ways to implement a GPS to determine the location of the consumer device

Callegari discloses using a GPS-enabled consumer device that allows a user's position to be tracked (e.g., *Callegari*, ¶[0044]), listing example technologies known in the art including "GPS systems, assisted GPS systems (A-

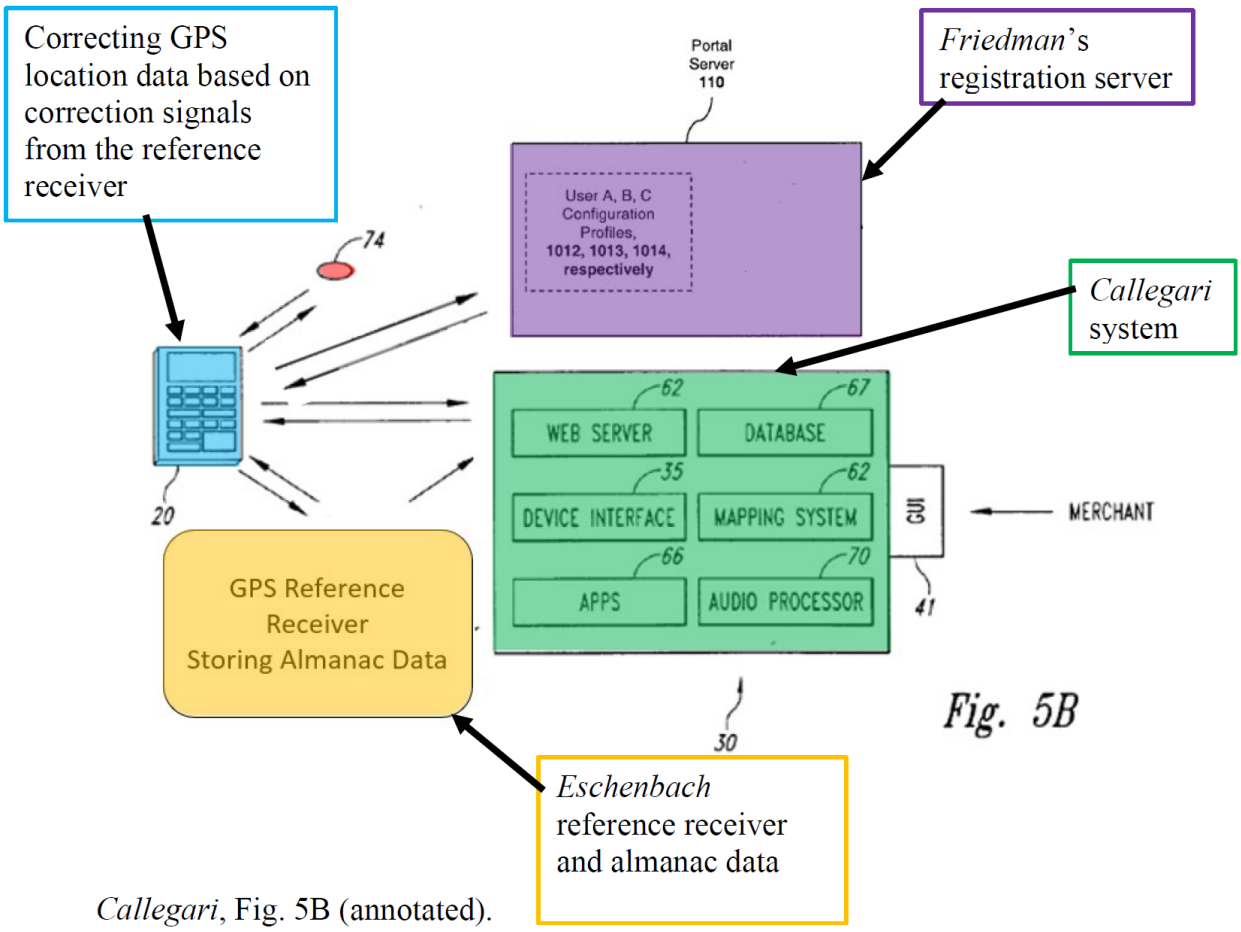
GPS), time domain of arrival systems (TDA) or triangulation systems" (*id.*, ¶[0007]) but does not detail how these technologies would "allow[] the user's location to be tracked." *Id.*, ¶[0044]; Ex-1007, 11, 13-15, and 19-20. *Callegari*'s teaching of exemplary location determining technologies combined with its silence on how these exemplary technologies work would have motivated a POSA to look to GPS references, such as *Eschenbach*. Williams, ¶269; *see Hitachi Metals Ltd. v. Alliance of RareEarth Permanent Magnet Indus.*, 699 Fed.Appx. 929, 938-39 (Fed. Cir. 2017) (finding addition of common well-known prior art techniques to improve the overall system evidences motivation to combine and reasonable expectation of success).

2. Based on *Eschenbach*, a POSA would have recognized that using a reference receiver and almanac data to correct GPS location data improves location data resolution

Eschenbach's DGPS system corrects GPS location data provided by satellites. *Eschenbach*, 1:66-19. *Eschenbach* explains that "stand alone accuracy of existing commercial GPS receivers is typically within about twenty meters or within about one hundred meters with selective availability." *Eschenbach*, 1:66-2:1. The disclosed DGPS systems improve upon this standalone accuracy to allow "GPS receivers [to] obtain a location accuracy within a meter or even better." *Eschenbach*, 2:5-17.

Callegari also recognizes that the "resolution" of position determining equipment (PDE) (e.g., GPS) impacts the overall operation of the system. Williams, ¶271. *Callegari* explains that if the PDE "can only provide a resolution of, for example, 300 feet then the user's position will fall somewhere within that 300 foot area," and if a "user were to request information within 200 feet," the PDE's "inability to resolve to 200 feet will result in a default to the highest resolution possible, i.e., 300 feet." *Callegari*, ¶[0081]; Ex-1007, 23. Because *Callegari*'s system's operation is restricted by the resolution of location data the consumer device collects, a POSA would have been motivated to increase the resolution of location data by implementing *Eschenbach*'s DGPS corrections. Williams, ¶271.

A POSA would also have been motivated to combine *Callegari* with both *Friedman* and *Eschenbach*. Williams, ¶272. Because each of *Friedman* and *Eschenbach* improves the system of *Callegari* in different ways, it would have been obvious to a POSA to combine *Callegari* with both *Friedman* and *Eschenbach* for the reasons in §X.A, and as stated above. Williams, ¶272. The following figure shows the combined *Callegari-Friedman-Eschenbach* system. Williams, ¶272.



Callegari, Fig. 5B (annotated).

XII. DISCRETIONARY CONSIDERATIONS

Two petitions for *inter partes* review of the '543 patent have been filed by other parties. A first petition was filed by Unified Patents on August 6, 2020 in IPR2020-01379 ("Unified Petition"), and a second petition was filed by Google on behalf of LG Electronics and Samsung Electronics on October 30, 2020 in IPR2021-00127 ("Google Petition"). As shown below, each of these two petitions challenge different subsets of the '543 patent's claims.

Petition	Challenged Claims
Unified Petition (IPR2020-01379)	45, 47-57, 60-62, 64-68, 71-72, 76
Google Petition (IPR2021-00127)	32, 34, 36, 38-39, 41, 43-49, 51, 53-62, 72, 76

This Petition filed by Lyft and Bumble ("Petitioner") advances identical prior art and arguments against the same claim set as the Google Petition. And Petitioner concurrently seeks joinder to IPR2021-00127 if the Board institutes review in that proceeding.

A. Prior Art and Arguments—35 U.S.C. §325(d)

The asserted combinations in this Petition (and the Google Petition) are materially different from the art references addressed during prosecution of the '543 patent. The presently cited references (*Callegari*, *Friedman*, and *Eschenbach*) offer new and distinct teachings that provide the features erroneously deemed missing from the prior art by the Examiner. Denying institution under §325(d) would be inconsistent with the Board's precedent.

B. Prior Petitions—35 U.S.C. §314(a)

This Petition is not a coordinated serial attack that presents the kind of "undue inequities and prejudices" addressed by the Board's precedent. *See General Plastic Indus. Co. v. Cannon Kabushiki Kaisha*, IPR2016-01357, Paper 19 at 16 (PTAB Sept. 6, 2017)(Paper 19)(§II.B.4.i precedential).

As to the Google Petition, Petitioner's filing of a substantively identical petition and concurrent request for joinder in an understudy role will not unduly prejudice Patent Owner. The Board routinely permits joinder when a second-in-time petitioner files a mirror-image petition, and this case is no different. The facts here stand in stark contrast to the recent *Apple Inc. v. Uniloc 2017 LLC* case where the Board denied institution and joinder based on *General Plastic*. *See* IPR2020-00854, Paper 9 (PTAB "Precedential" Oct. 28, 2020). In that case, the second-in-time petitioner seeking joinder had previously petitioned for, and been denied, *inter partes* review of the same patent. *Id*. at 2. This fact led the Board to reason that if the first-in-time petitioner settled, "it would be as if [the second-in-time petitioner] had brought the [additional] challenge to the patent in the first instance." *Id*. at 4. Not so here. This is Petitioner's first challenge against the '543 patent at the PTAB, and there is no risk of prejudice or abuse.

This Petition also passes muster under *General Plastic* in view of the Unified Petition for at least the reasons that follow.

Factor 1: Factor 1 strongly favors institution. Petitioner and Unified Patents are distinct entities with different interests. Unlike Unified Patents, for example, Petitioner is presently facing infringement allegations involving the '543 patent. Equally important, while the Unified Petition also challenges claims 45, 47-49, 51, 53-57, 60-62, 72, and 76, there are many other claims at issue here left

unaddressed by the Unified Petition—i.e., claims 32, 34, 36, 38-39, 41, 43-44, 46, and 58-59. Where, as here, "the petitions challenging [a patent] involve two different petitioners, challenging different sets of claims…, who have not been shown to have the type of significant relationship…found in *Valve*," Factor 1 "does not support denial." *E.g.*, *Foursquare Labs, Inc. v. Mimzi, LLC*, IPR2019-01287, Paper 11 at 7 (PTAB Jan. 14 2020).

Factors 2 & 4: These factors favor institution. Petitioner and Unified Patents are distinct parties, and this Petition offers an independent analysis that does not mimic the Unified Petition. Petitioner did not tactically withhold prior art or otherwise leverage Unified Patents' work product. The time elapsed since Petitioner discovered the prior art advanced in this Petition has not resulted in an unfair advantage.

Factor 3: As discussed, this Petition raises grounds that mirror those advanced in the Google Petition, which was filed *before* Patent Owner's Preliminary Response to the Unified Petition. Petitioner has not made any changes to Google's patentability analysis in light of Patent Owner's arguments. Again, there is no prejudice or unfair advantage. This factor weighs in favor of institution. *E.g.*, *Foundation Medicine, Inc. v. Guardant Health, Inc.*, IPR2019-00634, Paper 10 at 38 (PTAB Aug. 19, 2019)("This factor is designed to prevent a challenger from using Patent Owner's Preliminary Response as a guide for formulating a

subsequent challenge…Here, Petitioner had no such opportunity.")

Factor 5: Patent Owner did not identify which of the '543 patent's 45 claims would be asserted against Petitioner until around the time the Unified Petition was filed, and the Google Petition was filed less than three months later. During the time between the Unified Petition and the Google Petition, Petitioner was searching and evaluating the prior art against the asserted claims. In the time between the Google Petition and the filing date of this Petition, Petitioner has been analyzing the above-discussed patentability analysis (which is strong) and carefully considering whether to pursue joinder. Given the nature of this Petition—a mirror image of the timely-filed Google Petition addressing a unique claim set as compared to the Unified Petition—institution causes no undue prejudice to Patent Owner. This factor favors institution.

Factors 6 and 7: Petitioner fully appreciates that the Board's resources are finite, but they are well spent here. Careful vetting of the '543 patent did not occur during prosecution, and it is consistent with the AIA's purpose to do so now. As to the capacity of the Board to issue a final written decision in a year or less, Petitioner aims to accommodate this goal by filing a mirror image of the Google Petition and moving for joinder. These factors weigh in favor of institution.

C. Parallel Proceedings—35 U.S.C. §314(a)

Petitioner took affirmative steps to promote the Board's efficiency and fairness goals addressed in *Apple Inc. v. Fintiv, Inc. See* IPR2020-00019, Paper 11 at 2-3 (PTAB Mar. 20, 2020) ("*Fintiv I*"). Most notably, Petitioner's request for an understudy role in IPR2021-00127 carries no material increase in cost to the Board or the Patent Owner, and yet binds Petitioner to the result of the Final Written Decision. In pursuit of further efficiency, Petitioner hereby stipulates that:

> If the Board institutes *inter partes* review in IPR2021-00127 and joins Petitioner to IPR2021-00127, Petitioner will not pursue the specific grounds identified in this Petition in Case Nos. 6:20-cv-00256 and 6:20-cv-00258 at the Western District of Texas.

Petitioner's efforts to support fairness and efficiency, paired with the strong merits of Grounds 1-3, provide compelling reasons to institute.

Relevant Facts: On March 31, 2020, Patent Owner filed four separate infringement actions at the Western District of Texas ("the Parallel Litigations") asserting the '543 patent against Petitioner Lyft, Petitioner Bumble, LG Electronics, and Samsung Electronics . Despite implicating materially distinct questions of infringement (Ex-1054 to Ex-1057), the Parallel Litigations are currently proceeding on a substantially similar schedule (Ex-1058 to Ex-1061). Each case is scheduled for a *Markman* hearing on March 2, 2021, a subsequent discovery period closing on October 29, 2021, and a tentative trial date of January

24, 2022. *See* Ex-1058 to Ex-1062. The Google Petition—which names defendants LG and Samsung as real parties-in-interest—was filed on October 30, 2020 to initiate IPR2021-00127, the subject proceeding of Petitioner's concurrent Motion for Joinder. A Final Written Decision is projected to issue in IPR2021-00127 no later than May 17, 2022.

Factor 1—No party in any of the Parallel Litigations has requested a stay as of yet. Indeed, any such motion filed prior to the Board's institution decision would be considered premature at the Western District of Texas. Factor 1 is therefore neutral. *See Apple Inc. v. Fintiv, Inc*., IPR2020-00019, Paper 15 at 12 (PTAB May 13, 2020)("*Fintiv II*"); *Sand Revolution II, LLC v. Cont'l Intermodal Group – Trucking LLC*, IPR2019-01393, Paper 24 at 7 (PTAB June 16, 2020) ("*Sand Revolution*").

Factor 2—While the District Court set January 24, 2022 as a placeholder date for trial in each of the Parallel Litigations, it remains unclear which (if any) of those trials will actually occur on that date. The Parallel Litigations are currently progressing on the same schedule, but they are still separate lawsuits. The District Court has not indicated that it will consolidate any of these suits for trial, and it is impractical to conduct multiple trials on the same day. The only plausible solution is to spread the trials out over a period of time, which will almost certainly result in later trial dates in multiple suits. Presently, there is no hint as to how the

scheduling shuffle will play out. Double-booking aside, an even greater threat to the January 24, 2022 trial date is that pending motions for venue transfer have been submitted to the District Court in the LG, Samsung, and Lyft lawsuits. Should the District Court grant the pending transfer motions, these suits will be assigned new, later trial dates in a different venue.

The *Fintiv* panel noted that the Board "generally take[s] courts' trial schedules at face value absent some strong evidence to the contrary." *Fintiv II* at 13. For the reasons detailed above, such "strong evidence" exists on this record—namely, (**1**) trials from four separate lawsuits addressing the '543 patent are impractically scheduled to occur on the same day; and (**2**) three of four lawsuits will have a different trial date when transferred to an appropriate venue. Due to Patent Owner's litigation tactics, there are, in effect, no certain trial dates for the Parallel Litigations. As compared to four disparate and uncertain district court jury trials, the PTAB provides a far more reliable mechanism for adjudicating patentability of the '543 patent. Indeed, institution and joinder would result in a single proceeding that binds all of the defendants in the Parallel Litigations. This is the most efficient course. Factor 2 therefore favors institution.

Factor 3—At the projected date of institution for the Google Petition in IPR2021-00127 (May 17, 2021), which Petitioner seeks to join, the fact discovery period in the Parallel Litigations will be short of the half-way mark, and expert

reports nearly four months out. *See* Ex-1058 to Ex-1061. Moreover, by the time of institution, the District Court will not have issued any substantive orders beyond a *Markman* order, which has little relevance here because the Google Petition (and this Petition) does not rise or fall with any specific construction. Where, as is effectively the case here, "the district court has not issued orders related to the patent at issue in the petition, this fact weighs against exercising discretion to deny institution." *Fintiv I* at 10.

Factor 4—This factor supports institution. Petitioner's above-recited stipulation "mitigates to some degree the concerns of duplicative efforts between the district court and the Board, as well as concerns of potentially conflicting decisions." *Sand Revolution* at 11-12. And these concerns are further mitigated by the fact that Samsung and LG, other defendants in the Parallel Litigations, also submitted stipulations in IPR2021-00127, which Petitioner seeks to join.

Factor 5—Institution in IPR2021-00127 and joinder of Petitioner to that proceeding offers a unique opportunity to adjudicate patentability of the '543 patent in a single proceeding, as opposed to four piecemeal lawsuits with tenuous trial dates. The stipulations lodged by Lyft, Bumble, LG, and Samsung mitigate the typical concerns of parallel litigation, leaving them outweighed by the opportunity for considerable efficiency gains. Factor 5 therefore favors institution.

Factor 6—As explained above, the challenged claims are unpatentable over *Callegari*, *Friedman*, and *Eschenbach*—none of which were considered during prosecution. The strong merits of this Petition against a broader claim set than the Unified Petition favors institution.

XIII. MANDATORY NOTICES

A. Real Parties-in-Interest

The real parties-in-interest to this Petition are: Lyft, Inc.; Bumble Trading LLC; Bumble Holding Ltd.; Badoo Trading Ltd.; Badoo Limited; Bumble IP Holdco LLC; Badoo Software Ltd.; Badoo Technologies Ltd.; Buzz Finco LLC; Buzz Holdings LP.

B. Related Matters

The '543 patent has been or is involved in at least each of the following litigations:

Name	Number	Court	Filed
Ikorongo Texas LLC v. Bumble Trading, LLC.	6:20-cv-00256	W.D. Tex.	Mar. 31, 2020
Ikorongo Texas LLC v. LG Electronics Inc. et al.	6:20-cv-00257	W.D. Tex.	Mar. 31, 2020
Ikorongo Texas LLC v. Lyft, Inc.	6:20-cv-00258	W.D. Tex.	Mar. 31, 2020
Ikorongo Texas LLC v. Samsung Electronics Co., LTD et al.	6:20-cv-00259	W.D. Tex.	Mar. 31, 2020
Ikorongo Texas LLC v. Uber Technologies, Inc.	6:20-cv-00843	W.D. Tex.	Sept. 15, 2020

The '543 patent is also at issue in *inter partes* review Case Nos. IPR2020-01379 (the Unified Petition) and IPR2021-00127 (the Google Petition).

C. Lead and Back-Up Counsel, and Service Information

Lead Counsel	Backup counsel
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Please address all correspondence and service to the address listed above. Petitioner consents to electronic service by email at IPR00058-0002IP1@fr.com (referencing No. 00058-0002IP1 and cc'ing PTABInbound@fr.com and kdarby@fr.com).

XIV. GROUNDS FOR STANDING

Petitioner certifies the '543 patent is available for IPR and Petitioner is not barred or estopped from requesting IPR challenging the patent claims on the grounds identified in this Petition.

XV. PAYMENT OF FEES—37 C.F.R. §42.103

Petitioner authorizes the USPTO to charge Deposit Account No. 06-1050 for the fee set in 37 C.F.R. §42.15(a) for this Petition and further authorizes payment for any additional fees to be charged to this Deposit Account.

Respectfully submitted,

Dated: February 12, 2021

/W. Karl Renner/

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(Control No. IPR2021-00423)

Attorneys for Petitioner

CERTIFICATION UNDER 37 CFR § 42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petition for *inter partes* review totals 13,921 words, which is less than the 14,000 allowed under 37 CFR § 42.24.

Dated: February 12, 2021

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4)(i) *et seq.* and 42.105(b), the undersigned certifies that on February 12, 2021 , a complete and entire copy of this Petition for Inter Partes Review and all supporting exhibits were provided via Federal Express, to the Patent Owner by serving the correspondence address of record as follows:

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