

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HOME DEPOT U.S.A., INC.,

Petitioner

v.

H2 Intellect LLC,

Patent Owner

Inter Partes Review No.: IPR2025-00480

**DECLARATION OF DAVID H. WILLIAMS
REGARDING CLAIMS 1-15
OF U.S. PATENT NO. 8,433,296**

I hereby declare under penalty of perjury under the laws of the United States of America that the following is true and correct, and that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I understand that willful false statements are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code.

Date: April 3, 2025



David H. Williams

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Exhibit No.	Description
1001	U.S. Patent No. 8,433,296 (the “’296 patent”).
1002	RESERVED
1003	File History of U.S. Patent No. 8,433,296.
1004	U.S. Patent App. Pub. No. 2006/0149630 (“ Elliott ”).
1005	U.S. Patent App. Pub. No. 2002/0161633 (“ Jacob ”).
1006	File History of U.S. Pat. No. 11,948,171.
1007	U.S. Patent No. 6,108,650 (“ Musk ”).
1008	<i>H2 Intellect LLC v. The Home Depot, Inc., et al.</i> , Infringement Contentions, November 1, 2024.
1009	Macromedia Dreamweaver UltraDev Support Center - Defining Dynamic Content, https://web.archive.org/web/20060715033222/https://www.adobe.com/support/ultradev/content/url_parameters/url_parameters04.html (Jul. 15, 2006).
1010	U.S. Patent App. Pub. No. 2003/0142631 (“ Silvester ”).
1011	U.S. Patent App. Pub. No. 2007/0088852 (“ Levkovitz ”).
1012	U.S. Patent App. Pub. No. 2008/0032703 (“ Krumm ”).
1013	Apple launches official iPhone, iPod touch Web apps directory. https://appleinsider.com/articles/07/10/11/apple_launches_official_iphone_ipod_touch_web_apps_directory (Oct. 11, 2007).
1014	Five Killer Apps for Palm Centro (and Treo) Smartphones. https://www.cbsnews.com/news/five-killer-apps-for-palm-centro-and-treo-smartphones/ (Oct. 1, 2007). The most popular iPhone medical app, Medscape, is now on Android. https://www.imedicalapps.com/2011/01/medscape-android-medical-app/ (January 7, 2011).
1015	<i>H2 Intellect LLC v. The Home Depot, Inc., et al.</i> , Infringement Contentions, Exhibit A, November 1, 2024.
1016	Papers of H. Bentley Hahn: The Man Who Invented the 5-Digit ZIP Code. <u>Papers of H. Bentley Hahn: The Man Who Invented the 5-Digit ZIP Code – The JFK Library Archives: An Inside Look</u> (July 1, 2021).
1017	Geofencing, Techopedia, https://www.techopedia.com/definition/14937/geofencing (last visited February 10, 2025).
1018	Jonathan P. Munson & Vineet K. Gupta, Location-Based

Exhibit No.	Description
	Notification as a General-Purpose Service, Proceedings of the 2nd International Workshop on Mobile Commerce 40 (2002).
1019	What We Do, Locating What's Important To You, Cell-Loc, http://web.archive.org/web/20030411221815/http://cellloc.com/what_locating.html (last visited February 10, 2025).
1020	Alan Cohen, "Location, Location, Location," PC Mag., available at https://books.google.com/books?id=eIvagv988JgC&pg=PA82#v=onepage&q&f=false (last visited February 10, 2025).
1021	U.S. Patent No. 7,133,685.
1022	U.S. Patent No. 7,164,986.
1023	U.S. Patent No. 8,536,999.
1024	U.S. Patent Publication No. US 2008/0094256.
1025	U.S. Patent No. 8,010,134.
1026	U.S. Patent Publication No. US 2006/0116817.
1027	U.S. Patent No. 10,380,636.
1028	Get parameters in url. https://www.drupal.org/forum/support/module-development-and-code-questions/2007-10-03/get-parameters-in-url (Oct. 3, 2007).

CHART OF CLAIMS	
[1.pre]	A method comprising:
[1.a]	registering a plurality of application programs for use with a content delivery platform, wherein the plurality of registered application programs are each associated with at least one application program type;
[1.b]	establishing a plurality of perimeters defining a plurality of geographic areas;
[1.c]	reserving delivery of content from a plurality of sponsors to the plurality of registered application programs on the basis of both a geographic area and an application program type associated with each of the plurality of registered application programs;
[1.d]	receiving, from a sponsor, a request to obtain an interest in a selected one of the plurality of geographic areas;
[1.e]	providing the sponsor a response to the request;
[1.f]	storing a record of the interest in the selected one of the plurality of geographic areas;
[1.g]	receiving, from the sponsor, content to be delivered to registered application programs having target locations contained within the selected one of the plurality of geographic areas;
[1.h]	receiving, from a registered application program, a request for content to be used within the registered application program;
[1.i]	in response to receiving the request: selecting content from at least one sponsor to be delivered to the registered application program, subject to the reserving; and
[1.j]	[in response to receiving the request:...] providing the content from the at least one sponsor to the registered application program.
[2.pre]	The method of claim 1, further comprising:
[2.a]	recording a request identifier associated with the request; and
[2.b]	providing the request identifier to the registered application program.
[3.pre]	The method of claim 2, further comprising:
[3.a]	receiving information related to user interaction with the provided content, the information including the request identifier; and
[3.b]	providing additional content to the registered application in response to the received information.
[4.pre]	The method of claim 1, further comprising:
[4.a]	determining whether at least one of the plurality of sponsors is associated with a geographical representation lying at least partially within a predetermined radial distance of a target location;

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[4.b]in response to a negative determination, increasing the predetermined radial distance.
[5] The method of claim 1, further comprising: reserving a specific one of the plurality of geographic areas for exclusive delivery of content associated with a particular one of the plurality of sponsors to registered application programs and having a target location contained within the specific one of the plurality of geographic areas.
[6.pre] A system comprising:
[6.a] memory;
[6.b] a communications interface operably coupled to the memory; and
[6.c] at least one processor operably coupled to the memory and the communications interface, the processor configured to execute a program of instructions, the program of instructions comprising:
[6.d] at least one instruction to register a plurality of application programs for use with a content delivery platform, wherein the plurality of registered application programs are each associated with at least one application program type;
[6.e] at least one instruction to establish a plurality of perimeters defining a plurality of geographic areas;
[6.f] at least one instruction to maintain at least one record indicating content delivery reservations associating each of a plurality of sponsors with specific registered application program types and at least one of the plurality of geographic areas;
[6.g] at least one instruction to receive, from a sponsor, a request to obtain an interest in a selected one of the plurality of geographic areas;
[6.h] at least one instruction to provide the sponsor a response to the request;
[6.i] at least one instruction to store a record of the interest in the selected one of the plurality of geographic areas;
[6.j] at least one instruction to receive, from the sponsor, content to be delivered to registered application programs having target locations contained within the selected one of the plurality of geographic areas;
[6.k] at least one instruction to receive a request from a registered application program for content to be used within the registered application program;
[6.l] at least one instruction to select content associated with at least one of the plurality of sponsors, to be delivered to the registered application program of a specific type, in accordance with a content delivery reservation associating the at least one sponsor with a geographic area and a registered application program type; and

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[6.m] at least one instruction to provide the selected content to the registered application program.
[7.pre] The system of claim 6, wherein the program of instructions further comprises:
[7.a] at least one instruction to record a request identifier associated with the request; and
[7.b] at least one instruction to provide the request identifier to the registered application program.
[8.pre] The system of claim 7, wherein the program of instructions further comprises:
[8.a] at least one instruction to receive information related to user interaction with the provided content, the information including the request identifier; and
[8.b] at least one instruction to provide additional content to the registered application in response to the received information.
[9.pre] The system of claim 6, wherein the program of instructions further comprises:
[9.a] at least one instruction to determine whether at least one of the plurality of sponsors is associated with a geographical representation lying at least partially within a predetermined radial distance of a target location; and
[9.b] at least one instruction to increase the predetermined radial distance in response to the at least one instruction to determine.
[10] The system of claim 6, wherein the program of instructions further comprises: at least one instruction to reserve a specific one of the plurality of geographic areas for exclusive delivery of content associated with a particular one of the plurality of sponsors to registered application programs and having a target location contained within the specific one of the plurality of geographic areas.
[11.pre] A non-transitory computer readable medium tangibly embodying a program of computer executable instructions, the program of instructions comprising:
[11.a] at least one instruction to register a plurality of application programs for use with a content delivery platform, wherein the plurality of registered application programs are each associated with at least one application program type;
[11.b] at least one instruction to establish a plurality of perimeters defining respective geographic areas;
[11.c] at least one instruction to maintain at least one record indicating content delivery reservations associating each of a plurality of sponsors with specific

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registered application program types and at least one of the plurality of geographic areas;
[11.d] at least one instruction to receive, from a sponsor, a request to obtain an interest in a selected one of the plurality of geographic areas;
[11.e] at least one instruction to provide the sponsor a response to the request;
[11.f] at least one instruction to store a record of the interest in the selected one of the plurality of geographic areas;
[11.g] at least one instruction to receive, from the sponsor, content to be delivered to application programs having target locations contained within the selected one of the plurality of geographic areas;
[11.h] at least one instruction to receive a request from a registered application program for content to be used within the registered application program;
[11.i] at least one instruction to select content associated with at least one of the plurality of sponsors to be delivered to the registered application program of a specific type, in accordance with a content delivery reservation associating the at least one sponsor with a geographic area and a registered application program type; and
[11.j] at least one instruction to provide the selected content to the registered application program.
[12.pre] The non-transitory computer readable medium of claim 11, wherein the program of instructions further comprises:
[12.a] at least one instruction to record a request identifier associated with the request; and
[12.b] at least one instruction to provide the request identifier to the registered application program.
[13.pre] The non-transitory computer readable medium of claim 12, wherein the program of instructions further comprises:
[13.a] at least one instruction to receive information related to user interaction with the provided content, the information including the request identifier; and
[13.b] at least one instruction to provide additional content to the registered application in response to the received information.
[14.pre] The non-transitory computer readable medium of claim 11, wherein the program of instructions further comprises:
[14.a] at least one instruction to determine whether at least one of the plurality of sponsors is associated with a geographical representation lying at least partially within a predetermined radial distance of a target location; and
[14.b] at least one instruction to increase the predetermined radial distance in response to a negative determination.

CHART OF CLAIMS
[15] The non-transitory computer readable medium of claim 11, wherein the program of instructions further comprises: at least one instruction to reserve a specific one of the plurality of geographic areas for exclusive delivery of content associated with a particular one of the plurality of sponsors to application programs and having a target location contained within the specific one of the plurality of geographic areas.

I, David H. Williams, declare as follows:

1. My name is David H. Williams, and I have been retained by counsel for Home Depot U.S.A., Inc. (“Petitioner”) to analyze U.S. Patent No. 8,433,296 (“’296 patent”) and to provide my opinions regarding the patentability of claims 1-15.

2. I am being compensated at my normal consulting rate of \$485 per hour for my time. My compensation is not contingent on the outcome of this proceeding or of any proceedings relating to the ’296 patent.

I. BACKGROUND AND QUALIFICATIONS

A. Qualifications

3. All of my opinions stated herein are based on my own personal knowledge, professional judgment, and analysis of the materials and information I considered in preparing this Declaration. In forming my opinions, I have relied on my knowledge and experience in designing, developing, researching, and teaching the technology referenced in this Declaration.

4. I am over 18 years of age and, if I am called upon to do so, I would be competent to testify as to the matters set forth herein. I understand that a copy of my current curriculum vitae, which details my education and professional and academic experience, is being submitted as Appendix 1. The following provides a

brief overview of some of my experience that is relevant to the matters set forth in this Declaration.

5. I have over 30 years of experience in wireless location services, including experience designing, implementing, and managing numerous location-based service (LBS) applications such as mobile social networking, family tracking, mobile resource management, and fleet and asset management, as well as working in all fields within the location services ecosystem including all forms of location determination technologies, map data, handset technologies, and associated Information Technology systems including identification, authentication, privacy, security, and other related capabilities such as network engineering and operations.

6. I am the President and founder of E911-LBS Consulting, and I have been with the company since 2002. As the President of E911-LBS Consulting, I provide services across the entire wireless value chain, particularly with respect to technology and business strategic planning and product design and development associated with LBS, Global Positioning Satellite (GPS) systems, E911, Real-Time Location Systems (RTLS), Radio Frequency Identification (RFID), Bluetooth, Near Field Communications (NFC), beacon-based and other short-range communications/location systems, and other location determination and sensing technologies and services.

7. I have extensive expertise in all aspects of LBS delivery across the wireless location ecosystem including enabling network, map data, geospatial platform, chipset, data management, device, and location determination infrastructure and integration providers. I am an expert in all related aspects of LBS, including data privacy and security management.

8. For example, in the 1995 to 2000 timeframe, as an Associate Partner in the Communications & High Technology Practice of Accenture (one of the world's leading technology companies), I focused on using wireless location technologies to provide services to the public sector and commercial markets. In particular, from 1998 to 2000, I led the development of the LBS product/technology strategy and roadmap for Nextel Communications, Inc. My work with Nextel resulted in some of the earliest LBS applications in the U.S. market and included extensive research into the potential use of various technologies in providing and enabling a wide array of location-based services. Many of the Nextel products selected for development and implementation included various forms of worker and asset tracking, matching—based on their location—workers with other workers, or workers with assets (e.g., field equipment, vehicles, etc.). This work also included leading the development of the underlying network and Information Technology architectures that would be required to support the LBS applications product strategy and roadmap.

9. In 2003, I led the development of part of AT&T Wireless's E911 infrastructure, including the development of systems, processes, and reporting infrastructure to manage and track the deployment of time difference of arrival-based location determination technologies. I managed the testing and Federal Communications Commission reporting of network location inaccuracies, with a particular focus on detecting and troubleshooting out-of-norm technology deployment and inaccurate location conditions.

10. From 2005 to 2007, I worked with NAVTEQ—the leading provider of map data and services essential to creating LBS applications—to develop the company's web developer website content and tools. Specifically, I designed and managed the site map and overall content, including the development of comprehensive technical and business web content for all NAVTEQ map product and service lines. Through the developer site, application developers and business managers became intimately familiar with map data, Geographical Information System (GIS) platforms, and location-based services to successfully develop and launch their LBS applications. For example, I developed the content to highlight key types of map data and to provide technical details on how NAVTEQ tools can be used in LBS design for various consumer and business applications.

11. I also have extensive LBS application product design and implementation experience, which includes data privacy and security management.

For example, from 2007 to 2010, I managed the design, development, and launch of several consumer and business-oriented LBS applications for AT&T Mobility. These LBS application included mobile social networking, family tracking, local search, 411-with-LBS, mobile resource management, and asset tracking. I also developed corporate-wide location data privacy policies and associated system implementation for all LBS customers.

12. My AT&T work extensively involved authentication of location-related use of LBS applications. In particular, I was the Lead Product Realization Manager (the person responsible for implementation of a product) for several LBS applications that allowed the sharing of location information, including between multi-device applications. One of these applications was the Loopt social networks application. This role and work required extensive knowledge of how the application worked (including its use of geofences), and even required design modifications in order for it to “fit into” AT&T’s network and IT infrastructure, as well as to implement AT&T’s privacy and security policies. The work also included designing/modifying AT&T’s network and IT infrastructure to allow/enable the Loopt application to work seamlessly with AT&T’s location infrastructure and various IT systems used for functions including Sales, Customer Care, Fulfillment, Billing/Accounts Receivable, and various network and IT operations. The work also included extensive work with AT&T Legal to develop

and implement AT&T's location privacy policies. The integration of the application into the above required extensive authorization-related design work to ensure that a given user could appropriately access the various AT&T systems and subsystems, as well as the application, under the appropriate conditions/circumstances, including appropriately authorizing the use of and the sharing of a user's location with other users and/or systems. This work in location-related data security and privacy networking resulted in a patent: U.S. Patent No. 8,613,109, titled "Method and Apparatus for Providing Mobile Social Networking Privacy," that issued on December 17, 2013, of which I was the only non-employee inventor.

13. Much of the above work was replicated in various forms for other LBS applications for which I was the Lead Product Realization Manager, including AT&T FamilyMap (tracking and controlled sharing of family/children location information), Slifter Local Search, 411-with-LBS, AT&T Navigator, and Telenav Mobile Resource Management and Asset Management products. I also served as the Lead Product Realization Manager for an early LBS-based golfing game system (called CaddyHawk), which enabled the use of location to track and improve a golfer's game based on their position on the course relative to the hole and/or other obstacles/constraints on the golf course, including if a ball was in-bounds or out-of-bounds and similar area/geofencing-type parameters.

14. The above AT&T work included the development of corporate-wide location data privacy policies and their systemic implementation for all LBS customers. My work in both data privacy and mobile social networking resulted in my co-inventing a patent in this field titled “Method and Apparatus for Providing Mobile Social Networking Privacy.” (U.S. Patent No. 8,613,109, issued on December 17, 2013.). I have nine (9) other granted patents, as either the sole inventor or lead inventor.

15. I have authored multiple books on wireless location, including:

16. The Definitive Guide to GPS, RFID, Wi-Fi, and Other Wireless Location Based Services (2005 and 2009 versions);

17. The Definitive Guide to Wireless E911; and

18. The Definitive Guide to Mobile Positioning and Location Management (coauthor).

19. I received a B.S. degree in Electrical Engineering from Purdue University in 1983. I received an MBA degree in Information Systems Management from The University of Texas at Austin in 1987.

B. Technology Background

20. The technology at issue, at the time of the alleged priority date of March 11, 2008 (EX1008, 4) was well known. In particular, each of the components/disciplines involved had been well known. These include:

- Geofencing;
- Various architectures to support geofencing, including client-server and client-based; and
- Numerous geofencing-related applications, including providing content delivery.

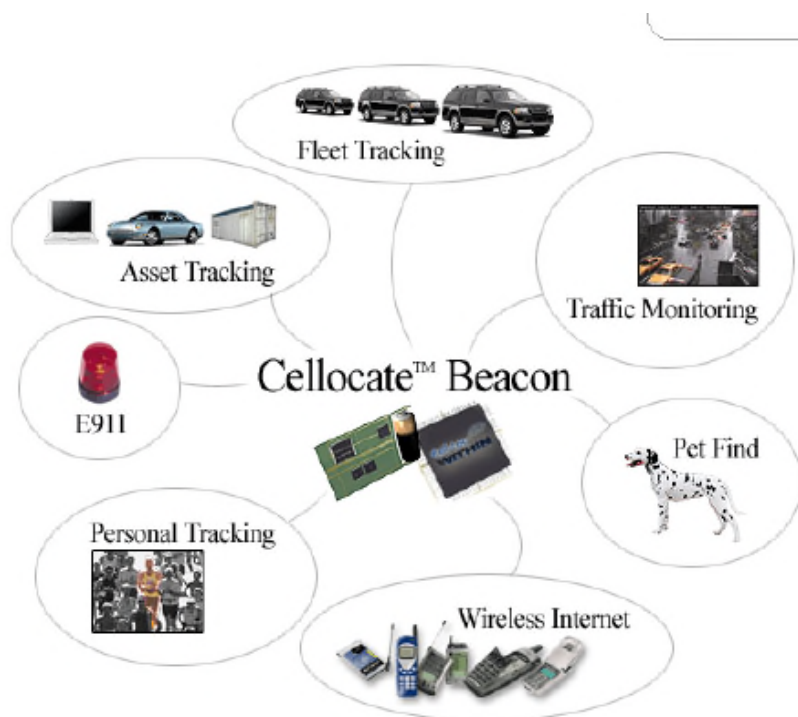
1. Geofencing had been well-known by the priority date

21. Geofencing is “a technology that defines a virtual boundary around a real-world geographical area.” EX1017, 1. Geofencing has been used in the modern communications era for everything from controlling aircraft to 911 systems for determining and controlling which ground controller would handle an aircraft as they fly through multiple control jurisdictions, or which PSAP (Public Safety Answering Point) should handle a 9-1-1 caller, respectively.

22. 911 call handling—and geofences—became more prominent with the passage of the 1996 Telecommunications Act, which resulted in an FCC mandate to be able to find the location of wireless phone 9-1-1 callers. It got a further boost in 2000 with the discontinuing of Selective Availability (“SA”), which had deliberately introduced errors into GPS signals, thereby causing inaccuracies. Since determining a geofence (and associated calculations) is a highly mathematical process (e.g., comparing latitude and longitude values of the location of a phone to a mathematical shape/formula of a geofence), this removal of SA

greatly increased the accuracy and precision of geofence-related calculations, and thus their overall utility and potential use cases.

23. The use of geofencing accelerated in the early 2000s as geofencing capabilities and key enablers became available. For example, a 2002 IBM Research Center article, Location-Based Notification as a General-Purpose Service, describes how a company named Cell-Loc “provides location-based notification services known as GeoFence™ and GeoLasso™. GeoFence is a virtual geographic boundary such as one surrounding a factory. GeoFence events are generated whenever one of a specified list of devices are detected entering and/or exiting the area.” EX1018, 41. These capabilities supported a wide variety of applications, such as shown by a 2003 excerpt from Cell-Loc’s website, below:



EX1019.

24. A 2004 PC Magazine article describes location “enhancements” by a company called uLocate where “users can set up ‘geofences’ around specific locations; when a phone enters or leaves that area, an alert is triggered. This could be used to let parents know, by e-mail or SMS, when a child reaches school.”

EX1020, 82.

25. These were by no means the only such innovations in geofences/geofencing; a patent search of “location,” “geofence or geofencing,” and “mobile or wireless,” before March 11, 2008 yields 1,831 results.¹ These capabilities had a variety of designs and underlying architectures, discussed next.

2. Geofencing was Enabled by a Variety of Architectures prior to the priority date

26. A key issue in this matter is how geofencing was implemented. At the time of the alleged priority date of March 11, 2008, geofencing was enabled not just using server-based architectures, but also client-based architectures.

27. The original mobile device geofencing capabilities were enabled by server-based architectures. The Cell-Loc and uLocate systems above utilized a server that would acquire coordinates either from the network (Cell-Loc) or from

¹<https://patents.google.com/?q=location&q=geofence+OR+geofencing+&q=mobil e+OR+wireless&before=priority:20080311>

the device via GPS (uLocate), compare the coordinates with geofencing parameters, and then trigger as appropriate the applicable functionality (alerts, notifications, related content, etc.), either back to the client or to other users.

28. A patent example of client-server geofencing systems was by Openwave Systems, Inc., an early player in LBS tools and applications (and geofencing). One of their patents, U.S. Patent No. 7,133,685 (“the ’685 patent”), titled *Monitoring Boundary Crossings in a Wireless Network*² discusses a variety of geofence concepts.³ For example, the ’685 patent’s abstract describes:

A method of providing location-based services for a mobile unit operating in a wireless network including network structures. The method includes receiving an identifier associated with the mobile unit. The method also includes monitoring a location of the mobile unit using the identifier and a network-assisted location finding system to identify a crossing of a service zone boundary by the mobile

² The ’685 patent was filed as U.S. Patent Application No. 11/203,257 on August 12, 2005, and is a continuation of U.S. Patent Application No. 09/903,982, filed on July 11, 2001.

³ The ’685 patent does not actually use the term “geofence.” However, it clearly was in the field of geofencing, and it would have been apparent to a POSITA that was the case. This is particularly evident by its use of “geographic zone boundary” and “service zone boundary.”

unit. The service zone boundary is defined by reference to at least one of the network structures. The service zone boundary also corresponds to a geographic zone boundary. The method further includes transmitting service information to a system user in response to the crossing of the service zone boundary.

EX1021, Abstract.

29. Another example, 2004 U.S. Patent No. 7,164,986 (“the ’986 patent”⁴), titled *Method and system for tracked device location and route adherence via geofencing*, described the following in its Abstract (emphasis added):

A device tracking location adherence and route adherence technology, is disclosed that at least provides a tracked device receiving, a set of coordinates associated with a boundary area, and obtaining a position of the tracked device. Based upon the received coordinates and the detected position of the tracked device, a determination is made as to whether the tracked device is located inside the boundary area or outside the boundary area. An alert signal is then generated and transmitted if the result of the determining is different from an immediately previous obtained result. ***The system allows, for example, drastic reduction in the amount of data traffic required within a system since the tracked device performs much of the***

⁴ The ’986 patent issued from U.S. Patent Application No. 10/758,231, filed on January 16, 2004.

necessary processing. This is especially advantageous where a fleet of tracked devices are employed within a network.

EX1022, Abstract.

30. This patent illustrates a key issue of geofencing: potentially the need to send, process, and manage very high volumes of data between a client device and a server. Server-based geofencing, where most/all of the geofencing-related processing is done on the server, could require a very large amount of data to be transported to and from a client device as a client would generate a location and send it to a server, where it would be compared against a geofence (mathematically), and the content triggered by the geofence calculation would be sent back to the client, often with a (sometimes very) large amount of “map data” that would put that content in graphical context, such as on a map. If the device was frequently moving, and/or if the geofence against which the device was also moving, a server-based architecture could require a very large amount of data to be exchanged, sometimes in a very short period of time. The above patent had as one of its key drivers the need to reduce the amount of data traffic that can be caused by such geofence location-reporting systems, particularly when many devices and associated geofences had to be tracked simultaneously, as well as highlighting the advantages of putting as much of that processing on the device(s) (and thus reduce the amount of data transfer between the device(s) and the server), particularly when there were high volumes of devices, geofences, and/or the devices/geofences

were moving. Putting more of the geofencing processing on the mobile devices themselves could alleviate such client ↔ server data traffic.

31. But early mobile devices had limited storage and processing power, and the fact that geofencing could be very data-intensive (particularly if the geofences were moving over a large/irregular/highly detailed area, requiring constant updating of calculations and inclusion of large amounts of map data) made such client-centric data processing difficult. However, as the decade progressed, phones were becoming much more powerful in terms of processing power, memory/storage, and graphics, as well as many more devices having GPS built-in as a consequence of the 1996 Telecommunication Act and a growing interest in location-based services (LBS). The iPhone for example was launched in 2007, with GPS included in the 2008 iPhone 3G.

32. Reflecting these new, more powerful devices, device-based geofencing systems started to appear. For example, in July 2008, U.S. Patent No. 8,536,999 (“the ’999 patent”), *Method for dynamic creation of a GeoFence in a wireless system*, described an actual “geofence device” that had nearly all the components needed for a complete geofencing ecosystem on the mobile device, as seen below:

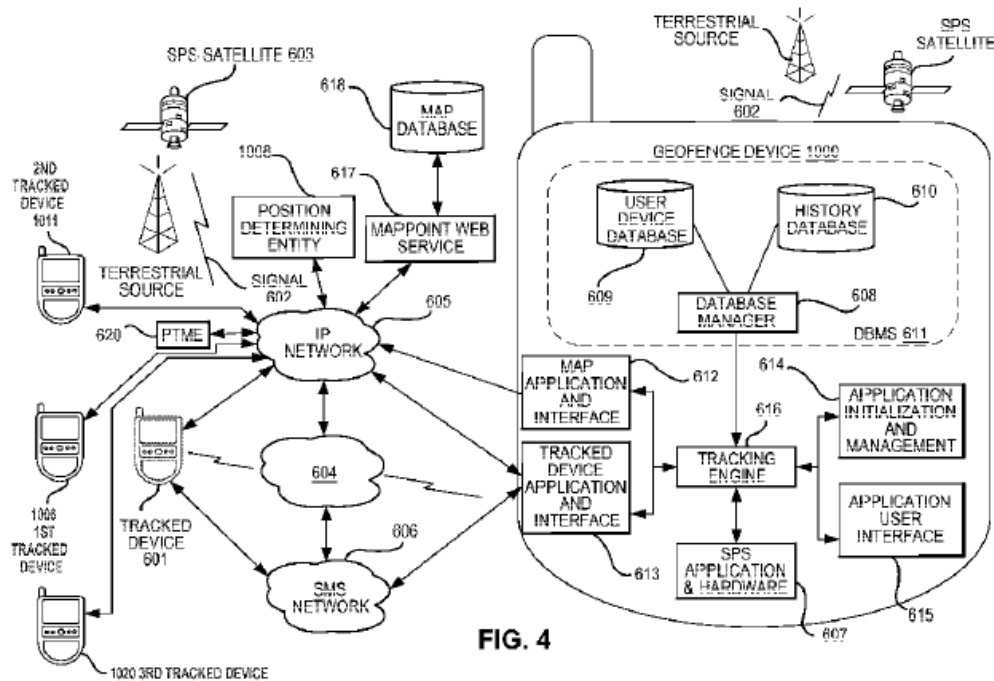


FIG. 4

EX1023, FIG. 4.

33. The above device was particularly effective for use cases where the geofences were moving, in contrast to a fixed boundary:

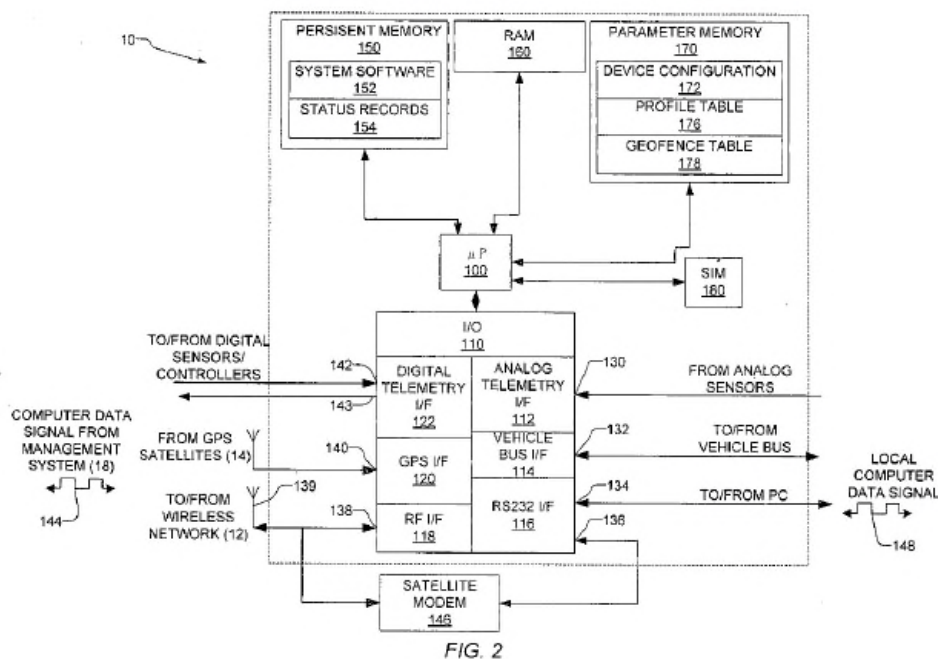
Here, the system user redefines the geographic boundary or the reference point for the geographic boundary for each different area it would like to monitor. Thus, a new GeoFence boundary is defined each time. In a fixed GeoFence boundary, the system user cannot track an assigned target relative to another assigned target if both assigned targets are moving. It is also difficult to determine if a moving target has entered and/or exited a geographic area surrounding another moving target.

EX1023, 1:30-38.

34. Similarly, U.S. Patent Publication No. US 2008/0094256 A1 (“the ’256 publication”), *Dynamically configurable wireless device*, described a fully-functional client/device-based geofencing system:

Geofences are typically configured on the locator device 10 by using device commands that are automatically generated by a software geofence configuration tool (not shown). A geofence can define any area, for example, a work site, customer site, yard, home depot, area that should not be traveled through (exclusion fence), or any other type of area. As will be described further below, when, based on the location information received from the GPS satellites 14, the locator device 10 enters or leaves a geofence area, an event is generated and actions can be taken or device configuration 172 altered.

EX1024, ¶30.



EX1024, FIG. 2.

35. The '256 publication described another benefit beyond the reducing communications traffic and being more efficient for moving geofences: the ability for geofencing applications to still be fully functional in the event there is no network connectivity at all:

Although typically intended to be used with wireless networks to communicate with a centralized management system, **the locator devices are also typically capable of independent operation in an event of a network failure**, for example. In Such situations, instead of immediate reporting, the locator devices typically operate according to pre-defined rules and/or store the information they gather in local memory.

EX1024, ¶2.

36. Thus, there were numerous reasons to pursue client-based geofencing: reducing data communications traffic and associated cost; more effective and efficient support of key use cases (particularly moving fences use cases), and to enable application functionality to continue even if there was no network connectivity. And there were many geofencing applications that were well known by May 2009.

3. Numerous Applications for Utilizing Geofencing Were Well-Known by the priority date

37. Numerous applications leveraging the capabilities described above were well known by the '296 patent's effective filing date. Improving fleet management was a key application in the '986 patent described earlier. Cell-Loc

described various applications supported by its geofencing capabilities, from pet tracking, fleet management, and people tracking to emergency services and road traffic management. The 2002 IBM article referenced mobile commerce (e.g., proximity-based coupon delivery) and object (e.g., people or vehicles) tracking services. The '999 patent discusses using its geofencing device “to track assets...and notifies authorities” if an object moves outside the geofence, as well as tracking multiple moving targets such as ensuring a child remains with its group on a school trip. The '685 patent describes providing location based services applications that provide information regarding local services such as hotels or restaurants. Many of these applications involve content delivery, in a variety of forms and delivery methods, to the users and others based on triggers, alerts, and notifications related to a user device entering, exiting, or being in proximity to a geofence as the basis of that content delivery.

38. One well-known form of content delivery using mobile device location and geofences was advertising. As commercialization of location technology accelerated in the mid-to-late 2000s, different ways of monetizing that location information attracted more interest, including (and especially) advertising. Location information was (and is) highly useful for personalized and targeted location advertisements. For example, if you are mobile, and doing a search for the nearest restaurant, odds are high that you intend on acting on the information you

are seeking. Alternatively, if you are a restaurant owner, sending a coupon to a person who is near the restaurant (during open hours) is much more likely to be utilized than sending it to someone who is not near the restaurant. Recognizing this, various forms of location-based advertising started to appear in the late 2000s. For example, March 2007 U.S. Patent No. 8,010,134, *Architecture for mobile advertising with location*, describes how a “content provider receives the plurality of location fixes for the mobile device from the mobile device, forwards the plurality of location fixes to the advertisement provider, and transmits content to the mobile device.” EX1025, Abstract. U.S. Patent Publication No. US 2006/0116817 A1 (“the ’817 publication”), *Location aware mobile-device software development*, describes locating commercial establishments as part of its (device-based) location and geofencing content providing capabilities, including when the user/device was “close to a coffee shop or a movie theater” as well as other (commercial) areas of interest such as “a particular store, sporting arena ... and the like.” EX1026, ¶39.

39. Indeed, utilizing geofencing was a natural extension of location-based advertising. For example, a 2012 patent (filed by eBay), U.S. Patent No. 10,380,636, *Systems and methods for statistical dynamic geofencing*, described a content advertising delivery platform that, upon receiving an advertising campaign request, would then perform the data collection and processing so “the location-

aware advertisements are distributed to a plurality of mobile devices determined to be within the geofence.” EX1027, Abstract.

40. Thus, all of the key components and disciplines involved in the ’296 patent were well-known by March 11, 2008, as were a wide variety of applications that could leverage those capabilities.

C. Materials Reviewed

41. My opinions contained in this Declaration are based on the documents I reviewed, my professional judgment, as well as my education, experience, and knowledge of the field.

42. In preparing this declaration, I have reviewed and/or considered at least the documents cited in the List of Exhibits, and the documents referenced in this declaration.

II. LEGAL PRINCIPLES

A. Legal Standards for Prior Art

43. I understand that a patent or other publication must first qualify as prior art before it can be used to invalidate a patent claim.

44. I understand that a U.S. or foreign patent qualifies as prior art to an asserted patent if the date of issuance of the patent is prior to the invention of the asserted patent. I further understand that a printed publication, such as an article published in a magazine or trade publication, qualifies as prior art to an asserted patent if the date of publication is prior to the invention of the asserted patent.

45. I understand that a U.S. or foreign patent also qualifies as prior art to an asserted patent if the date of issuance of the patent is more than one year before the filing date of the asserted patent. I further understand that a printed publication, such as an article published in a magazine or trade publication, constitutes prior art to an asserted patent if the publication occurs more than one year before the filing date of the asserted patent.

46. I understand that a U.S. patent qualifies as prior art to the asserted patent if the application for that patent was filed in the United States before the invention of the asserted patent.

B. Legal Standards for Anticipation

47. I understand that documents and materials that qualify as prior art can be used to invalidate a patent claim via anticipation or obviousness.

48. I understand that, once the claims of a patent have been properly construed, the second step in determining anticipation of a patent claim requires a comparison of the properly construed claim language to the prior art on a limitation-by-limitation basis.

49. I understand that a prior art reference “anticipates” an asserted claim, and thus renders the claim invalid, if all elements of the claim are disclosed in that prior art reference, either explicitly or inherently (*i.e.*, necessarily present).

50. I understand that anticipation in an *inter partes* review must be shown by a preponderance of the evidence.

C. Legal Standards for Obviousness

51. I understand that even if a patent is not anticipated, it is still invalid if the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person of ordinary skill in the pertinent art.

52. I understand that a person of ordinary skill in the art provides a reference point from which the prior art and claimed invention should be viewed. This reference point prevents one from using his or her own insight or hindsight in deciding whether a claim is obvious.

53. I also understand that an obviousness determination includes the consideration of various factors such as (1) the scope and content of the prior art, (2) the differences between the prior art and the asserted claims, (3) the level of ordinary skill in the pertinent art, and (4) the existence of secondary considerations such as commercial success, long-felt but unresolved needs, failure of others, etc.

54. I understand that an obviousness evaluation can be based on a combination of multiple prior art references. I understand that the prior art references themselves may provide a suggestion, motivation, or reason to combine, but other times the nexus linking two or more prior art references is simple

common sense. I further understand that obviousness analysis recognizes that market demand, rather than scientific literature, often drives innovation, and that a motivation to combine references may be supplied by the direction of the marketplace.

55. I understand that if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

56. I also understand that practical and common-sense considerations should guide a proper obviousness analysis, because familiar items may have obvious uses beyond their primary purposes. I further understand that a person of ordinary skill in the art looking to overcome a problem will often be able to fit together the teachings of multiple publications. I understand that obviousness analysis therefore takes into account the inferences and creative steps that a person of ordinary skill in the art would employ under the circumstances.

57. I understand that a particular combination may be proven obvious merely by showing that it was obvious to try the combination. For example, when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp because the

result is likely the product not of innovation but of ordinary skill and common sense.

58. The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, the patent claim is likely obvious.

59. It is further my understanding that a proper obviousness analysis focuses on what was known or obvious to a person of ordinary skill in the art, not just the patentee. Accordingly, I understand that any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.

60. I understand that a proposed obviousness combination does not need to be the preferred, or most desirable, combination available, in order to render a claim obvious. Instead, there must be something that suggests the desirability of the proposed combination, not necessarily something that suggests that the proposed combination is the most desirable combination available.

61. Similarly, I understand that for purposes of obviousness, when a motivating benefit comes at the expense of another benefit, that does not nullify

the proposed obviousness combination or modification. Likewise, a proposed obviousness combination does not fail merely because it may be inferior to other systems used for the same use.

62. I also understand that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements between the multiple references. Likewise, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. Instead, the test is whether a claim is rendered obvious by the teachings of the prior art as a whole.

63. I understand that a claim can be obvious in light of a single reference, without the need to combine references, if the elements of the claim that are not found explicitly or inherently in the reference can be supplied by the common sense of one of skill in the art.

64. I understand that secondary indicia of non-obviousness may include: (1) a long felt but unmet need in the prior art that was satisfied by the invention of the patent; (2) commercial success of processes covered by the patent; (3) unexpected results achieved by the invention; (4) praise of the invention by others skilled in the art; (5) taking of licenses under the patent by others; (6) deliberate copying of the invention; (7) failure of others to find a solution to the long felt need; and (8) skepticism by experts.

65. I also understand that there must be a relationship between any such secondary considerations and the invention. I further understand that contemporaneous and independent invention by others is a secondary consideration supporting an obviousness determination.

66. In sum, my understanding is that prior art teachings are properly combined where a person of ordinary skill in the art having the understanding and knowledge reflected in the prior art and motivated by the general problem facing the inventor, would have been led to make the combination of elements recited in the claims. Under this analysis, the prior art references themselves, or any need or problem known in the field of endeavor at the time of the invention, can provide a reason for combining the elements of multiple prior art references in the claimed manner.

67. I understand that obviousness in an *inter partes* review must be shown by a preponderance of the evidence.

D. Legal Standards for Means-Plus-Function Limitations

68. I have further been informed of “means-plus function” claim terms. I understand that means-plus-function claiming allows a patentee to claim functionality of an apparatus without reciting a specific structure within the claim itself. Instead, a means-plus-function claim relies on a corresponding structure found in the corresponding patent specification.

69. I understand that construing a claim term as a “mean-plus-function” term involves two analyses. I understand that the first analysis involves determining whether the term is drafted in “means-plus-function” format. I have been informed that a claim term that does not recite “means” is presumptively not a means-plus function term. However, this presumption may be overcome if a POSITA would believe the claim term does not recite sufficiently definite structure or else recites a function without reciting sufficient structure for performing that function. I further understand that the presumption against means-plus-function treatment may be overcome if the claim limitation uses a generic placeholder (also referred to as a “nonce” word), which is simply a substitute for the term “means.”

70. I have been informed that the words “by means of” does not raise the presumption that the limitation is a means-plus function term.

71. I understand that the second analysis involves identifying the function or functions recited in the claim for the “means-plus-function” term, and the corresponding structure disclosed in the patent specification for performing the claimed function(s).

72. I understand that structure disclosed in the specification qualifies as “corresponding structure” if the intrinsic evidence clearly links or associates that structure to the function(s) recited in the claim. I further understand that where the claim recites multiple functions for the “means-plus-function” term, the

specification must disclose corresponding structure to perform all claimed functions.

73. I further understand that, even if the specification discloses corresponding structure, the disclosure must be of adequate corresponding structure to achieve the claimed function. I further understand that a means-plus function term is indefinite if a POSITA would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim.

III. THE '296 PATENT

A. Overview of the '296 Patent

74. The '296 patent issued from U.S. Patent Application No. 12/434,094, filed May 1, 2009. In their infringement contentions, Patent Owner states that the '296 patent is entitled to a priority date earlier than the May 1, 2009 filing date, specifically, March 11, 2008. EX1008, 4. I have been asked to assume that the '296 patent is entitled to a March 11, 2008 priority date.

75. The '296 patent describes a content delivery system that delivers content to applications executing on mobile devices based on locations associated with the mobile devices. EX1001, 1:36-2:17, 2:44-54. Figure 1 illustrates the basic architecture of the system, including a content delivery platform 112 (red), developer platform 108 (green), one or more sponsors (*e.g.*, sponsors 121, 123, 125) (yellow), and devices (blue):

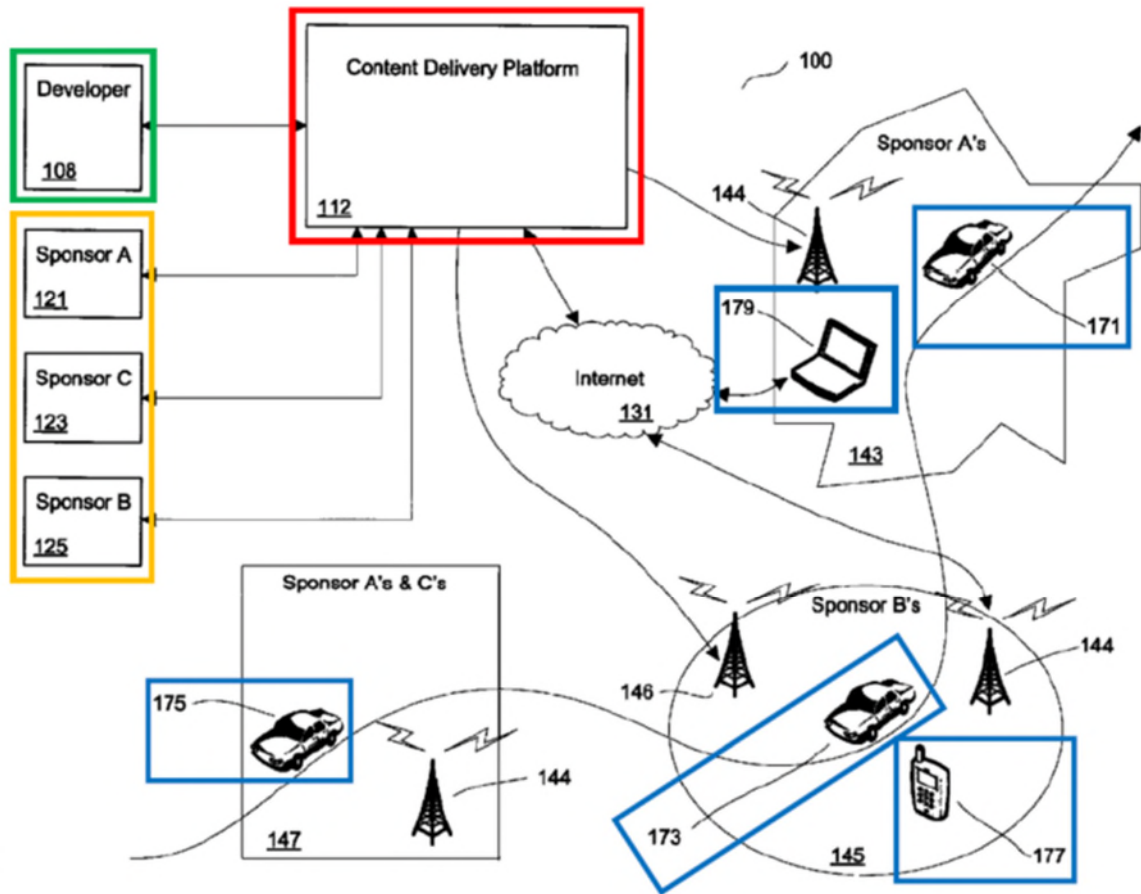


FIG. 1

EX1001, FIG. 1 (annotated), 3:30-50. The operator of the content delivery platform establishes geographic areas, which a sponsor can reserve via the content delivery platform for delivery of content associated with that sponsor to a particular application on the mobile device. EX1001, Abstract, 3:11-22. When the mobile device enters a sponsor's reserved geographic area, the content delivery platform delivers the sponsor's content to the application on the mobile device. EX1001, Abstract, 3:11-22.

B. Overview of the '296 Patent's File History

76. During prosecution, the Examiner issued a first Office Action rejecting the pending claims under 35 U.S.C. §101 and §102. EX1003, 173-183. In response, Applicant amended the claims by adding the “registered application is executing on a mobile device,” that the reservation for delivery of content is delivered “to registered application programs,” the content that is requested is “displayed within the registered application program being executed,” and that the content is provided “exclusively” to the “registered application.” EX1003, 157-169. In their arguments, Applicant differentiated the amended claims from the cited art by stating that “Gupta does not disclose that content delivery is reserved on an application by application basis, as recited generally by claim 1” and that “Gupta [does not] disclose that content associated with a target area is provided exclusively to the registered application for display in the registered application.” EX1003, 166.

77. The Examiner issued a second office action rejecting the pending claims under 35 U.S.C. §103. EX1003, 115-129. In response, the Applicant further amended the claims to state that the selecting is of “at least one selected sponsor from the plurality of sponsors” and that “the content provided to the registered application program includes content from only the at least one selected sponsor, while excluding content from non-selected sponsors.” EX1003, 98-104. The

Applicant also removed “exclusively” from the independent claims. EX1003, 98-104.

78. The Examiner issued another office action rejecting the pending claims under 35 U.S.C. §112 and §103. EX1003, 48-63. In response, Applicant heavily amended the claims as follows:

1. (currently amended) A method comprising:
registering a plurality of application programs ~~an application program~~ for use with a content delivery platform, wherein the plurality of registered application programs are each associated with at least one application program type; ~~is executing on a mobile device~~
establishing a plurality of perimeters defining a plurality of geographic areas;
~~reserving respective ones of the plurality of geographic areas delivery of content to registered application programs associated with respective ones of a plurality of sponsors;~~
reserving delivery of content from a plurality of sponsors to the plurality of registered application programs on the basis of both a geographic area and an application program type associated with each of the plurality of registered application programs;
receiving, from ~~the~~ a registered application program, a request for content to be ~~displayed~~ used within the registered application program ~~being executed on the mobile device~~;
in response to receiving the request:

~~identifying a target location based, at least in part, on the request;~~
selecting content from at least one selected sponsor to be delivered to the
registered application program, subject to the reserving from the
plurality of sponsors based on a relationship between the target
location and at least one of the plurality of geographic areas; and
providing the content from the at least one sponsor, to the registered
application program based on the selecting, wherein the content
provided to the registered application program includes content from
only the at least one selected sponsor, while excluding content from
non-selected sponsors.

EX1003, 33. The Examiner then issued a notice of allowance, which included an examiner's amendment adding the following limitations to the claims: "receiving, from a sponsor, a request to obtain an interest in a selected one of the plurality of geographic areas;" "providing the sponsor a response to the request;" "storing a record of the interest in the selected one of the plurality of geographic areas;" "receiving, from the sponsor, content to be delivered to registered application programs having target locations contained within the selected one of the plurality of geographic areas." EX1003, 13-26.

C. Person of Ordinary Skill in the Art

79. In my opinion, a person of ordinary skill in the art at the time of the alleged invention of the '296 patent (March 11, 2008) ("POSITA") would have had a Bachelors' degree in electrical or computer science or a comparable field of study, plus at least three years of professional experience in advertisement delivery

systems or other relevant industry experience. Additional graduate education could substitute for professional experience, and significant experience in the field could substitute for formal education.

D. Claim Construction

80. Below are claim constructions that, in my opinion, would have been their ordinary and customary meaning according to a POSITA (person or ordinary skill in the art in question in March 11, 2008).

1. “reserving” (claim 1)

81. In my opinion, a POSITA would have understood “reserving” to include making an exclusive or non-exclusive reservation. EX1001, 2:49-51 (“Sponsors can reserve an exclusive interest, or in some embodiments, a semi-exclusive interest, in a geographic area”), 3:21-22 (“the reserved interest can be either completely exclusive, or semi-exclusive”), 9:9-11 (“if an area selected for exclusive or semi-exclusive content delivery is available, the selected geographic area can be reserved for the sponsor”).

2. “subject to the reserving” (claim 1)

82. Claim 1 includes the limitation “reserving delivery of content from a plurality of sponsors to the plurality of registered application programs on the basis of both a geographic area and an application program type associated with each of the plurality of registered application programs.” This limitation provides antecedent basis for the “selecting...subject to the reserving” limitation. In my

opinion, the phrase “subject to the reserving” means that the content is selected on the basis of both a geographic area and an application type.

3. “a request to obtain an interest” (claims 1, 6, 11)

83. In my opinion, a POSITA would have understood this limitation to include a request for a reservation (exclusive or non-exclusive). EX1001, 8:24-32.

4. “the plurality of registered application programs are each associated with at least one application program type” (claims 1, 6, 11)

84. In my opinion, a POSITA would have understood “associated with” to mean that each of the plurality of application programs may be classified as “at least one application type.” The only discussion of an “application type” in the specification describes the application as being at least one type of application. There is no written description of an overt act of associating each application with at least one application type or any explanation of how applications are associated with an application type. EX1001, 9:5-8 (“In some embodiments, overlap of various sponsor areas may be allowed based on type of business, type of application used to deliver the content, or otherwise”), 5:13-15 (“sponsors can advertise or provide other content to members of particular demographics based on a type of application a particular demographic is more likely to use”).

5. “registering” (claims 1, 6, 11)

85. The '296 patent uses “registering” or a form thereof numerous times without providing a specific definition. The '296 patent does, however, provide context from which the meaning of “registering” can be ascertained,

Various embodiments disclosed herein include registering an application program for use with a content delivery platform, establishing multiple perimeters defining respective geographic areas, and maintaining records associating sponsors with particular geographic areas. The content delivery platform can receive a request from a registered application program for content to be displayed on a mobile device, and the request can be used to determine a target location.

EX1001, 1:36-43 (emphasis added).

In some embodiments, a registered application program is provided to mobile devices by developer platform 108, content delivery platform 112, one of sponsor A 121, sponsor C 123, or sponsor B125, or by another desired delivery mechanism. In some embodiments, registering the application program with content delivery platform 112 ***allows developer 108 to receive revenue*** from sponsor A 121, sponsor C 123, or sponsor B 125 for content displayed on a mobile device located within, or in proximity to, a geographical area reserved by one or more of the sponsors.

EX1001, 3:1-10 (emphasis added).

86. In my opinion, from this context, a POSITA would have understood “registering” to mean something akin to “enrolling,” *i.e.*, recording identifying information for the application that facilitates providing content to and/or tracking the usage of the application. This would be especially important, for example, in any sort of advertising-related business model.

6. “providing the sponsor a response to the request” (claims 1, 6, 11)

87. In my opinion, a POSITA would have understood that “a response” is a response that can be provided in direct or indirect response to the request [for a reservation]. The “response” must occur after the request.

7. “recording a request identifier associated with the request” (claims 2, 7, 12)

88. From my review, it is not clear from the claim whether “the request” refers back to “a request to obtain an interest” in limitation 1.d or “a request for content” in limitation 1.h. I address both possible constructions below.

89. During prosecution of the U.S. Patent No. 11,948,171, which is a continuation of the 296 patent, the Applicant defined an identifier as “a string of characters used to identify an element of a computer program such as a variable, a data structure, a procedure, a statement, a higher-level unit, or the program itself.” EX1006, 204. I understand that this construction should be adopted.

E. Patent Owner's Infringement Contentions

90. I have reviewed Patent Owner's Infringement Contentions for the '296 Patent from the litigation between Patent Owner and Petition in *H2 Intellect LLC v. The Home Depot, Inc*, which is attached as Exhibit 1015. I have been informed that these are the most recent infringement contentions that have yet been provided by Patent Owner in that litigation.

IV. GROUND 1: CLAIMS 1-3, 5-8, 10-13, 15 ARE OBVIOUS OVER ELLIOTT IN VIEW OF JACOB

A. Overview of Elliott

91. U.S. Patent Appl. Pub. No. 2006/0149630 ("Elliott") was filed November 16, 2005, and published July 6, 2006. EX1004, cover page. I have been informed that Elliott is prior art under 35 U.S.C. §§102(a), (b), and (e) (pre-AIA).

92. Elliott generally relates to systems and methods for delivering advertisements to mobile devices. EX1004, ¶3, ¶9. Figure 1 reproduced below broadly illustrates the core components of Elliott's system:

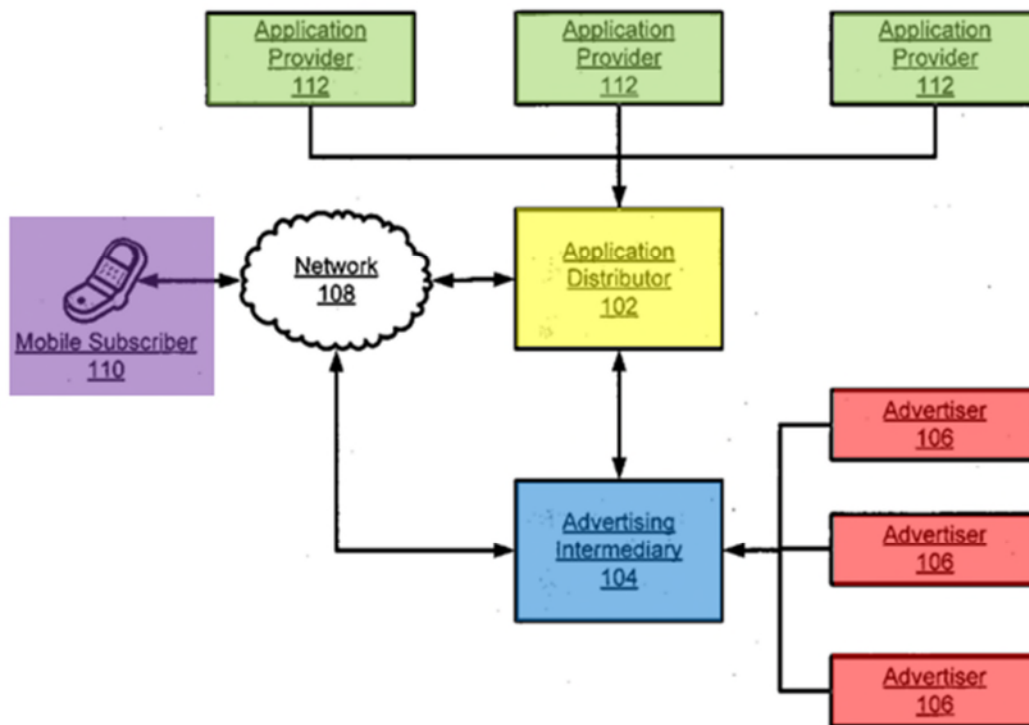


Fig. 1

EX1004, FIG. 1 (annotated). As shown, Elliott's system generally includes a plurality of advertisers 106 (red), an advertising intermediary 104 (blue), a plurality of application providers 112 (green), an application distributor 102 (yellow), and a mobile subscriber 110 (purple). EX1004, ¶13. Each of the plurality of advertisers 106 provides advertisements to advertising intermediary 104 for delivery to mobile subscriber 110. EX1004, ¶13. Each of the plurality of application providers 112 provides applications to application distributor 102 for delivery to mobile subscriber 110. EX1004, ¶13. Application provider 112 may provide application distributor 102 with one of the advertisements for delivery to the mobile subscriber 110.

93. Elliott's advertising intermediary 104 receives advertisements from advertisers 106 along with targeting information that specifies advertisers' 106 "preference[s] for which demographic should receive each advertisement." EX1004, ¶15. Advertising intermediary 104 stores the advertisements in advertisement database 206 along with the targeting information. EX1004, ¶15. Advertising intermediary 104 also includes a subscriber database 208 that stores account information for each mobile phone service subscriber 110. EX1004, ¶16 ("Account information...includes an e-mail address, physical address or telephone number..., the user's name, and other contact information" as well as "demographic information about the subscriber" and "preferences about the kinds of advertisements the subscriber wishes to receive"). Advertising intermediary includes an advertisement selection engine 202 which "matches advertisements in advertisement database 206 with subscriber information in subscriber database 208, choosing the most desirable advertisements to show to each subscriber based both on the advertiser's specified target demographic for the advertisement and on the subscriber's indicated preferences for advertisements." EX1004, ¶17.

94. In my opinion, Elliott is analogous art to the '296 patent because (1) Elliott is from the same field of endeavor as the '296 patent and (2) they are both patents in the area of content delivery systems, such as advertisement delivery

systems. In addition, Elliott is reasonably relevant to the problem the patent is concerned with, as shown in my analysis in §§IV-V.

95. Based on my review of the '296 patent's prosecution history (EX1003), Elliott appears to have not been considered during prosecution of the '296 patent.

B. Overview of Jacob

96. Jacob was filed on April 27, 2001, and published on October 31, 2002. EX1005, cover page. I have been informed that Jacob is prior art under at least 35 U.S.C. §§102(a), (b), and (e) (pre-AIA).

97. Jacob discloses an advertising system based on a user's location. EX1005, Abstract. As shown in the annotated Figure 1 below, the system includes information providers (red) such as advertisers 119, 121 who send information through a service provider 123 (green) to a consumer's communications unit 103, 105, which can be a mobile device. EX1005, Abstract.

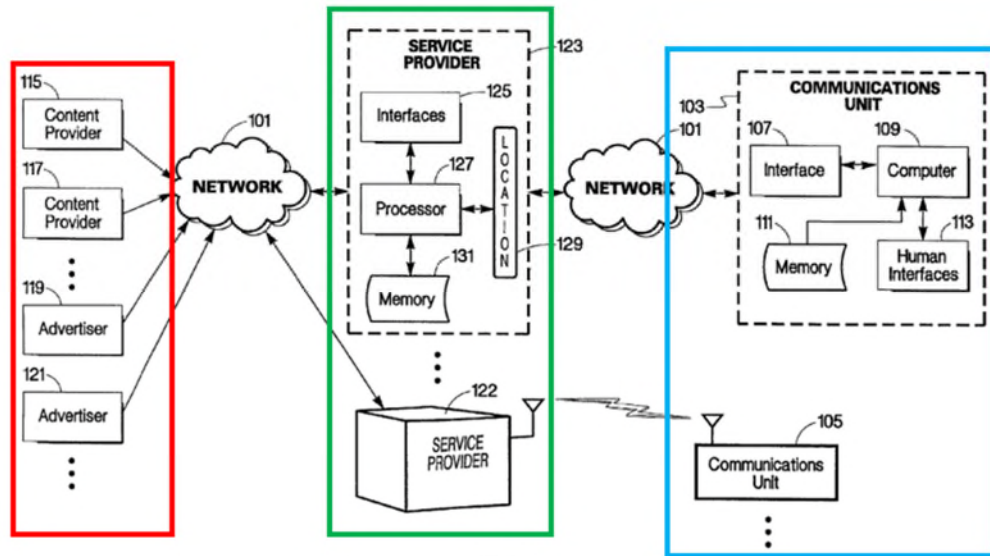


Fig. 1

EX1005, Fig. 1, ¶23.

98. Along with advertisements, advertiser 119 sends “attributes” for advertising effectiveness, such as a business category, *e.g.*, “restaurant,” and a defined location for the advertisement to be sent, *e.g.*, “local address and ZIP code(s) (i.e., local market).” EX1005, ¶28. The service provider stores advertisements and advertisement attributes corresponding to the advertisements. EX1005, ¶22. One of the advertisement attributes includes geographic location. EX1005, ¶27 (“The significance of the geographic location can be the physical presence of an advertiser’s place of business or a general geographic area in which the advertiser believes the target advertisement recipient should be located for optimum value of the advertisement”), ¶28 (“Jane’s identifies the following attributes for her pancake house: 1) restaurant and 2) local address and ZIP code(s) (i.e., local market”).

99. In operation, the communications unit 103, 105 sends location information to the service provider 122, 123. EX1005, ¶29, ¶32. The service provider 122, 123 converts that information to a format to enable a match the aforementioned “attributes.” *Id.* Then, the service provider 122, 123 matches the location attributes between advertiser 119 and a communications unit 103, 105 and sends the associated advertisement to the communications unit 103, 105. EX1005, ¶¶29-30, ¶32.

100. In my opinion, Jacob is analogous art to the ’296 patent because (1) Jacob is from the same field of endeavor as the ’296 patent and (2) they are both patents in the area of content delivery systems, such as advertisement delivery systems. In addition, Jacob is reasonably relevant to the problem the patent is concerned with, as shown in my analysis in §§IV-V.

101. Based on my review of the ’296 patent’s prosecution history (EX1003), Jacob appears to have not been considered during prosecution of the ’296 patent.

C. Motivation to Combine

102. In my opinion, a POSITA would have been motivated to modify the teachings of Elliott (§IV(A)) based on the teachings of Jacob (§IV(B)) because Elliott teaches targeting information provided with advertisements that specifies an advertiser’s 106 “preference[s] for which demographic should receive each

advertisement” and Jacob discloses a means “to better provide content-subsidized advertising [that is] useful to a user” by taking into account “the significance of the user’s location relative to the pertinent location of the advertising...when the advertising is delivered to the user” in the form of a geographic location advertisement attribute. EX1004, ¶15, ¶17 (“choosing the most desirable advertisements to show to each subscriber based both on the advertiser’s specified target demographic for the advertisement and on the subscriber’s indicated preferences for advertisements”); EX1005, ¶17. In my opinion, a POSITA would have been motivated by the teachings of Jacob to implement Jacob’s geographic location attribute with Elliott’s targeting information to further individualize “content tailored to the expressed preferences of a person.” EX1005, ¶3. In my opinion, a POSITA would recognize that location information, including location coordinates and associated information, such as information about geofence areas, to be forms of advertising attributes—attributes that would require no special data structure. Such a combination involves a simple addition of one known element (Jacob’s geographic location advertisement) with other similar elements (*e.g.*, Elliott’s targeting information) to obtain predictable results (providing advertisers with the ability to define the geographic area for delivering advertisements). Accordingly, in my opinion, a POSITA would have had a reasonable expectation of success in making the proposed combination given the teachings of Elliott and

Jacob. Such a combination would have required minimal modifications to Elliott to implement Jacob's geographic location advertisement attribute, and thus would have been well within the skillset of a POSITA. In my opinion, the proposed combination would not have required undue experimentation and would have yielded a predictable result.

103. I have been asked to consider the circumstance that Patent Owner argues the portions of Elliott or Jacob cited below relate to different, incompatible embodiments—in my opinion, they do not relate to different, incompatible embodiments. In the circumstance that this is nonetheless argued, in my opinion, it would have been obvious to a POSITA to combine such embodiments into a single system for providing the ability to deliver advertisements at least because such embodiments are described in the same prior art reference, are fully compatible with each other, and could be combined with minimal effort to achieve predictable results.

D. Claim 1

104. In my opinion, Elliott renders this claim obvious, alone or in combination with Jacob.

1. [1.pre] A method comprising:

105. In my opinion, the Elliott-Jacob combination discloses *a method* (methods for delivering advertisements to mobile devices). EX1004, ¶3 (“The

present invention relates generally to delivery of advertisements on mobile devices”), ¶27; EX1005, ¶1.

2. [1.a] registering a plurality of application programs for use with a content delivery platform, wherein the plurality of registered application programs are each associated with at least one application program type;

106. In my opinion, Elliott discloses and renders obvious registering a plurality of application programs for use with a content delivery platform (collectively, application distributor 102 and advertising intermediary 104), wherein the plurality of registered application programs are each associated with at least one application program type (e.g., video game). EX1004, ¶13, ¶¶18-19, ¶27; §III(D)(4) (construction of “the plurality of registered application programs are each associated with at least one application program type”), §III(D)(5) (construction of “registering”).

107. Elliott discloses a content delivery platform (*i.e.*, application distributor 102 and advertising intermediary 104), which collectively delivers content (*i.e.*, application programs and advertisements) to mobile devices. EX1004, ¶18 (“Application distributor 102 distributes mobile applications provided by application providers 112 to mobile subscribers 110”), ¶13 (“Application distributor 102...distributes both applications and advertisements over a network 108 to a mobile device 110”), ¶27 (“When an application requests an advertisement from application distributor 102, application distributor 102

transmits 304 data to advertising intermediary 104 about which subscriber is using which application...advertisement selection engine 202 of advertisement intermediary 104 selects an appropriate advertisement and transmits 306 the selected advertisement back to application distributor 102” which “then forwards 308 the advertisement to mobile subscriber 110”). Elliott’s application distributor 102 and advertisement intermediary 104 work collectively to deliver advertisements and operate under the control of the same entity. EX1004, ¶19 (“Alternatively, application distributor 102 may be the same business entity as advertising intermediary 104”).

108. Elliott discloses or renders obvious *registering a plurality of application programs* (mobile applications from application provider 112) *for use with the content delivery platform* (application distributor 102, application intermediary 104). EX1004, ¶13, ¶18 (“Application distributor 102 distributes mobile applications provided by application providers 112 to mobile subscribers 110”). Specifically, Elliott discloses that the application provider receives revenue from sponsors (“advertising revenue”) based on advertising provided to mobile applications via a content delivery platform, which indicates that the mobile application was registered or enrolled with that content delivery platform to enable the provision of revenue to the application provider. EX1004, ¶18 (“In one embodiment, application distributor 102 provides a portion of its advertising

revenue to an application provider 112 in exchange for the application provider 112 allowing application distributor 102 to distribute its product”), ¶13 (“Application distributor 102...distributes both applications and advertisements over a network 108 to a mobile device 110”), ¶18 (“Advertising content is typically provided over the network 108 after the application is installed on the mobile device, however in the alternative some or all advertising content can also be pre-built into the application”), ¶27 (“When an application requests an advertisement from application distributor 102, application distributor 102 transmits 304 data to advertising intermediary 104 about which subscriber is using which application”); §III(D)(5) (construction of “registering”).

109. Further, in my opinion, a POSITA would have understood that Elliott’s disclosure of the application distributor 102 receiving the mobile applications from application providers 112 indicates *registering* the mobile applications *for use with* application distributor 102 and advertising intermediary 104. The application distributor 102 facilitates receiving a request for content and providing the content to mobile applications based on the application requesting the advertisement, which a POSITA would have understood to include and render obvious registering the application with the application distributor 102. EX1004, ¶13 (“Application distributor 102...distributes both applications and advertisements over a network 108 to a mobile device 110”), ¶18 (“Advertising

content is typically provided over the network 108 after the application is installed on the mobile device, however in the alternative some or all advertising content can also be pre-built into the application”), ¶27 (“When an application requests an advertisement from application distributor 102, application distributor 102 transmits 304 data to advertising intermediary 104 about which subscriber is using which application”).

110. Further, in my opinion, Elliott’s application programs *are each associated with at least one application program type*. EX1004, ¶18 (“Many types of mobile applications exist, including games, shopping applications, social networking applications, mapping applications, etc.”), ¶14 (“an advertiser may be interested in sponsoring a video game played using the mobile device”); §III(D)(4) (construction of “the plurality of registered application programs are each associated with at least one application program type”). Each of “games, shopping applications, social networking applications, [and] mapping applications” identify an *application program type* associated with an application program. EX1004, ¶18. Thus, in my opinion, a POSITA would have understood Elliott to disclose that application programs are associated with application program types. Moreover, a POSITA would have understood it was well-known that different *application programs* would have been *associated with application program types*. See e.g., EX1011, ¶99 (“a first ad server 150 may serve content items directed for

presentation using a first type of applications 176 (e.g., games), whereas a second ad server 150 may serve content items directed for presentation using a second type of applications 176 (e.g., utility applications”).

111. Moreover, from my review of their infringement contentions, the Patent Owner is vague regarding what they allege to be an application program type. EX1015, 6-10. First, it appears that the Patent Owner equates an iOS version of an application to a first application program type and an Android version of the application to a second application program type. EX1015, 6-10. A POSITA would have understood that, as of the time of the alleged invention of the '296 patent, it was well-known that companies developed applications that were compatible with different types of smartphone devices. EX1013 (discussing Apple requiring developers to “focus their developmental efforts on Web 2.0 applications that function only under the embedded version of its Safari browser”); EX1014 (discussing “thousands of third-party applications” that can be installed on Palm Centro smartphone). Thus, in my opinion, a POSITA would have understood and found it obvious that each application in Elliott would be associated with an application type, based on the operating system it is compatible with.

112. Second, it appears that the Patent Owner in its infringement contentions equates a first application (“The Home Depot Mobile App”) to a first application program type and a second, distinct, application (an application

executing on hdPhones) to a second application program type. EX1015, 6-10. In other words, the mere existence of an application means there is an application program type associated therewith. Under this interpretation, in my opinion, Elliott's application programs are each associated with at least one application program type because Elliott discloses that the application distributor 102 receives multiple mobile applications from a plurality of application providers and that the multiple mobile applications can include "games, shopping applications, social networking applications, mapping applications, etc." EX1004, ¶18, ¶13.

3. [1.b] establishing a plurality of perimeters defining a plurality of geographic areas;

113. In my opinion, the Elliott-Jacob combination discloses *establishing a plurality of perimeters defining a plurality of geographic areas*. EX1004, ¶¶15-17. EX1005, Abstract, ¶22, ¶¶27-28.

114. Elliott's content delivery platform receives advertisements from advertising intermediary from advertisers 106 along with targeting information that specifies advertisers' 106 "preference[s] for which demographic should receive each advertisement." EX1004, ¶15. Advertising intermediary 104 stores the advertisements in advertisement database 206 along with the targeting information. EX1004, ¶15. Advertising intermediary 104 also includes a subscriber database 208 that stores account information for each mobile phone service subscriber 110. EX1004, ¶16 ("Account information...includes an e-mail address, physical address

or telephone number..., the user's name, and other contact information" as well as "demographic information about the subscriber" and "preferences about the kinds of advertisements the subscriber wishes to receive"). Advertising intermediary includes an advertisement selection engine 202 which "matches advertisements in advertisement database 206 with subscriber information in subscriber database 208, choosing the most desirable advertisements to show to each subscriber based both on the advertiser's specified target demographic for the advertisement and on the subscriber's indicated preferences for advertisements." EX1004, ¶17.

115. Though Elliott does not explicitly describe establishing a plurality of perimeters defining a plurality of geographic areas, Jacob discloses this functionality. Jacob discloses a system in which a service provider delivers content and advertisements to a user's communication unit or mobile device. EX1005, Abstract. The service provider stores advertisements and advertisement attributes corresponding to the advertisements. EX1005, ¶22. One of the advertisement attributes includes geographic location specified as a zip code. EX1005, ¶27 ("The significance of the geographic location can be the physical presence of an advertiser's place of business or a general geographic area in which the advertiser believes the target advertisement recipient should be located for optimum value of the advertisement"), ¶28 ("Jane's identifies the following attributes for her pancake house: 1) restaurant and 2) local address and ZIP code(s) (i.e., local market)").

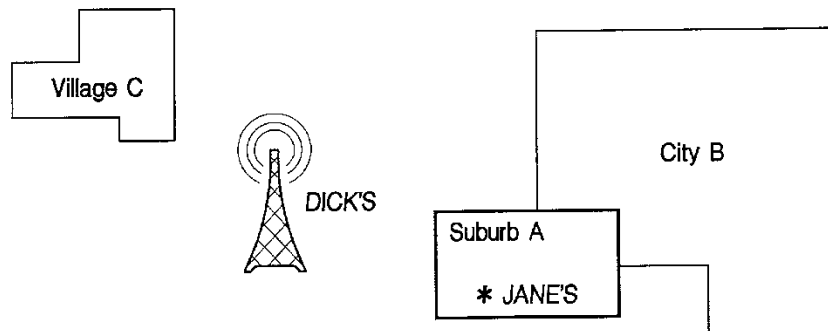


Fig. 3

EX1005, FIG. 3 (outline of City B is a perimeter that defines the geographic area of City B; similar reasoning applies for Suburb A and Village C). A ZIP code is well-known to be a pre-established perimeter that defines a geographic area. Therefore, Jacob's ZIP codes constitute a plurality of perimeters that define a plurality of geographic areas. *See, e.g.*, EX1016, 4 ("The first three digits of the ZIP code were invented by Robert A. Moon, who came up with a system for dividing the country into approximately 900 geographical areas"). In my opinion, a POSITA would have understood that Jacob's service provider 123 must be pre-programmed to accept ZIP codes and associate those ZIP codes with their corresponding perimeters that define geographic areas in which an advertiser desires to advertise. This pre-programming constitutes establishing a plurality of perimeters. Moreover, a POSITA would have understood and found obvious to implement the targeting information provided by advertisers 106 to advertising intermediary 104 in Elliott to include Jacob's location attributes (*e.g., perimeters defining a geographic area*) provided by the advertisers 119, 121 to the service

provider 123. §IV(C) (motivation to combine).

4. **[1.c] reserving delivery of content from a plurality of sponsors to the plurality of registered application programs on the basis of both a geographic area and an application program type associated with each of the plurality of registered application programs;**

116. In my opinion, the Elliott-Jacob combination discloses this limitation.

EX1004, ¶¶14-15, ¶18; EX1005, ¶22, ¶¶27-28.

117. In my opinion, Elliott discloses *reserving delivery of content* (advertisements) *from a plurality of sponsors* (advertisers) *to the plurality of registered application programs* (application programs provided by application distributor 102). EX1004, ¶¶14-15, ¶18; §III(D)(1) (“reserving” construction). In operation, Elliott’s advertising intermediary 104 receives advertisements from multiple advertisers 106 (i.e., Sponsor #1 (red) and Sponsor #2 (blue)) along with targeting information that specifies advertisers’ 106 “preference[s] for which demographic should receive each advertisement.” EX1004, ¶15, FIG. 1 (annotated

below).

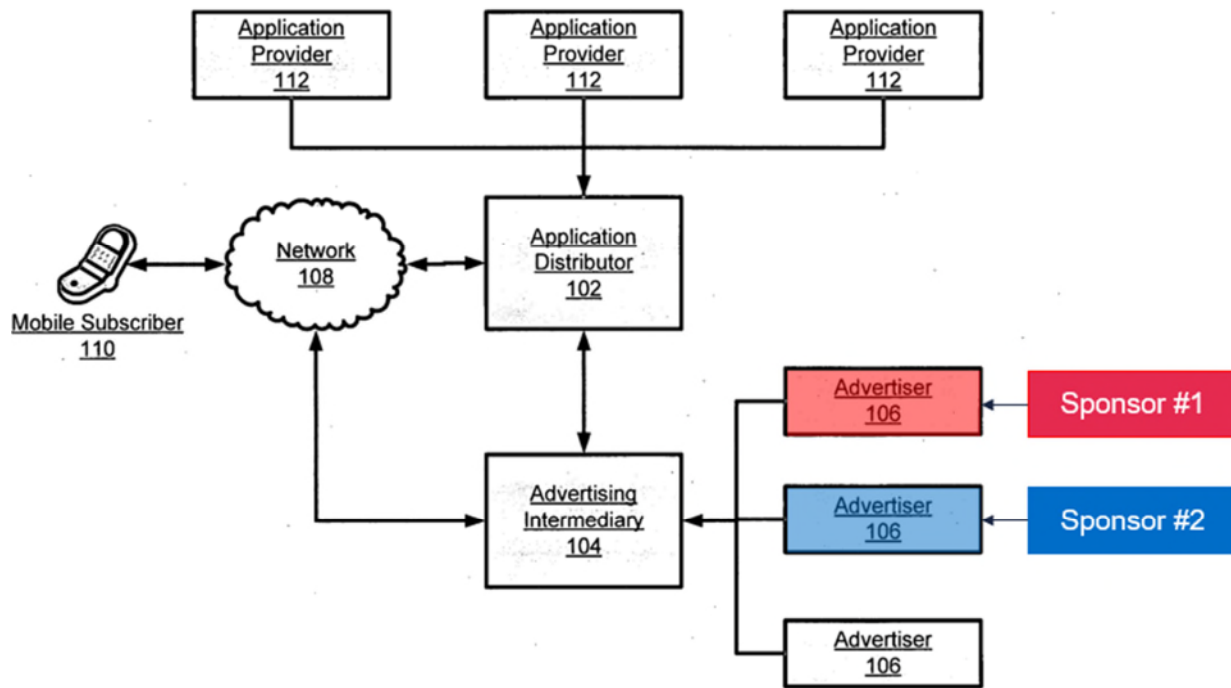


Fig. 1

118. Elliott’s advertisement intermediary 104 then stores the advertisements “in advertisement database 206, along with an indication of the type of advertisement...[and the] targeting information...supplied by the advertiser 106.” EX1004, ¶15. The act of advertisement intermediary 104 interfacing with advertisers 106 to receive and store the advertisements, along with the targeting information, for subsequent delivery of the advertisements in accordance with the targeting information in an exclusive or non-exclusive manner is an act of making a reservation. EX1004, ¶¶14-15, ¶17 (“choosing the most desirable advertisement to show each subscriber based...on the advertiser’s specified target demographic

for the advertisement”), ¶18 (“Application distributor 102 distributes mobile applications provided by application providers 112 to mobile subscribers” and “Advertising content is typically provided over network 108 after the application is installed on the mobile device”); §III(D)(1) (“reserving” construction).

119. In my opinion, Elliott’s application distributor 102 delivers the content to the plurality of registered application programs *on the basis of...an application program type associated with each of the plurality of registered application programs*. As I explain above in limitation 1.a, Elliot discloses that there is an *application program type associated with each of the plurality of registered application programs*. §IV(D)(2) (limitation 1.a). Further, Elliott’s sponsors can specify the type of applications they desire to sponsor. EX1004, ¶14 (“an advertiser may be interested in sponsoring a video game played using the mobile device”). When Elliott’s application distributor 102 requests an advertisement from advertisement intermediary 104, application distributor 102 specifies the type of application requesting the content so that the advertisement intermediary 104 can select an appropriate advertisement for the application. EX1004, ¶18 (“application distributor 102 requests an advertisement from the advertising intermediary 104...the application distributor 102 additionally specifies the application in which the advertisement is being inserted as well as the subscriber who will receive the advertisement,” which “allows advertisement

selection engine 202 to select an advertisement appropriate for the...subscriber and application”). Accordingly, Elliott’s advertisement intermediary 104 delivers an advertisement to the plurality of registered application programs on the basis of their respective application program types. EX1004, ¶14, ¶18.

120. Further, in my opinion, a POSITA would have understood that an application type is a well-known attribute or parameter for determining and selecting which advertisements to send to end users. *See, e.g.*, EX1011, ¶95 (“The content request may include...data indicating the type of application associated with application 176, data identifying application 176, or the like”), ¶99 (“a first ad server 150 may serve content items directed for presentation using a first type of applications 176 (e.g., games), whereas a second ad server 150 may serve content items directed for presentation using a second type of applications 176 (e.g., utility applications)”). §IV(D)(2) (limitation 1.a).

121. Though Elliott does not explicitly describe how the geographic location information is used in combination with Elliot’s subscriber’s preferences, in my opinion, Jacob discloses this functionality. Jacob discloses reserving delivery of advertisements to mobile devices on the basis of a geographic area. §IV(D)(3) (limitation 1.b). Specifically, advertisers provide advertisements and advertisement attributes to service provider 123 for delivery to mobile devices. EX1005, ¶22. One of the advertisement attributes is a geographic location

attribute. EX1005, ¶27 (“The significance of the geographic location can be the physical presence of an advertiser’s place of business or a general geographic area in which the advertiser believes the target advertisement recipient should be located for optimum value of the advertisement”), ¶28 (“Jane’s identifies the following attributes for her pancake house: 1) restaurant and 2) local address and ZIP code(s) (i.e., local market)”). §IV(D)(3) (limitation 1.b.). Jacob’s request to deliver advertisements to a particular geographic area using the geographic location attribute constitutes a reservation for a non-exclusive interest in that geographic location. EX1005, ¶27, ¶28 (“let us consider one advertiser, 119, to be Jane’s Pancake House and another advertiser, 121, to be Dick’s Television Broadcasting Company...Jane’s identifies the following attributes for her pancake house: 1) restaurant and 2) local address and ZIP code(s) (i.e., local market)...Dick’s identifies the attributes [for its television broadcasting company]: 1) entertainment, 2) television, and 3) regional market. As depicted in the map representation of FIG. 3, Jane’s Pancake House is located in suburb A while Dick’s Television Broadcasting Company provides a television signal that covers suburb A, city B, and village C”), ¶36 (“a subscriber having a current location code matching the advertisement location attribute location code and advertising preferences of ‘restaurant’ and ‘television’ will get matches for Jane’s Pancake

House and Dick's Television Broadcasting Company"), FIG. 3; §III(D)(1)

("reserving" construction).

122. In my opinion, a POSITA would have understood and found obvious to implement the targeting information provided by advertisers 106 to advertising intermediary 104 in Elliott to include the geographic location attributes provided by the advertisers (e.g. 119 and 121) to the service provider 123 in Jacob such that the delivery of content is performed on the basis of both *a geographic area* (Jacob's geographic location attribute) *and an application program type* (Elliott's application type) *associated with each of the plurality of registered application programs* (applications provided by application distributor 102). §IV(C) (motivation to combine).

5. [1.d] receiving, from a sponsor, a request to obtain an interest in a selected one of the plurality of geographic areas;

123. In my opinion, the Elliott-Jacob combination discloses this limitation. In my opinion, a *request to obtain an interest* includes a request for a reservation. §III(D)(3) ("request to obtain an interest" construction). As I discussed in limitation 1.c, the Elliott-Jacob combination discloses *reserving delivery of content from a plurality of sponsors to the plurality of registered application programs on the basis of...a geographic area*. When a new sponsor (Sponsor #3, green) in the Elliott-Jacob combination interfaces with advertising intermediary 104 for the

delivery of advertisements to mobile subscriber 110, after the step of reserving delivery of content from a plurality of previous sponsors (*e.g.*, Sponsor #1, red and Sponsor #2, blue) has been performed, the advertising intermediary 104 receives a new request for a reservation from the new sponsor, Sponsor #3:

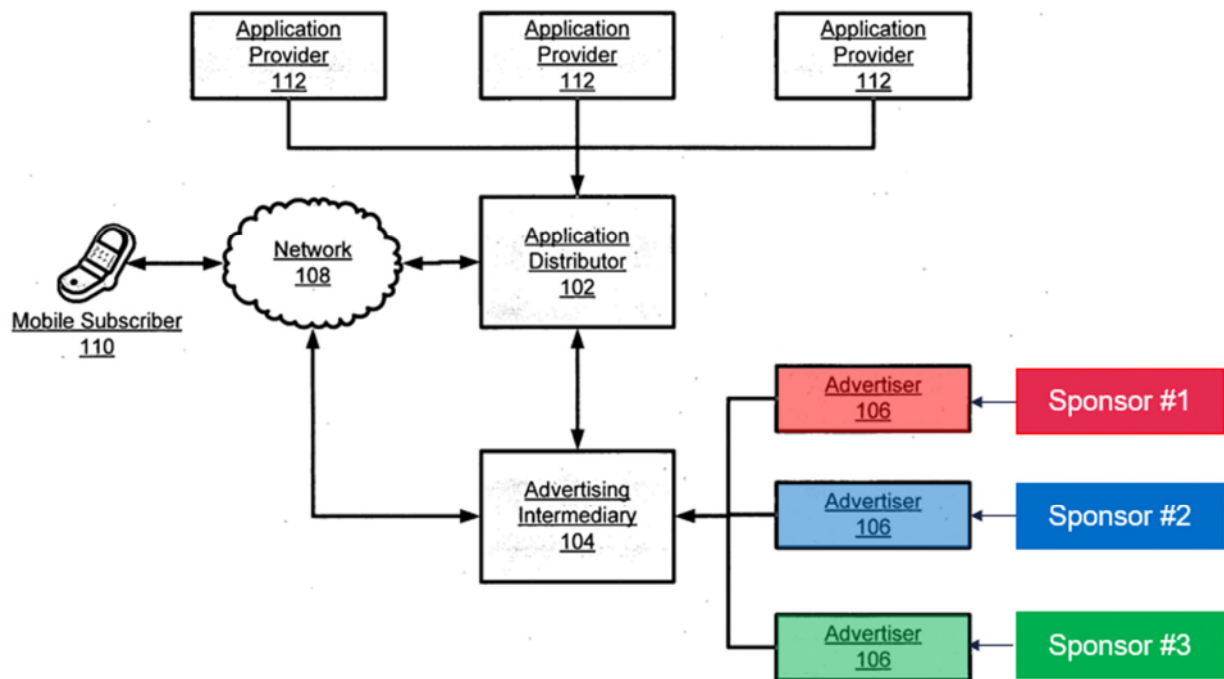


Fig. 1

EX1004, FIG. 1 (annotated). Thus, in my opinion, the Elliott-Jacob combination discloses this limitation.

6. [1.e] providing the sponsor a response to the request;

124. In my opinion, Elliott discloses this limitation. Elliott discloses advertiser 106 (*a sponsor*, such as Sponsor #3 as discussed in limitation 1.d) receiving a response from advertising intermediary 104 after the reservation

request from the advertiser, such as when the advertising intermediary 104 communicates the response rate to a particular advertiser 106 for the purpose of charging the advertiser 106 based on the response rate. EX1004, ¶24 (“This allows advertising intermediary 104 to track the response rate based on e-mails sent to mobile subscribers, which can be used, for example, to adjust the amount charged to a particular advertiser 106”). The message communicating the response rate must come after the reservation request because without the reservation request, there would be no advertisement for tracking the response rate. EX1004, ¶24. Therefore, in my opinion, the message including the response rate is *a response to the request*. §III(D)(6) (construction of limitation 1.e).

125. In my opinion, the Elliott-Jacob combination also renders obvious this limitation. Jacob discloses the advertiser receiving a response to the request. EX1005, ¶26 (“In an embodiment in which the service provider offers a subscription service...the service provider can provide some assurance to prospective advertisers that their advertisements will be delivered to preferred recipients by matching certain of an advertiser’s advertisement attributes, stored by the service provider, to particular subscribers’ stored preferences or by using subscriber demographic data, which can also be provided to the prospective advertisers by the publisher”). Thus, in my opinion, a POSITA would have found it to be an obvious design choice to modify Elliott in light of Jacob to notify Elliott’s

advertiser that the request to run advertisements was received. For example, when Jane's Pancake House adds an advertisement for City B for holiday-only advertisements, it would have been obvious to inform or confirm to Jane's that the advertisement will run.

7. [1.f] storing a record of the interest in the selected one of the plurality of geographic areas;

126. In my opinion, the Elliott-Jacob combination discloses *storing a record of the interest in the selected one of the plurality of geographic areas*. EX1004, ¶15. Elliott's advertising intermediary 104 stores advertisements in advertisement database 206 along with the targeting information. EX1004, ¶15. As indicated above in limitation 1.e, the combination of Elliott and Jacob discloses that the targeting information includes an interest in a selected one of the plurality of geographic areas. §IV(D)(6) (limitation 1.e). Therefore, in my opinion, a POSITA would have understood and found obvious to modify Elliott's targeting information stored in advertisement database 206 to include a record of the interest in the selected one of the plurality of geographic areas, *i.e.*, Jacob's geographic location advertisement attribute. §IV(C) (motivation to combine).

8. [1.g] receiving, from the sponsor, content to be delivered to registered application programs having target locations

contained within the selected one of the plurality of geographic areas;

127. In my opinion, the Elliott-Jacob combination discloses this limitation. EX1004, ¶¶14-15, ¶¶17-18; EX1005, ¶29, ¶37.

128. In my opinion, Elliott's advertising intermediary 104 receives advertisements (*content*) from the advertisers 106 (*sponsors, e.g., Sponsor #3*) that the application distributor 102 delivers to the *registered application programs* when appropriate. EX1004, ¶¶14-15, ¶18 ("Advertising content is typically provided over the network 108 after the application is installed on the mobile device"), ¶18 ("Application distributor 102 may send advertisements piggybacked on application content it provides as part of its runtime services"), ¶18 ("application distributor 102 additionally specifies the application in which the advertisement is being inserted as well as the subscriber who will receive the advertisement"). Advertising intermediary 104 includes a selection engine 202 for selecting one of the plurality of stored advertisements to deliver to the registered application. EX1004, ¶15 ("Advertising intermediary 104...includes an advertisement selection engine 202"), ¶17 ("Advertisement selection engine 202...matches advertisements in advertisement database 206 with subscriber information in subscriber database 208, choosing the most desirable advertisement to show to each subscriber based both on the advertiser's specified target demographic for the advertisement and on the subscriber's indicated preferences

for advertisements”), ¶18 (“application distributor 102 additionally specifies the application in which the advertisement is being inserted,” which “allows advertisement selection engine 202 to select an advertisement appropriate for the...subscriber and application”).

129. In my opinion, Jacob discloses that the content is delivered to registered application programs *having target locations contained within the selected one of the plurality of geographic areas*. Jacob discloses delivering an advertisement from a particular advertiser to mobile devices when the mobile devices are determined to be within a geographic region defined by the geographic location advertisement attribute. EX1005, ¶29 (“It is a feature of the present invention that the advertising added to the delivered publication be selected for, inter alia, a location attribute of the advertising”), ¶37 (“When the user requests content, at 904, or when the communications unit in accordance with its programmed instructions requests content, the communications unit conveys the content request and the geographic coordinates to the service provider” and the “service provider obtains the content, sorts one or more subsidizing advertisements by location attribute, populates a publication , and transmits (publishes) the publication to the communications unit”).

130. In my opinion, a POSITA would have understood and found obvious to implement Elliott's system to deliver advertisements on the basis of Jacob's geographic location attributes. §IV(C) (motivation to combine).

9. [1.h] receiving, from a registered application program, a request for content to be used within the registered application program;

131. In my opinion, Elliott discloses *receiving, from a registered application program* (distributed application), *a request for content* (advertisements) *to be used within the registered application program* (distributed application). EX1004, ¶18, ¶27, FIG. 3. Elliott's application distributor 102 receives a request for an advertisement from an application executing on the mobile subscriber 110. EX1004, ¶27, FIG. 3. The content is to be used within the registered application program. EX1004, ¶18 (describing types of advertisements displayed within the application, *e.g.*, "a sponsorship splash screen shown when starting the application, application sponsorship logos embedded within other application screens, non-interactive advertising messages (commonly called 'Impressions'), advertising messages or surveys requiring interaction from the user"), ¶18 ("the application distributor 102 additionally specifies the application in which the advertisement is being inserted").

10. [1.i] in response to receiving the request: selecting content from at least one sponsor to be delivered to the registered application program, subject to the reserving; and

132. In my opinion, the Elliott-Jacob combination discloses this limitation. EX1004, ¶15, ¶¶17-18. EX1005, ¶29, ¶37.

133. In my opinion, Elliott discloses, in response to receiving a request (§IV(D)(8) limitation 1.g), *selecting content* (advertisements) *from at least one sponsor* (advertiser, *e.g.*, Sponsor #3) *to be delivered to the registered application program* (application), *subject to the reserving* on the basis of an application type associated with the registered application program. §III(D)(2) (construction of “subject to the reserving”). Specifically, Elliott’s advertising intermediary 104 includes a selection engine 202 for selecting, which of the plurality of stored advertisements, should be delivered to the registered application. EX1004, ¶15 (“Advertising intermediary 104...includes an advertisement selection engine 202”), ¶17 (“Advertisement selection engine 202...matches advertisements in advertisement database 206 with subscriber information in subscriber database 208, choosing the most desirable advertisement to show to each subscriber based both on the advertiser’s specified target demographic for the advertisement and on the subscriber’s indicated preferences for advertisements”). Elliott further discloses that this selection is based on the type of application requesting the advertisement. EX1004, ¶14 (“an advertiser may be interested in sponsoring a video game played

using the mobile device”), ¶18 (“application distributor 102 additionally specifies the application in which the advertisement is being inserted,” which “allows advertisement selection engine 202 to select an advertisement appropriate for the...subscriber and application”).

134. In my opinion, Jacob discloses delivering an advertisement from a particular advertiser to a mobile device *subject to the reserving* when the mobile device is determined to be within a geographic region defined by the geographic location advertisement attribute. §III(D)(2) (construction of “subject to the reserving”); EX1005, ¶29 (“It is a feature of the present invention that the advertising added to the delivered publication be selected for, inter alia, a location attribute of the advertising”), ¶37 (“When the user requests content, at 904, or when the communications unit in accordance with its programmed instructions requests content, the communications unit conveys the content request and the geographic coordinates to the service provider” and the “service provider obtains the content, sorts one or more subsidizing advertisements by location attribute, populates a publication , and transmits (publishes) the publication to the communications unit”). Accordingly, Jacob discloses that its service provider 123 selects advertisements on the basis of the geographic location of the mobile device.

135. In my opinion, a POSITA would have understood and found obvious to implement the targeting information provided by advertisers 106 to advertising

intermediary 104 in Elliott to include the geographic location attributes provided by the advertisers 119, 121 to the service provider 123 in Jacob such that selection of content to be delivered to the application is performed *subject to the reserving* on the basis of both a geographic area (Jacob's geographic location attribute) and an application program type (Elliott's application type) associated with each of the plurality of registered application programs (applications provided by application distributor 102). §IV(C) (motivation to combine).

11. [1.j] [in response to receiving the request:...]*providing the content from the at least one sponsor to the registered application program.*

136. In my opinion, Elliott discloses *providing the content* (the selected advertisement) *from the at least one sponsor* (advertiser) *to the registered application program* (application). EX1004, ¶18, ¶27. Elliott discloses that once the advertisement is selected responsive to the request, the application distributor 102 provides the advertisement to the application executing on the mobile device. EX1004, ¶18 (“Advertising content is typically provided over the network 108 after the application is installed on the mobile device”), ¶18 (“Application distributor 102 may send advertisements piggybacked on application content it provides as part of its runtime services”), ¶18 (“application distributor 102 additionally specifies the application in which the advertisement is being inserted,” which “allows advertisement selection engine 202 to select an advertisement

appropriate for the...subscriber and application”), ¶27 (“[A]n application requests an advertisement from application distributor 102” and “Application distributor 102 then forwards 308 the advertisement to the mobile subscriber 110”), FIG. 3.

E. Claim 2

137. In my opinion, the Elliott renders this claim obvious, alone or in combination with Jacob.

1. [2.pre] The method of claim 1, further comprising:

138. As I explain above, the Elliott-Jacob combination discloses *the method of claim 1*. See §IV(D) (claim 1).

2. [2.a] recording a request identifier associated with the request; and

139. To the extent this limitation is not indefinite, regardless of which request provides the antecedent basis for this limitation (the request for an interest or the request for content), in my opinion Elliott discloses this limitation. EX1004, ¶17, ¶21, ¶24, ¶32; §III(D)(7) (construction of this limitation).

140. Elliott discloses *recording a request identifier* (identifier in a link or URL) *associated with the request*. As I discussed above in §§IV(D)(9)-(11), Elliott discloses providing content (*i.e.*, advertisements) from application distributor 102 to the registered application program in response to a request for content by the registered application program. §§IV(D)(9)-(11) (limitations 1.h-1.j); EX1004, ¶27, FIG. 3. Elliott’s advertisements include “a response mechanism by which the

mobile subscriber 110 can indicate his interest in obtaining further information anonymously from the advertiser.” EX1004, ¶21, ¶17 (“Each advertisement preferably includes a response option by which the mobile phone service subscriber can reply to an advertisement that piques his interest”). The response mechanism, also referred to as a response option in Elliott, can take the form of a link or URL included in the advertisements delivered to the mobile subscriber. EX1004, ¶17 (“In one embodiment, the response option is a link...displayed as part of the advertisement”). When the response mechanism is interacted with (*i.e.*, when the URL is clicked), “a message is sent from the mobile subscriber’s device over the network 108 to the response engine 204 of advertising intermediary 104.” EX1004, ¶21. The message “includes information to identify...the advertisement being responded to.” EX1004, ¶21. Because the message that is sent when the URL is clicked includes information that identifies the advertisement, in my opinion, a POSITA would have understood and found obvious that the response mechanism (URL/link) would include the same information that identifies the advertisement (*i.e.*, the advertisement that was selected by the application distributor 102 and delivered to the mobile subscriber responsive to the request for content, and which is therefore associated with the request for content) because including parameters such as identifiers in URLs was a well-known mechanism for passing information via URLs. EX1028 (showing exemplary parameters that are

included in URLs); EX1009 (showing exemplary parameters that are included in URLs). Thus, in my opinion, Elliott discloses and renders obvious that the advertisement delivered to the mobile subscriber includes the response mechanism, which includes the indication of the advertisement. EX1004, ¶17, ¶21; §§IV(D)(9)-(11) (limitations 1.h-1.j).

a. When “the request” in this limitation is construed to refer to “a request for content” in limitation 1.h

141. As I previously discussed above in §§IV(D)(9)-(11), Elliott’s application distributor 102 responds to a request for content by (i) selecting an advertisement (limitation 1.i), (ii) generating a response mechanism (URL), and (iii) delivering the advertisement with the response mechanism/URL to the mobile subscriber. EX1004, ¶17, ¶21; §§IV(D)(9)-(11) (limitations 1.h-1.j). As further discussed above, Elliott renders obvious that the response mechanism includes a *request identifier associated with the request [for content]*, namely the indication of the advertisement that was selected in response to the request for content (and is therefore associated with the request for content). Thus, in my opinion, a POSITA would have understood and found obvious that the response mechanism is associated with the request for content because it is generated and sent to the mobile subscriber when the registered application program requests content.

b. When “the request” is “a request to obtain an interest” in limitation 1.d

142. As I previously discussed in §IV(E)(2), in my opinion, a POSITA would have found obvious that Elliott’s response mechanism (URL) includes an indication of “the advertisement being responded to.” EX1004, ¶21. Further, as I previously discussed is §IV(D)(5), each advertisement delivered to a mobile subscriber is the result of a request from an advertiser to obtain an interest in advertising in a geographic area. §IV(D)(5) (limitation 1.d). Therefore, in my opinion, because the information that identifies the advertisement included in Elliott’s URL (*i.e.*, request identifier) identifies the advertisement that was delivered to the mobile subscriber, and the URL was created in response to the combination of the request to obtain an interest and the request for content (*i.e.*, the advertisement identified in the URL is selected in accordance with the request to obtain an interest), a POSITA would have understood and found obvious that the request identifier is associated with the request to obtain an interest.

143. Further, in my opinion, a POSITA would have understood that the link or URL (*i.e.*, the response mechanism) is a string of characters used to identify an element of a computer program, such as an element of the program executing on the advertising intermediary 104, *i.e.*, the response engine 204. *See, e.g.*, EX1004, ¶15 (“Advertising intermediary 104 is illustrated in greater detail in FIG. 2, and includes an advertisement selection engine 202, a response engine 204, an

advertisement database 206, and a subscriber database 208”), ¶21 (“By triggering the response mechanism, a message is sent from the mobile subscriber’s device over the network 108 to the response engine 204 of advertising intermediary 104”), ¶32 (“process steps and instructions of the present invention could be embodied in software, firmware or hardware, and when embodied in software, could be downloaded to reside on and be operated from different platforms used by real time network operating systems”), FIG 2 (“response engine 204”).

144. In my opinion, a POSITA would have understood that the creation of a URL and sending the URL to the mobile subscriber would constitute a *recording*.

3. [2.b] providing the request identifier to the registered application program.

145. In my opinion, the Elliot discloses *providing the request identifier* (indication of advertisement in the URL) *to the registered application program* (application).

146. As previously indicated, in my opinion, Elliott discloses delivering advertisements to mobile subscribers 110. §IV(D)(11) (limitation 1.j). Elliott also discloses including an identifier, such as a link or URL, with the advertisement delivered to an application program executing on device of the mobile subscriber. §IV(E)(2) (limitation 2.a).

F. Claim 3

147. In my opinion, the Elliott renders this claim obvious, alone or in combination with Jacob.

1. [3.pre] The method of claim 2, further comprising:

148. As I explain above, the Elliott-Jacob combination discloses *the method of claim 2. See §IV(E) (claim 2).*

2. [3.a] receiving information related to user interaction with the provided content, the information including the request identifier; and

149. In my opinion, the Elliot-Jacob combination discloses *receiving information (message) related to user interaction (activation of link in the advertisement), the information including the request identifier (indication of the advertisement in the URL).* EX1004, ¶17, ¶21.

150. In my opinion, Elliott’s content delivery platform receives “a message...sent from the mobile subscriber’s device over the network 108 to the response engine 204 of advertising intermediary.” EX1004, ¶21. The message is sent responsive to the user interacting with the advertisement by selecting the response mechanism or response option included in the advertisement. EX1004, ¶17 (“Each advertisement preferably includes a response option by which the mobile phone subscriber can reply to an advertisement that piques his interest...the response option is a link or a form field displayed as part of the advertisement in a mobile web...browser”), ¶17 (“there is a user interface provided in a binary

application allowing user interaction, and the application provides that response to the advertising intermediary 106 over the mobile network 108 using an appropriate encoding and communication protocol”), ¶21 (“By triggering the response mechanism, a message is sent from the mobile subscriber's device over the network 108 to the response engine 204 of advertising intermediary 104”). In my opinion, a POSITA would have understood that the message sent from the mobile subscriber to the response engine 204 of advertising intermediary 104 must necessarily include the identifier, because the identifier is used to track each request's response rate, or in the context of the identifier being the response mechanism, activating the link or URL response mechanism provides the advertising intermediary with information corresponding to the link or URL. *See, e.g.*, EX1004, ¶21 (“the message includes information to identify the subscriber, such as the subscriber's telephone number or subscriber ID; the advertisement being responded to; the application associated with the advertisement; and the time at which the response was made”).

3. [3.b] providing additional content to the registered application in response to the received information.

151. In my opinion, Elliott discloses *providing additional content* (additional advertisements) *to the registered application in response to the received information*. EX1004, ¶17, ¶23. Elliott discloses that “[u]pon receiving the message back from the mobile subscriber 110, response engine 204 determines

based on information provided by the advertiser what additional information should be sent to the mobile subscriber 110.” EX1004, ¶23. Elliott’s advertisement selection engine 202 uses the response information to select subsequent advertisements to deliver to the application. EX1004, ¶17 (“advertisements are selected for a subscriber based in part on advertisements to which the subscriber has previously responded”).

G. Claim 5 - The method of claim 1, further comprising: reserving a specific one of the plurality of geographic areas for exclusive delivery of content associated with a particular one of the plurality of sponsors to registered application programs and having a target location contained within the specific one of the plurality of geographic areas.

152. In my opinion, the Elliott renders this claim obvious, alone or in combination with Jacob.

153. As I explain above, the Elliott-Jacob combination discloses *the method of claim 1*. See §IV(D) (claim 1).

154. The Elliott-Jacob combination discloses reserving delivery of content from a plurality of sponsors to the plurality of registered application programs on the basis of both a geographic area and an application program type associated with each of the plurality of registered application programs. §IV(D)(4) (limitation 1.c). In my opinion, a POSITA would have understood and found obvious that the combination of Elliott and Jacob could be further modified such that only an advertiser can request that only their advertisements be delivered to applications

when mobile devices executing those applications have a location within a geographic area. *See, e.g.*, EX1012, ¶89 (“The alert system operator can sell exclusive advertisement rights for a particular advertisement category to vendors for defined regions or specified periods of time. For example, a restaurant owner can purchase the exclusive rights for food advertisements within two blocks of the restaurant during the lunch hours. Alternatively, the owner of a first restaurant can purchase the exclusive advertisement alert rights for a region proximate to a competing restaurant”).

H. Claim 6

155. In my opinion, Elliott renders this claim obvious, alone or in combination with Jacob.

1. [6.pre] A system comprising:

156. In my opinion, the Elliot-Jacob combination discloses *a system* (collectively, application distributor 102 and advertising intermediary 104). EX1004, ¶18 (“Application distributor 102 distributes mobile applications provided by application providers 112 to mobile subscribers 110”), ¶13 (“Application distributor 102...distributes both applications and advertisements over a network 108 to a mobile device 110”), ¶27 (“When an application requests an advertisement from application distributor 102, application distributor 102 transmits 304 data to advertising intermediary 104 about which subscriber is using

which application...advertisement selection engine 202 of advertisement intermediary 104 selects an appropriate advertisement and transmits 306 the selected advertisement back to application distributor 102” which “then forwards 308 the advertisement to mobile subscriber 110”). Elliott’s application distributor 102 and advertisement intermediary 104 operate under the control of the same entity. EX1004, ¶19 (“Alternatively, application distributor 102 may be the same business entity as advertising intermediary 104”).

2. [6.a] memory

157. In my opinion, the Elliott-Jacob combination discloses *a memory* (memory of one of application distributor 102 or advertisement intermediary 104). EX1004, ¶33 (“The present invention also relates to an apparatus for performing the operations herein” which “may be specifically constructed for the required purposes, or it may comprise a general-purpose computer” which includes “a computer readable storage medium, such as...any type of disk including floppy disks, optical disks, CD-ROMs, magnetic-optical disks, read-only memories (ROMs), random access memories (RAMs), EPROMs, EEPROMs, magnetic or optical cards, application specific integrated circuits (ASICs), or any type of media suitable for storing electronic instructions”).

3. [6.b] a communications interface operably coupled to the memory; and

158. In my opinion, the Elliott-Jacob discloses *a communications interface* (communications interface of one of application distributor 102 or advertisement intermediary 104) *operably coupled to the memory*. EX1004, ¶33 (“The present invention also relates to an apparatus for performing the operations herein” which “may be specifically constructed for the required purposes, or it may comprise a general-purpose computer”). In my opinion, a POSITA would have understood and found obvious that general purpose computers, such as those disclosed in Elliott, would include a communications interface (blue) operably coupled to its memory (red):

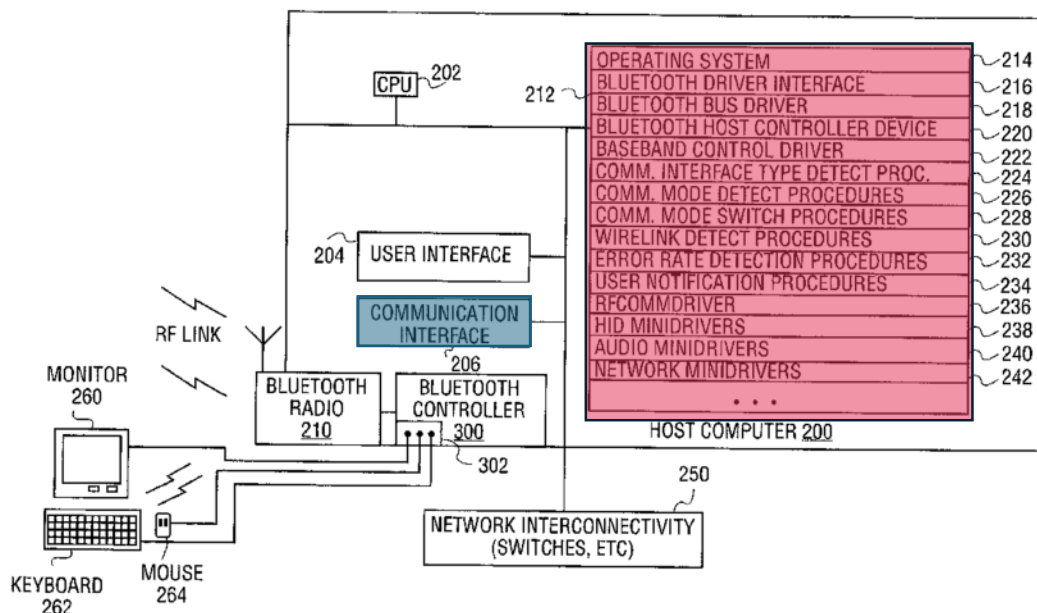


FIG. 2

EX1010, FIG. 2 (communication interface 206 coupled with memory 212), ¶34 (“host computer 200 includes...memory 212”), ¶37 (“memory 212 of the host computer 200 may be implemented as RAM (random access memory), SRAM (synchronous random access memory), SDRAM (synchronous data random access memory) or a combination of RAM and non-volatile memory”).

4. [6.c] at least one processor operably coupled to the memory and the communications interface, the processor configured to execute a program of instructions, the program of instructions comprising:

159. In my opinion, the Elliott-Jacob combination discloses *at least one processor* (processor of one of application distributor 102 or advertisement intermediary 104) *operably coupled to the memory and the communications interface, the processor configured to execute a program of instructions* (computer program). EX1004, ¶33 (“The present invention also relates to an apparatus for performing the operations herein” which “may be specifically constructed for the required purposes, or it may comprise a general-purpose computer” which includes “a computer program stored in the computer [T]he computers referred to in the specification may include a single processor or may be architectures employing multiple processor designs”), ¶32 (“Certain aspects of the present invention include process steps and instructions described herein in the form of an algorithm”), ¶32 (“process steps and instructions of the present invention could be embodied in software”). In my opinion, a POSITA would have understood and found obvious

that general purpose computers, such as those disclosed in Elliott, would include a processor (green) operably coupled to its memory (red) and communications interface (blue):

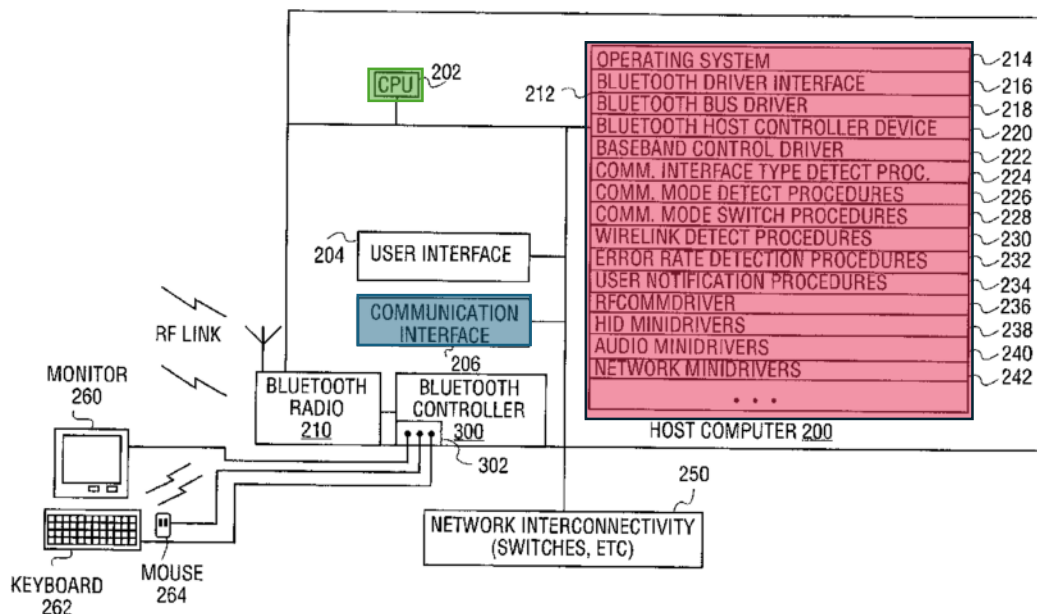


FIG. 2

EX1010, FIG. 2 (CPU 202 coupled with communication interface 206 and memory 212).

5. **[6.d] at least one instruction to register a plurality of application programs for use with a content delivery platform, wherein the plurality of registered application programs are each associated with at least one application program type;**

160. In my opinion, the Elliott-Jacob combination discloses this limitation.

§IV(D)(2) (limitation 1.a). This limitation are substantially similar to limitation 1.a, however, limitations 6.d recasts the limitations as “at least one instruction.”

Elliott discloses and renders obvious implementing its system using instructions—
“process steps and instructions of the present invention could be embodied in
software” and “[c]ertain aspects of the present invention include process steps and
instructions described herein in the form of an algorithm.” EX1004, ¶32.

**6. [6e] at least one instruction to establish a plurality of
perimeters defining a plurality of geographic areas**

161. In my opinion, the Elliott-Jacob combination discloses this limitation.
§IV(D)(3) (limitation 1.b). This limitation is substantially similar to limitation 1.b,
however, limitation 6.e recasts the limitation as “at least one instruction.” Elliott
discloses and renders obvious implementing its system using instructions—
“process steps and instructions of the present invention could be embodied in
software” and “[c]ertain aspects of the present invention include process steps and
instructions described herein in the form of an algorithm.” EX1004, ¶32.

**7. [6.f] at least one instruction to maintain at least one record
indicating content delivery reservations associating each of
a plurality of sponsors with specific registered application
program types and at least one of the plurality of
geographic areas;**

162. In my opinion, the Elliott-Jacob combination discloses this limitation.
EX1004, ¶¶13-15, ¶18. EX1005, ¶22, ¶¶27-28. Elliott discloses and renders
obvious implementing its system using instructions. §IV(H)(5) (limitation 6.d).

163. In my opinion, Elliott discloses maintain[ing] at least one record (line
item in advertisement database 206) indicating content delivery reservations

(targeting information) associating each of a plurality of sponsors (advertisers) with specific registered application program types (application types associated with applications provided by application distributor 102). EX1004, ¶¶14-15, ¶18. Elliott's advertising intermediary 104 receives requests from advertiser 106 for "advertisements that it would like [the advertising intermediary 104 or application distributor 102] to deliver to users of mobile device 110." EX1004, ¶13, ¶15. Advertising intermediary 104 also receives, from each advertiser, targeting information that specifies the advertiser's "preference[s] for which demographic should receive each advertisement." EX1004, ¶15. These preferences include the type of applications the advertiser 106 is interested in sponsoring. EX1004, ¶14 ("an advertiser may be interesting in sponsoring a video game played using the mobile device"), ¶14 ("Sponsorship messages typically involve providing an advertisement on the mobile applications splash screen, and may also include having the advertiser's logo or slogan on some or all of the pages of the mobile application"). Further, application distributor 102 can distribute many types of mobile applications, such as "games, shopping applications, social networking applications, mapping applications, etc." EX1004, ¶18. The advertisements, along with their targeting information, are stored or maintained in advertisement database 206. EX1004, ¶15 ("Advertisements received from advertisers are stored in advertisement database 206" and "targeting information is also supplied with the

advertisements and stored in advertisement database 206”). Advertisements and targeting information associated with the advertisements for a given advertiser 106 constitutes the claimed content delivery reservations. Further, because the targeting information includes an indication of the type of application the advertiser 106 would like to sponsor, in my opinion, a POSITA would have understood and found obvious that the targeting information associates a given advertiser with a specific registered application program type (e.g., video game application).

164. Furthermore, in my opinion, Jacob discloses reserving delivery of advertisements to mobile devices on the basis of a geographic area. §IV(D)(3) (limitation 1.b). Specifically, advertisers provide advertisements and advertisement attributes to service provider 123 for delivery to mobile devices. EX1005, ¶22. One of the advertisement attributes is a geographic location attribute. EX1005, ¶27 (“The significance of the geographic location can be the physical presence of an advertiser's place of business or a general geographic area in which the advertiser believes the target advertisement recipient should be located for optimum value of the advertisement”), ¶28 (“Jane’s identifies the following attributes for her pancake house: 1) restaurant and 2) local address and ZIP code(s) (i.e., local market”). §IV(D)(3) (limitation 1.b.). Accordingly, Jacob discloses reserving delivery of advertisements from a plurality of advertisers to the mobile device on the basis of a geographic area.

165. In my opinion, a POSITA would have understood and found obvious to modify Elliott's targeting information maintained in advertisement database 206 to include the Jacob's geographic location attributes such that the *content delivery reservations* (i.e., advertisement with targeting information) associates an advertiser with a specific application program type and a geographic area. §IV(C) (motivation to combine).

8. [6.g] at least one instruction to receive, from a sponsor, a request to obtain an interest in a selected one of the plurality of geographic areas;

166. In my opinion, the Elliott-Jacob combination discloses this limitation. §IV(D)(5) (limitation 1.d). This limitation is substantially similar to limitation 1.d, however, limitation 6.g recasts this limitation as “at least one instruction to.” Elliott discloses and renders obvious implementing its system using instructions—“process steps and instructions of the present invention could be embodied in software” and “[c]ertain aspects of the present invention include process steps and instructions described herein in the form of an algorithm.” EX1004, ¶32.

9. [6.h] at least one instruction to provide the sponsor a response to the request;

167. In my opinion, the Elliott-Jacob combination discloses this limitation. §IV(D)(6) (limitation 1.e). This limitation is substantially similar to limitation 1.e, however, limitation 6.h recasts this limitation as “at least one instruction to.” Elliott discloses and renders obvious implementing its system using instructions—

“process steps and instructions of the present invention could be embodied in software” and “[c]ertain aspects of the present invention include process steps and instructions described herein in the form of an algorithm.” EX1004, ¶32.

10. [6.i] at least one instruction to store a record of the interest in the selected one of the plurality of geographic areas;

168. In my opinion, the Elliott-Jacob combination discloses this limitation. §IV(D)(7) (limitation 1.f). This limitation is substantially similar to limitation 1.f, however, limitation 6.i recasts this limitation as “at least one instruction to.” Elliott discloses and renders obvious implementing its system using instructions— “process steps and instructions of the present invention could be embodied in software” and “[c]ertain aspects of the present invention include process steps and instructions described herein in the form of an algorithm.” EX1004, ¶32.

11. [6.j] at least one instruction to receive, from the sponsor, content to be delivered to registered application programs having target locations contained within the selected one of the plurality of geographic areas;

169. In my opinion, the Elliott-Jacob combination discloses this limitation. §IV(D)(8) (limitation 1.g). This limitation is substantially similar to limitation 1.g, however, limitation 6.j recasts this limitation as “at least one instruction to.” Elliott discloses and renders obvious implementing its system using instructions— “process steps and instructions of the present invention could be embodied in

software” and “[c]ertain aspects of the present invention include process steps and instructions described herein in the form of an algorithm.” EX1004, ¶32.

12. [6.k] at least one instruction to receive a request from a registered application program for content to be used within the registered application program;

170. In my opinion, the Elliott-Jacob combination discloses this limitation. §IV(D)(9) (limitation 1.h). This limitation is substantially similar to limitation 1.h, however, limitation 6.k recasts this limitation as “at least one instruction to.” Elliott discloses and renders obvious implementing its system using instructions—“process steps and instructions of the present invention could be embodied in software” and “[c]ertain aspects of the present invention include process steps and instructions described herein in the form of an algorithm.” EX1004, ¶32.

13. [6.l] at least one instruction to select content associated with at least one of the plurality of sponsors, to be delivered to the registered application program of a specific type, in accordance with a content delivery reservation associating the at least one sponsor with a geographic area and a registered application program type; and

171. In my opinion, the Elliott-Jacob combination discloses this limitation. §IV(D)(10) (limitation 1.i). This limitation is substantially similar to limitation 1.i, however, limitation 6.l recasts this limitation as “at least one instruction to.” Elliott discloses and renders obvious implementing its system using instructions—“process steps and instructions of the present invention could be embodied in

software” and “[c]ertain aspects of the present invention include process steps and instructions described herein in the form of an algorithm.” EX1004, ¶32.

14. [6.m] at least one instruction to provide the selected content to the registered application program.

172. In my opinion, the Elliott-Jacob combination discloses these limitations. §IV(D)(11) (limitation 1.j). These limitations are substantially similar to limitation 1.j, however, limitation 6.m recasts the limitation as “at least one instruction to.” Elliott discloses and renders obvious implementing its system using instructions—“process steps and instructions of the present invention could be embodied in software” and “[c]ertain aspects of the present invention include process steps and instructions described herein in the form of an algorithm.” EX1004, ¶32.

I. Claim 7

173. In my opinion, the Elliott renders this claim obvious, alone or in combination with Jacob.

1. [7.pre] The system of claim 6, wherein the program of instructions further comprises

174. As I explain above, the Elliott-Jacob combination discloses *the system of claim 6*. See §IV(H) (claim 6).

2. [7.a] at least one instruction to record a request identifier associated with the request; and

175. In my opinion, the Elliott-Jacob combination discloses this limitation. §IV(E)(2) (limitation 2.a). These limitations are substantially similar to limitation 2.a, however, limitation 7.a recasts the limitation as “at least one instruction.” Elliott discloses and renders obvious implementing its system using instructions—“process steps and instructions of the present invention could be embodied in software” and “[c]ertain aspects of the present invention include process steps and instructions described herein in the form of an algorithm.” EX1004, ¶32.

3. [7.b] at least one instruction to provide the request identifier to the registered application program.

176. In my opinion, the Elliott-Jacob combination discloses this limitation. §IV(E)(3) (limitation 2.b). These limitations are substantially similar to limitation 2.b, however, limitation 7.b recasts the limitation as “at least one instruction.” Elliott discloses and renders obvious implementing its system using instructions—“process steps and instructions of the present invention could be embodied in software” and “[c]ertain aspects of the present invention include process steps and instructions described herein in the form of an algorithm.” EX1004, ¶32.

J. Claim 8

177. Elliott renders this claim obvious, alone or in combination with Jacob.

1. [8.pre] The system of claim 7, wherein the program of instructions further comprises:

178. As I explain above, the Elliott-Jacob combination discloses *the system of claim 7*. See §IV(I) (claim 7).

2. [8.a] at least one instruction to receive information related to user interaction with the provided content, the information including the request identifier; and

179. In my opinion, the Elliott-Jacob combination discloses this limitation. §IV(F)(2) (limitation 3.a). This limitation is substantially similar to limitation 3.a, however, limitation 8.a recasts the limitation as “at least one instruction.” Elliott discloses and renders obvious implementing its system using instructions—“process steps and instructions of the present invention could be embodied in software” and “[c]ertain aspects of the present invention include process steps and instructions described herein in the form of an algorithm.” EX1004, ¶132.

3. [8.b] at least one instruction to provide additional content to the registered application in response to the received information.

180. In my opinion, the Elliott-Jacob combination discloses this limitation. §IV(F)(3) (limitation 3.b). This limitation is substantially similar to limitation 3.b, however, limitation 8b recasts the limitation as “at least one instruction.” Elliott discloses and renders obvious implementing its system using instructions—“process steps and instructions of the present invention could be embodied in

software” and “[c]ertain aspects of the present invention include process steps and instructions described herein in the form of an algorithm.” EX1004, ¶32.

K. Claim 10 - The system of claim 6, wherein the program of instructions further comprises: at least one instruction to reserve a specific one of the plurality of geographic areas for exclusive delivery of content associated with a particular one of the plurality of sponsors to registered application programs and having a target location contained within the specific one of the plurality of geographic areas.

181. In my opinion, the Elliott renders this claim obvious, alone or in combination with Jacob.

182. As I explain above, the Elliott-Jacob combination discloses *the system of claim 6*. See §I§V(G), (H) (claims 5-6).

183. This claim is substantially similar to claim 5, however, claim 10 recasts the claim as “at least one instruction to.” Elliott discloses and renders obvious implementing its system using instructions—“process steps and instructions of the present invention could be embodied in software” and “[c]ertain aspects of the present invention include process steps and instructions described herein in the form of an algorithm.” EX1004, ¶32.

L. Claim 11

184. In my opinion, the Elliott renders this claim obvious, alone or in combination with Jacob.

1. [11.pre] A non-transitory computer readable medium tangibly embodying a program of computer executable instructions, the program of instructions comprising:

185. In my opinion, the Elliot-Jacob combination discloses *a non-transitory computer readable medium* (collectively, application distributor 102 and advertising intermediary 104). EX1004, ¶18 (“Application distributor 102 distributes mobile applications provided by application providers 112 to mobile subscribers 110”), ¶13 (“Application distributor 102...distributes both applications and advertisements over a network 108 to a mobile device 110”), ¶27 (“When an application requests an advertisement from application distributor 102, application distributor 102 transmits 304 data to advertising intermediary 104 about which subscriber is using which application...advertisement selection engine 202 of advertisement intermediary 104 selects an appropriate advertisement and transmits 306 the selected advertisement back to application distributor 102” which “then forwards 308 the advertisement to mobile subscriber 110”). Elliott’s application distributor 102 and advertisement intermediary 104 operate under the control of the same entity. EX1004, ¶19 (“Alternatively, application distributor 102 may be the same business entity as advertising intermediary 104”).

2. [11.a] at least one instruction to register a plurality of application programs for use with a content delivery platform, wherein the plurality of registered application

programs are each associated with at least one application program type;

186. In my opinion, the Elliott-Jacob combination discloses this limitation.

§IV(H)(5) (limitation 6.d).

3. [11.b] at least one instruction to establish a plurality of perimeters defining a plurality of geographic areas;

187. In my opinion, the Elliott-Jacob combination discloses this limitation.

§IV(H)(6) (limitation 6.e).

4. [11.c] at least one instruction to maintain at least one record indicating content delivery reservations associating each of a plurality of sponsors with specific registered application program types and at least one of the plurality of geographic areas;

188. In my opinion, the Elliott-Jacob combination discloses this limitation.

§IV(H)(7) (limitation 6.f).

5. [11.d] at least one instruction to receive, from a sponsor, a request to obtain an interest in a selected one of the plurality of geographic areas;

189. In my opinion, the Elliott-Jacob combination discloses this limitation.

§IV(H)(8) (limitation 6.g).

6. [11.e] at least one instruction to provide the sponsor a response to the request;

190. In my opinion, the Elliott-Jacob combination discloses this limitation.

§IV(H)(9) (limitation 6.h).

7. **[11.f] at least one instruction to store a record of the interest in the selected one of the plurality of geographic areas;**

191. In my opinion, the Elliott-Jacob combination discloses this limitation.

§IV(H)(10) (limitation 6.i).

8. **[11.g] at least one instruction to receive, from the sponsor, content to be delivered to registered application programs having target locations contained within the selected one of the plurality of geographic areas;**

192. In my opinion, the Elliott-Jacob combination discloses this limitation.

§IV(H)(11) (limitation 6.j).

9. **[11.h] at least one instruction to receive a request from a registered application program for content to be used within the registered application program;**

193. In my opinion, the Elliott-Jacob combination discloses this limitation.

§IV(H)(12) (limitation 6.k).

10. **[11.i] at least one instruction to select content associated with at least one of the plurality of sponsors, to be delivered to the registered application program of a specific type, in accordance with a content delivery reservation associating the at least one sponsor with a geographic area and a registered application program type; and**

194. In my opinion, the Elliott-Jacob combination discloses this limitation.

§IV(H)(13) (limitation 6.l).

11. **[11.j] at least one instruction to provide the selected content to the registered application program.**

195. In my opinion, the Elliott-Jacob combination discloses this limitation.

§IV(H)(14) (limitation 6.m).

M. Claim 12

196. In my opinion, the Elliott discloses this claim, alone or in combination with Jacob. See §IV(I) (claim 7).

1. **[12.pre] The non-transitory computer readable medium of claim 11, wherein the program of instructions further comprises:**

197. As I explain above, the Elliott-Jacob combination discloses *the non-transitory computer readable medium of claim 11*. See §IV(L) (claim 11).

2. **[12.a] at least one instruction to record a request identifier associated with the request; and**

198. In my opinion, the Elliott-Jacob combination renders this limitation obvious. See §IV(I)(2) (limitation 7.a).

3. **[12.b] at least one instruction to provide the request identifier to the registered application program.**

199. In my opinion, the Elliott-Jacob combination renders this limitation obvious. See §IV(I)(3) (limitation 7.b).

N. Claim 13

200. In my opinion, the Elliott renders this claim obvious, alone or in combination with Jacob. §IV(J) (claim 8).

1. **[13.pre] The non-transitory computer readable medium of claim 12, wherein the program of instructions further comprises:**

201. As I explain above, the Elliott-Jacob combination discloses *the non-transitory computer readable medium of claim 12*. See §IV(M) (claim 12).

2. **[13.a] at least one instruction to receive information related to user interaction with the provided content, the information including the request identifier; and**

202. In my opinion, the Elliott-Jacob combination renders this limitation obvious. See §IV(J)(2) (limitation 8.a).

3. **[13.b] at least one instruction to provide additional content to the registered application in response to the received information.**

203. In my opinion, the Elliott-Jacob combination renders this limitation obvious. See §IV(J)(3) (limitation 8.b).

- O. **Claim 15 - The non-transitory computer readable medium of claim 11, wherein the program of instructions further comprises: at least one instruction to reserve a specific one of the plurality of geographic areas for exclusive delivery of content associated with a particular one of the plurality of sponsors to application programs and having a target location contained within the specific one of the plurality of geographic areas.**

204. In my opinion, the Elliott renders this claim obvious, alone or in combination with Jacob. See §IV(K) (claim 10).

205. As I explain above, the Elliott-Jacob combination discloses *the non-transitory computer readable medium of claim 11*. See §IV(L) (claim 11).

206. Furthermore, the Elliott-Jacob combination discloses this limitation. See §IV(K) (claim 10).

V. GROUND 2 – CLAIM 4, 9, 14 ARE OBVIOUS OVER ELLIOTT IN VIEW OF JACOB AND MUSK

A. Overview of Elliott

207. My explanation of the Elliot reference is above and incorporated here by reference into Ground 2. *See* §IV(A).

B. Overview of Jacob

208. My explanation of the Jacob reference is above and incorporated here by reference into Ground 2. *See* §IV(B).

C. Overview of Musk

209. U.S. Patent No. 6,108,650 (“Musk”) was filed August 21, 1998, and published August 22, 2000. EX1007, cover page. I have been informed that Musk is prior art under 35 U.S.C. §§102(a), (b), and (e) (pre-AIA).

210. Musk is generally directed to a computerized search system for “finding geographic entities, such as an address, street, area, point, business, or list of cities that are located near a given starting point.” EX1007, 1:14-17. The system improves upon “[k]nown search systems [that] typically pre-define the search radius to be used when searching.” EX1007, 1:30-31. Specifically, Musk’s system “provides a method and apparatus for performing an accelerated radius search” that includes generating a first search radius and, “[i]f the first search returns an insufficient number of results, a second search radius is generated by using [a]

heuristic to increase the first search radius, and the second search radius is used to perform a second search.” EX1007, 1:47-57, 3:65-4:5, 4:61-66, 5:20-26, 5:51-56.

211. In my opinion, Musk is analogous art to the ’296 patent because (1) Musk is from the same field of endeavor as the ’296 patent and (2) they are both patents in the area of geographic location systems. In addition, Musk is reasonably relevant to the problem the patent is concerned with, as shown in my analysis below in §V.

212. Based on my review of the ’296 patent’s prosecution history (EX1003), Musk appears to have not been considered during prosecution of the ’296 patent.

D. Motivation to Combine

213. In my opinion, a POSITA would have been motivated to further modify the teachings of the combination of Elliott-Jacob (§§IV(A)-(C)) based on the teachings of Musk (§V(C)) because the Elliott-Jacob combination teaches a distributing content in the form of advertisements to end users based on the end users’ locations and Musk discloses a mechanism for searching geographical regions. A POSITA would have been motivated by the teachings of Musk to implement Musk’s accelerated radius search techniques with the Elliott-Jacob combination’s content delivery methods to better determine whether the user is within a pre-defined distance (e.g., within a radial distance) to a sponsor’s reserved

geographic area. Such a combination involves a simple substitution of one known element (Musk's accelerated radius approach) with other similar elements (*e.g.*, Jacob's means for determining the location of a mobile device) to obtain predictable results (using search radii to determine whether the mobile device is proximate to a sponsor's geographic area). Accordingly, in my opinion, a POSITA would have had a reasonable expectation of success in making the proposed combination given the teachings of Elliott, Jacob, and Musk. Such a combination would have required minimal modifications to the Elliott-Jacob combination to implement Musk's accelerated radius approach, and thus would have been well within the skillset of a POSITA. The proposed combination would not have required undue experimentation and would have yielded a predictable result.

214. If Patent Owner argues the portions of Elliott, Jacob, or Musk cited below relate to different, incompatible embodiments (which they do not), in my opinion, it would have been obvious to a POSITA to combine such embodiments into a single system for providing the ability to deliver advertisements at least because such embodiments are described in the same prior art reference, are fully compatible with each other, and could be combined with minimal effort to achieve predictable results.

E. Claim 4

215. In my opinion, the Elliott renders this claim obvious, alone or in combination with Jacob and Musk.

1. [4.pre] The method of claim 1, further comprising:

216. As I explain above, the Elliott-Jacob combination discloses *the method of claim 1*. See §IV(D) (claim 1).

2. [4.a] determining whether at least one of the plurality of sponsors is associated with a geographical representation lying at least partially within a predetermined radial distance of a target location;

217. In my opinion, the Elliott-Jacob-Musk combination disclose determining whether at least one of the plurality of sponsors (an advertiser) is associated with a geographical representation (geographic location) lying at least partially within a predetermined radial distance of a target location (location of mobile subscriber 110). EX1005, ¶22, ¶¶28-20, ¶36, ¶39; EX1007, ¶1:30-33.

218. Jacob discloses various methods for determining whether a geographical representation lies at least partially within a predetermined radial distance from the location of a mobile device (i.e., *a target location*) including using “geographic coordinates...a triangulated or range data reporting of electromagnetic transmission sites, or other reported position data.” EX1005, ¶22. Jacob’s system converts the communication unit location information to the location attribute format, compares that data with advertiser location attributes, and

sends the location attributes and advertisement to a communications unit if there is a match. EX1005, ¶22, ¶¶28-30, ¶36, ¶39. Musk discloses a well-known technique to determine whether a target, *i.e.*, the mobile subscriber 110, is within a distance of a geographic location in the form of a radial distance. *See, e.g.*, EX1007, 1:30-33 (“Known search systems typically pre-define the search radius to be used when searching. If no match is found, the user must manually increment the search radius by a pre-defined amount and repeat the search”). In my opinion, a POSITA would have understood and found it obvious to modify Jacob’s system to use Musk’s radial distance approach to determine whether a target location (*e.g.*, the location of the mobile subscriber) is within a radial distance (*e.g.*, within the search radius) of a geographic area associated with a sponsor. In my opinion, such a combination involves a simple substitution of one known element (Musk’s radial distance approach) with other similar elements (*e.g.*, Jacob’s means for determining the location of a mobile device) to obtain predictable results (using a search radius to determine whether the mobile device is proximate to a sponsor’s geographic area).

219. Moreover, from my review, the ’296 patent did not purport to invent new location determination technology; instead, “the location of mobile devices, or another target location, can be determined using various suitable methods.” EX1001, 4:8-10. Accordingly, in my opinion, a POSITA would have understood

and found obvious to modify the Elliott-Jacob combination to utilize Musk's search radius approach to determine whether a sponsor's geographical representation lies at least partially within a predetermined distance from the location of a mobile device. §V(D) (motivation to combine).

3. [4.b] in response to a negative determination, increasing the predetermined radial distance.

220. In my opinion, the Elliott-Jacob-Musk combination discloses this limitation. As described above (§V(E)(2) (limitation 4.a), the Elliott-Jacob-Musk combination discloses use of a search radius to determine whether a sponsor's geographical representation lies at least partially within a predetermined distance from the location of a mobile device. Musk further discloses that this radius is automatically increased if the search using the smaller radius returns an insufficient number of results. EX1007, 1:51-57 ("A first search radius is generated based upon the category, and the first search radius is used to perform a first search. If the first search returns an insufficient number of results, a second search radius is generated by using [a] heuristic to increase the first search radius, and the second search radius is used to perform a second search. The search is repeated until a desired results set is returned"), 5:20-26 ("At step 205, the first search is performed using the first search radius. At step 207, if the first search returned an insufficient number of records, a second search radius is generated at 209" and "the minimum search area defined by the minimum search radius is increased to twice the

previous minimum search area”), 5:51-56 (“At Step 211, the present invention uses the Second Search radius to perform a Second Search. Flow control then returns to step 207. If at step 207 the search returns a sufficient number of records, the records are ordered according to the relevance to the user as described above, and the method terminates”). In my opinion, a POSITA would have understood and found obvious to employ Musk’s accelerated radius search that increases the search radius (*i.e.*, radial distance), in order to obtain a sufficient number of results (*i.e.*, greater than zero), responsive to a determination that the search yielded an insufficient number of results (*i.e.*, a negative determination). §V(D) (motivation to combine).

F. Claim 9

221. In my opinion, Elliott renders this claim obvious, alone or in combination with Jacob and Musk.

1. [9.pre] The system of claim 6, wherein the program of instructions further comprises:

222. As I explain above, the Elliott-Jacob combination discloses *the system of claim 6*. See §IV(H) (claim 6).

2. [9.a] at least one instruction to determine whether at least one of the plurality of sponsors is associated with a geographical representation lying at least partially within a predetermined radial distance of a target location; and

223. In my opinion, the Elliott-Jacob-Musk combination discloses this limitation. §V(E)(2) (limitation 4.a). This limitation is substantially similar to

limitation 4.a, however, limitation 9.a recasts the limitation as “at least one instruction.” Elliott discloses and renders obvious implementing its system using instructions—“process steps and instructions of the present invention could be embodied in software” and “[c]ertain aspects of the present invention include process steps and instructions described herein in the form of an algorithm.”

EX1004, ¶32.

3. [9.b] at least one instruction to increase the predetermined radial distance in response to the at least one instruction to determine.

224. In my opinion, the Elliott-Jacob-Musk combination discloses this limitation. §V(E)(3) (limitation 4.b). This limitation is substantially similar to limitation 4.b, however, limitation 9.b recasts the limitation as “at least one instruction.” Elliott discloses and renders obvious implementing its system using instructions—“process steps and instructions of the present invention could be embodied in software” and “[c]ertain aspects of the present invention include process steps and instructions described herein in the form of an algorithm.”

EX1004, ¶32.

G. Claim 14

225. In my opinion, Elliott renders this claim obvious, alone or in combination with Jacob and Musk. See §V(F) (claim 9).

1. **[14.pre] The non-transitory computer readable medium of claim 11, wherein the program of instructions further comprises:**

226. I explain above, the Elliott-Jacob combination discloses *the non-transitory computer readable medium of claim 11*. See §IV(L) (claim 11).

2. **[14.a] at least one instruction to determine whether at least one of the plurality of sponsors is associated with a geographical representation lying at least partially within a predetermined radial distance of a target location; and**

227. In my opinion, the Elliott-Jacob combination discloses this limitation.
See §V(F)(2) (limitation 9.a).

3. **[14.b] at least one instruction to increase the predetermined radial distance in response to a negative determination.**

228. In my opinion, the Elliott-Jacob combination discloses this limitation.
See §V(F)(3) (limitation 9.b).

VI. SECONDARY CONSIDERATIONS

229. I am not aware of any relevant information related to secondary considerations. For example, I am not aware of any attempt to commercialize the claim technology in a product or through licensing. To the extent Patent Owner comes forward with any such information, I will consider it.

VII. RIGHT TO SUPPLEMENT

230. I reserve the right to supplement my opinions in the future to respond to any arguments that the Patent Owner raises. This declaration represents only those opinions that I have formed to date. I reserve the right to revise, supplement,

and/or amend my opinions stated herein based on new information that becomes available to me and only my continuing analysis of the materials already provided.

VIII. CONCLUSION

231. I may utilize the documents cited and/or listed herein, or portions of those documents, as exhibits at any hearing or trial in this proceeding. I may further prepare and use exhibits that summarize portions of my testimony or key terms or concepts presented therein, or other demonstrative exhibits, at any hearing or trial in this proceeding.

232. I reserve the right to supplement my testimony and this report in response to any judicial determinations, in response to the arguments expressed by the Patent Owner or the opinions of the Patent Owner's experts in this proceeding, and/or in light of additional evidence or testimony brought forth at trial or otherwise brought to my attention after the date of my signature on the cover page.

APPENDIX 1

David Hilliard Williams

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Expertise

- Location-Based Services (LBS)
- GPS Systems; Network-Based Location Determination Systems
- Wireless 911 (E911); NG911 Technology, Processes, Operations, and Funding
- Internet of Things (IoT); Edge Computing; Real-Time Location Systems (RTLS)
- Non-Cellular/Indoor/Sensor-based Location Systems, including: RFID, Wi-Fi/WPS, BLE/Bluetooth, Beacon-based RTLS; NFC/DSRC; RF Fingerprint systems; Wearable systems; Hybrids/Combinations
- Expert Witness Litigation Support, Patent/Intellectual Property Services
- GPS/Cell phone Criminal and Civil Matter Forensics, using CDRs, RTT, PCMD, NELOS, EVDO, Geotab, Paraben, CellHawk, and Cellebrite
- Accident/Incident Reconstruction
- Internet of Things (IoT) Ecosystem (Sensors, Identification, Verification, Authentication, Interfaces, Edge, Network, Cloud, Data Network Management, Data Management, Analytics, Network Topologies, Integration)
- Location & IoT Data Privacy and Security; Location Sharing Policies, Systems/Methods; Device/User ID, Verification, Authentication
- Sensor Design; Sensor System Architecture and Interface Design; Sensor Arrays
- Wireless Communications Standards, e.g. Bluetooth/BLE, Zigbee, Wi-Fi, WPAN, etc.
- Microcontroller Design, Sensor Controls Design, IoT Design/Systems Integration
- Channel, Bandwidth Management; Network Design; Path Loss Management
- Location Data Aggregation, Anonymizing
- LIDAR/Radar Data Sourcing; Crowdsourcing
- Indoor Positioning & App Ecosystem Design
- Short/Longer-range Positioning Technologies
- LBS and IoT Enterprise/Consumer Product & Technical Strategy, Design and Buy/Build
- Mobile Devices/Systems Power Management
- Artificial Intelligence (AI), Machine Learning, Virtual/Augmented Reality in Mobile Apps
- Internet of Things (IoT), Cellular IoT (LTE-M, NB-IoT), LAN/PAN (WiFi, BLE), LPWAN (Sigfox, LoRaWAN, Mesh (Zigbee, RFID), Consumer/Industrial/Commercial/Govt. IoT
- Home, Office, and Industrial Automation System Design and Integration; Control System Design, including Remote Management, Monitoring, and Control; User Interface Design (visible, audible, tactile, virtual, augmented, context-sensitive, GUI-based, directional, wearables, implants, holographic, others)
- Health, Wearables Monitoring & Tracking
- Safety and Security, Surveillance Systems, Home Energy Management Systems
- Smart Card/Wallet/Purse, Contactless Payment Systems (e.g. Google Pay); SEs.
- Mobile Resource Management (MRM) Tracking and Management; Vehicle, Drone, Fleet/ELD/AOBRD, Worker/Driver, and Freight/Trailer & Asset Tracking/Mgmt.
- Telematics; ITS, Vehicle/Engine/ECM, PGN/SPN Tracking/Monitoring, V2V, V2I, V2N, Vehicle Communications Networks and Operating and Analytics Ecosystems including SAE standards (J1939, CAN, etc.)
- Connected Cars/Autonomous Vehicles (AV)
- Navigation Systems; PNDs; Geofencing; Route Optimization; Infotainment Apps/Interfaces
- Location-Based/Related Media (eg Ads, Video)
- Map Data, Digital Mapping, Media/Advertising Interfacing/Management, GIS, & IoT IT
- Mobile Social/Business Networking
- Location/Context-Centric (Re)engineering
- Identifier-based Authentication, Verification
- SMART location, Home, Wearables; SMART Buildings, Cities; All forms of location-related alerts, notifications, alarms; Barcodes, QR Codes
- Context/Presence-Based LBS and IoT; AI-based context determination and utilization
- M2M, Smart Grid/Energy Systems
- Engineering, Network, and IT Process Design and Organizational Capabilities Assessment
- LBS Big Data and Cloud Computing
- Blockchain and Cryptocurrency—Mobile Apps

Professional Summary

David Hilliard Williams is an internationally-known expert in the wireless/mobile location and Internet of Things (IoT) fields and President and Founder of E911-LBS Consulting and E911-LBS Forensics Engineering, LLC. He specializes in wireless and IoT-based product and technology development and implementation, as well as Intellectual Property (IP)/patent and forensics litigation services involving technologies such as Global Positioning Satellite (GPS) systems; Network-based location determination technologies such as TDOA, ECID, and AFLT; Wireless 911 (E911) and Next Generation 911; Real-Time Location Systems (RTLS) including Radio Frequency Identification (RFID) systems, Wi-Fi-based positioning systems (WPS), BLE/Beacon-based location systems, Bluetooth, Near Field Communications (NFC), and alternative RTLS (Ultrasound, Infrared); Wearable Tags/Sensor tracking systems; Zigbee/Mesh networks; Pattern Matching; and various hybrids and combinations, as well as a broad array of IoT sensors and other systems, network (wireline and wireless, all generations), user interface, and technology enablers for management, monitoring, tracking, and control purposes, including in remote control/distributed ecosystems and associated use cases.

Mr. Williams is expert in the full range of business and consumer location-based services (LBS) and IoT applications enabled by these technologies, including safety, security, and intruder detection/monitoring, energy management, vehicle/fleet tracking/management, telematics and vehicle/engine/component/driver monitoring and analytics, local search, navigation systems, presence/context-aware apps, mobile resource management, asset and freight management, wearable tags/sensors, financial/mobile wallet, mobile hospitality/POS systems, supply chain management, family tracking, mobile social and business networking, proximity-based entertainment and leisure, gaming, and intelligent transportation systems.

Mr. Williams has extensive expertise in all aspects of LBS and IoT delivery across the mobile and IoT ecosystems including enabling sensors, network communications, location determination technologies, geofencing design, map data, location data/database management, geospatial platform/Geographical Information Systems, GPS and other chipsets, data management, control system design, remote management/utilization of such control systems, and device, infrastructure and integration provider integration and management. Mr. Williams has developed and implemented industry-leading product and technology solutions for numerous LBS and IoT applications and markets and provides consulting and research services to some of the leading carriers and enterprises in the U.S., Asia, and Europe. His client list includes Apple, AT&T, BJ's Wholesale Club, Draft Kings, Ecobee, Ericsson, FedEx, GE, Geotab, Green Mountain Grill, Google, Heil, the Houston Police Department, HP/Aruba, Hyundai, the L.A. County District Attorney's Office (both prosecution and Public Defender offices), Lyft, Macropoint, Motorola, Nextel, NAVTEQ, Overhead Door, Peschke, Prova, Qualcomm, Samsung, Snap, Sprint, Target, Tegriss, Toyota, Twilio, Uber, Verizon Wireless, VIVINT, Volkswagen, Zillow, and ZIM.

Mr. Williams has successfully served as an expert for plaintiffs, prosecutors and defendants in patent, ITC, and criminal litigation (including assisting State Public Defender entities including California, Florida, Maryland, New York, and Tennessee), as well as both sides of civil trade secrets, product liability, fraud, and other litigation. He has been deposed over 40

times in approximately 70 matters, and has testified 14 times, including [successfully](#) in The Eastern District Court of Texas (winning both infringement and invalidity matters), and in [winning](#) in ITC Court. He has also testified in criminal court, such as State of Texas v. Salomon Campos Jr., and State of Tennessee v. David Swift, winning on behalf of the defendants. **In total Mr. Williams has provided expertise in matters involving over 225 patents and over 50 criminal and civil matters**, including homicide, arson, contract issues, trade secrets, and product liability, with well over 100 reports filed with the PTAB. His credentials in wireless/mobile/IT technologies and associated applications, infrastructure, systems, and enablers are established to the 1980s. Mr. Williams has testified in a variety of district and state courts, before the ITC, and internationally (Canada, Trinidad & Tobago).

Mr. Williams is expert in smart location technology issues in the Internet of Things (IoT), telematics, and connected/driverless car fields, particularly in their utilization of sensor, location and context information through the practical envisioning and design of: consumer/enterprise use matters and associated application and user interface design; sensor design and deployment strategies; process (re)engineering; IT integration; data aggregation, segmentation, analysis, and management; scalability; and security and privacy issues, requirements, collaboration structures, and ongoing management.

Further, Mr. Williams is expert on Big Data, data mining/analytics, the use of Machine Learning and Artificial Intelligence issues associated with location, context and IoT data, as well as its potential usage in the criminal forensics field. Nine (9) of Mr. Williams patents utilize machine learning, digital agents, and artificial intelligence, including some utilizing virtual reality and augmented reality, as well as blockchain and cryptocurrency enablers.

With over forty (40) years in location, networking/communications, control, and information technology solutions design, selection, implementation and ongoing management, Mr. Williams has extensive experience in the activities and issues needed to get applications to market, including planning and design at the application, system, interface/integration, network, IT, operational and customer facing levels. He has been published and quoted by leading magazines and newspapers about mobile services, including The New York Times, CBS News.com, The Columbus (Ohio) Dispatch, The Boston Globe, Computerworld, Directions Mag, Mission Critical Communications, Popular Mechanics, and RFID Journal. Mr. Williams has authored five books on wireless location, including *The Definitive Guide to IoT Sensors (In Development)*, *The Definitive Guide to GPS, RFID, Wi-Fi, and Other Wireless Location-Based Services (two versions, third in development)*, *The Definitive Guide to Wireless E911*, and (co-authored) *The Definitive Guide to Mobile Positioning and Location Management*. Mr. Williams has authored dozens of research reports, and tracks and analyzes leading companies in the LBS, IoT, and public safety industries particularly with respect to their product and technology strategies, competitive capabilities and implementation issues. He is expert on all public policy and technology issues related to emergency services/public safety, location data privacy and security, and LBS and IoT privacy protection policies, systems, and support infrastructure. He opines on location privacy issues in various forums. He is the sole or named inventor on ten (10) patents, with several more pending, involving mobile location and context, sensors, IoT, and various other technologies and associated methods, including artificial intelligence, digital agents, and machine learning.

Employment History

From: 2002 **E911-LBS Consulting; E911-LBS Forensics Engineering (2015+)**

To: Present

Position: *President and Founder*

Provides services across the entire wireless value chain, particularly with respect to technology and business strategic planning and product design, development, implementation, and ongoing management and operations, plus specialized services such IP/Patent litigation associated with Location Based Services and applications, GPS, E911, IoT, RTLS, RFID, Wi-Fi, NFC, BLE/Bluetooth, beacons, & other location technologies and associated ecosystems. Projects include:

- Provided expert witness, technical consulting, and research analysis services with respect to location-based services-related intellectual property/patent protection, licensing, and litigation (details in separate litigation support section).
- Provide forensics expertise in examination of mobile location-related events and associated data for civil and criminal matters (both prosecutor/plaintiff and defense entities). For example, served as mobile location communications networks and computer design expert in State of Tennessee vs. David Swift.
- Developed, implemented, managed, and marketed a portfolio of LBS applications and broader offers for leading North American wireless carrier. Responsible for all dimensions of product lifecycle and associated budgets. Work included the development and launch of several LBS applications including mobile social networking, family tracking, local search, 411 w/ location, and mobile worker, fleet, and asset management. Location technologies utilized include GPS, Wi-Fi positioning, RFID, Bluetooth, Cell ID (CID), ECID, and TDOA. Worked extensively with network engineering to troubleshoot/refine new location-determination infrastructure to address/improve location accuracy, privacy and security issues.
- Conducted geofencing accuracy compliance analysis for ride-sharing company auditing their driver airport compliance record. Involved extensive use of JSON/GeoJSON records.
- Conducted comprehensive technical and intellectual property analysis of Real-Time Location Systems (e.g. RFID, Wi-Fi Positioning, Bluetooth, Infrared/Ultrasound, Others) market for European client looking to assert location-related patents.
- Provided technical guidance for mobile payments/wallet startup

utilizing RFID, NFC and other technologies as key location enablers. Identified key issues and redeveloped successful patent application after initial USPTO rejection.

- Conducted technical and intellectual property analysis for Fleet Management/Telematics operator and service provider assessing potential infringement candidates.
- Conducted market research and developed market research on Telematics industry, both overall as well as tailored for specific auto manufacturers.
- Conducted analysis of location aggregation market for client interested in acquisition in that industry space.
- Ghost-wrote comprehensive study on Traffic data collection, processing, and reporting technologies, markets, and associated companies on behalf of ABI Research.
- Provided E911 consulting expertise in support of new spectrum regulatory approval and technical implementation issues for startup carrier.
- Managed the design, collection, and analysis of E911 infrastructure deployment of western region of major wireless carrier. Data collected focused on technical issues associated with TDOA (Time Difference of Arrival) technology implementation, and collection and reporting of location accuracy data for FCC reporting purposes.
- Developed the site map and primary content for the NAVTEQ (now HERE) Network for Developers (N4D) LBS web ecosystem – <http://developer.navteq.com>. Responsible for designing and managing the site map and overall content, identifying key contributors and materials, and utilizing a variety of fragmented information to develop broad and deep technical, digital media and business content to assist various expertise levels of application developers and business management to become intimately familiar with map data, GIS platforms, and LBS applications and underlying technologies and to provide the information and guidance to successfully develop and launch their LBS applications.
- Managed the development of the Nextel (now Sprint/T-Mobile) Location-Based Services strategy. Efforts included market and technical analysis of likely LBS offerings and integrating those findings with Nextel's broader wireless voice and data

strategies. Work included prioritizing applications based on focus group findings, business matter attractiveness, ease of implementation, impact on network infrastructure, and synchronization and integration with GPS terminal and E911 mandate rollout plans. Managed network engineering and consulting team to design network modifications to best support the additional demands of LBS applications and underlying bandwidth-consuming digital media content. Product strategy including researching and incorporating context-aware/presence concepts into product/device and network engineering plans.

- Developed navigation platform strategy for major international auto manufacturer. Assessed direction and technology requirements of in-car and portable navigation device (PND) technologies; developed strategy for in-car navigation platform.
- Developed numerous LBS company research reports using proprietary multi-point “report card” addressing numerous business and technology strategy dimensions and issues.
- Authored multiple books on wireless location, including *The Definitive Guide to IoT Sensors and IoT Use Cases (In Development)*, *The Definitive Guide to GPS, RFID, Wi-Fi, and Other Wireless Location-Based Services (2005/2009 versions, new version in development)*, *The Definitive Guide to Wireless E911*, and (co-authored) *The Definitive Guide to Mobile Positioning and Location Management*.
- Advised numerous small companies and startups such as i360Hygiene, LOCAID, Finder Technologies, Orion GPS, and XYVerify on LBS-related issues to enhance value propositions on business, product and technology dimensions to enhance attractiveness to potential investors/acquisition candidates.

From: 2009 **AT&T Mobility**

To: 2010

Position: *Senior Product Manager – Enterprise LBS*

Led the development, implementation, and marketing of numerous enterprise location-based services across all sales, marketing and operational channels. Work included responsibility for all dimensions of product lifecycle and associated budgets. Products managed included telematics, fleet/vehicle management, asset/freight management, and mobile resource management GPS/LBS apps on a variety of platforms such as Telenav. Played key role in design of company-wide location services product and implementation roadmap.

From: 2007 **AT&T Mobility**

To: 2009
Position: *Consumer LBS Product Realization Manager (Consultant)*
Responsible for the design, development, implementation, and ongoing lifecycle management of several high-profile Consumer LBS applications and associated operational support. Overall application design and implementation responsibilities included AT&T FamilyMap, Loopt Mobile Social Networking, 411 with location, Slifter Local Search, and CaddyHawk Game systems. Work included design, troubleshooting, and implementation of AT&T location-related network, application, user interface, digital media and content delivery, and privacy infrastructure and associated issues such as accuracy and privacy (efforts resulted in patent co-invention).

From: 1993 **Accenture**
To: 2002
Position: *Associate Partner - Communications & High-Technology Strategy; Information & Technology Strategy practices*
Responsible for development of wireless location practice. Led development of business, technology, and product strategies for numerous communications and technology-centric companies looking to enter new markets. Specialized in new product design, development, and implementation, as well as network infrastructure design need to support next generation, high bandwidth-consuming digital media content and associated infrastructure. Efforts included assisting AT&T (re)enter local service, (then) Bell Atlantic launch long distance services, (then) GTE design and implement Intelligent Network and High Value Network services, Nextel (later part of Sprint, and now T-Mobile) develop their location-based services product strategy and enabling network and IT architectures, and Omnipoint (later part of T-Mobile) network integration strategy, as well as leading the design and implementation of voice and data communications networks and associated data management capabilities in numerous industries including communications, computer, transportation, hospitality/retail, energy, agriculture, and banking/financial services. Worked with utilities such as Ameren, Georgia Power, and Duke Energy to identify strategic opportunities utilizing technology and communications in utility-associated infrastructure and other capabilities.

From: 1991 **Booz Allen & Hamilton**
To: 1993
Position: *Senior Associate – Information Technology Practice*
Provided and led consulting services for communications industry and other Information Technology-intensive companies in developing technology strategies for addressing new marketing opportunities and internal operational issues.

From: 1987 **Deloitte Consulting (Originally Touche Ross)**

To: 1991
 Position: *Senior Manager*
 Provided consulting services for technology-intensive companies in developing business and product strategies for addressing new marketing opportunities and internal operational issues.

From: 1983 **Hughes Aircraft Company**
 To: 1985
 Position: *Electrical Engineer – Radar Development*
 Microcomputer and digital system design engineer on the F-15 fighter radar system as part of analog to digital platform conversion and associated tracking and control systems design. System involved designing multi-microprocessor-based system to interface to/with wide array of on-board, ground control, and other in-flight communications/control sensors/sensor arrays and systems.

Litigation Support Experience

Date: 2019-2025 **Lynch Thompson LLP**
 Matter: Heil
 Project: Providing technical/engineering expertise in trade secrets matter involving Internet of Things (IoT), RFID, Telematics, Vehicle Sensors, & Big Data for waste vehicle manufacturer. Report and Deposition.

Date: 2024-2025 **Percy Squire Co. LLP**
 Matter: Peters Broadcasting Engineering
 Project: Providing consulting and communications engineering expertise in breach of contract suit involving construction of cell towers. Report.

Date: 2024-2025 **Ellis & Winters**
 Launch Labs
 Provided expert consulting and expertise in IPRs involving advertising-related identifiers in a variety of media. Report.

Date: 2024 **Tesser Grossman LLP**
 Matter: Matthew Patterson
 Project: Provided expert consulting, analysis, and expertise in trade secrets arbitration matter regarding truck stop mobile and backend systems. Report and Deposition.

Date: 2023-2024 **Multiple**
 The Tradition
 Provide expertise in analyzing location records in serial murder-related civil cases. Report.

Date: 2019-2024 **Law Offices of Ernesto Gamez, Jr., P.C.**
Matter: State of Texas vs Salomon (“Sonny”) Campos, Jr.
Project: Provided cell phone and Google Timeline forensics analysis on behalf of person accused of homicide. Testimony.

Date: 2023-2025 **Fisher Broyles**
Matter: Tegriss
Project: Providing expert analysis and declarations for Patent Owner of innovative system for life safety-related equipment inspections, testing, and maintenance facing IPR before the PTAB. Report and Deposition.

Date: 2023-2024 **Baker Botts**
Matter: Motorola
Project: Providing expert support, analysis, and declarations for IPR matter involving prioritization of communications messages in overtalk and similar situations. Report and Depositions (2).

Date: 2022-2025 **Spragins, Barnett & Cobb**
Matter: State of Tennessee vs. David Swift
Project: Provided expert consulting, analysis, and testimony in murder and related charges case. Provided both mobile phone and computer-related forensics analysis of victim and accused. Found Not Guilty in murder-related charges (other charges dismissed). Testimony.

Date: 2022-2025 **James Denison**
Matter: UTTO
Project: Providing expert consulting, analysis, and declaration for matter involving underground location determination. Report and Deposition.

Date: 2021-2025 **Wittels Law**
Matter: Various Employees vs. NY Paving
Project: Providing Telematics/GPS/location-related expert consulting, analysis, and reports for class employment-related case regarding underpayment of hours worked. Report and Deposition.

Date: 2023-2025 **Baker Botts**
Matter: Tile
Project: Providing expert consulting, support, analysis, declarations, and testimony for IPR matter for patent involving systems and methods for finding lost or stolen property. Report, Depositions (2) and Testimony.

Date: 2023-2025 **Buchanan**
Matter: Google
Project: Providing expert consulting, support, and declarations for 6

patents/4 groups involving indoor/outdoor location, signal strengths, RF fingerprinting and grid point analysis; use of network calibration data in location determination; and incorporating path loss with calibration, fingerprinting, and location determination. Reports and Depositions.

Date:	2023	Greenberg Traurig, LLP
Matter:	Hyundai	
Project:		Provided expert consulting, support, and declarations regarding 3 IPR matters involving technologies associated with service information about/using external registration destination facility(s), map sizing and scaling, and navigation services involving waypoints, and route guidance.
Date	2023	Jenner & Block LLP
Matter:	Uber	
Project:		Provided expert consulting, support, and declarations for matter involving Taxi/ride sharing systems and methods. Report.
Date:	2022-2023	Vorys
Matter:	BJ's Wholesale Club	
Project:		Provided expert consulting, support, and declarations for matters involving location-related in-store ordering, fulfillment, and customer service aspects of e/m-commerce services. Report and Deposition.
Date:	2023	Finnegan, Henderson, Farabow, Garrett & Dunner, LLP
Matter:	Google	
Project:		Provided expert consulting, support, and declaration work involving using video to direct users to points of interest. Report.
Date:	2023	Wilson Sonsini
Matter:	Rocateq	
Project		Provided expert consulting, support, and declaration work involving geofencing and connected shopping cart technology and applications IP.
Date:	2023	Finnegan, Henderson, Farabow, Garrett & Dunner, LLP
Matter:	Google	
Project:		Provided expert consulting, support, and declarations for IPR matters involving directions, video, smartwatches, and wearables/spatial orientation detection. Report.
Date:	2023	Foley & Lardner LLP
Matter:	VIVINT	
Project:		Provided expert consulting, support, and declaration for IP matter involving location-based home monitoring. Report.

Date:	2023	Baker Botts
Matter:		Textron
Project:		Provided expert consulting, support, and declaration for IP matter involving geofencing techniques. Report.
Date:	2022-2023	Kilpatrick Townsend & Stockton LLP
Matter:		Apple
Project:		Provide expert consulting, support, and reports for IPRs, invalidity and non-infringement proceedings involving eight (8) patents involving sharing of location information between multiple devices for a variety of use cases. Six IPRs instituted. Reports and Depositions (2 depositions covering 6 IPRs).
Date:	2022-2023	Venable LLP
Matter:		Verizon Wireless dba Cellco Partnership
Project:		Provide expert consulting, support, and declaration for IPR matters involving georeferencing and messaging techniques. Reports.
Date:	2022-2023	Hall Griffin
Matter:		Ben's Asphalt
Project:		Provided technical expertise in assessing technical aspects of telematics breach-of-contract lawsuit.
Date:	2022-2023	Wolf, Greenfield & Sacks, P.C.
Matter:		Snap
Project:		Providing expert consulting, support, and report for IPR matter involving social-based location, mapping, matching, and display technologies. Report and Deposition.
Date:	2022-2023	Dreifuss Bonacci & Parker
Matter:		Pacific Controls Inc.
Project:		Providing expert consulting, report, and testimony in regards to contractual dispute between Telematics Service Provider and equipment manufacturer. Report, Deposition and Testimony.
Date:	2021-2022	Greenberg Traug
Matter:		HP Enterprises, Aruba
Project:		Providing expert consulting, report, and testimony in support of non-infringement and invalidity analysis in EDTX matter involving beacons/beaconing technologies, methods, and associated systems. Reports and Depositions (2).
Date:	2021-2023	Keker, Van Nest & Peters LLP
Matter:		Google, Ecobee, and VIVINT (v. Ecofactor) (WDTX)
Project:		Provided/ing expert consulting, report, and testimony in support of invalidity analysis involving HVAC remote monitoring and control

and associated sensors, systems, and communications capabilities.
Report, Deposition and Testimony.

Date:	2021-2022	Baker Botts
Matter:		Lyft (multiple matters)
Project:		Providing expert consulting, support, and report for matters involving location-related applications technologies including GPS, Bluetooth, Wi-Fi positioning, RFID, and road sensors/readers. Reports and Depositions.
Date:	2022	Winston & Strawn LLP
Matter:		ZIM Integrated Shipping
Project:		Provided expert consulting in EDTX invalidity and non-infringement case involving method and apparatus for shipping information patents.
Date:	2020-2021	Lowe Graham Jones
Matter:		Green Mountain Grill (IoT Connected Grill) (ITC Court)
Project:		Provided expert consulting, report, and testimony in ITC case involving Internet of Things (IoT), remote monitoring and control, cloud services, and various short-range communications technologies. Involves non-infringement, DI, Invalidity, and Inventorship. Report, Deposition and Testimony.
Date:	2021	Munger, Tolles & Olson LLP
Matter:		Google
Project:		Provided expert consulting and support for EDTX matter involving invalidity/non-infringement of smart cards and payment systems and associated capabilities such as Secure Elements.
Date:	2021	Jackson Walker L.L.P.
Matter:		Prova
Project:		Provide expert consulting, support, and report for IPR involving buyer verification/tracking and inventory management/tracking utilizing RFID technology.
Date:	2020-2023	Latham & Watkins LLP
Matter:		Overhead Door (OHD-Garage Door Manufacturer) (ITC Court)
Project:		Provided expert consulting, report, and testimony in ITC case involving Internet of Things (IoT), remote monitoring and control, and various short-range communications technologies. Report, Deposition and Testimony in ITC court. Support in Customs and Enforcement.
Date:	2020-2021	Ropes & Gray LLP
Matter:		Target
Project:		Providing expert consulting, support, and report for IPRs for

several patents involving short-range communications technologies and associated identification and location determination methods and techniques including Bluetooth, RFID, and Wi-Fi. Reports and Depositions seven (7) involving nine (9) patents.

- Date: 2020-2022 **Baker Botts**
Matter: Draft Kings
Project: Providing expert consulting, support, and report for IPRs for several patents involving validating gaming customers location in appropriate online gaming jurisdictions/geofencing. Reports and Depositions (2)
- Date: 2020 **Baker Botts**
Matter: Lyft
Project: Provided expert consulting, support, and report for IPRs involving Intelligent Transportation systems, geofences, and location technologies including GPS, Bluetooth, Wi-Fi positioning, RFID, and road sensors/readers. Report and Deposition.
- Date: 2020-2023 **Finnegan & Henderson**
Matter: Google (multiple)
Project: Providing expert consulting, support, and reports for IPRs involving user experience sharing, software registration, and device/user tracking involving a variety of location technologies.
- Date: 2018-2020 **Lawgivers (Trinidad and Tobago)**
Matter: A&V Oil and Gas
Project: Provided expert support, report, and testimony in arbitration matter involving government of T&T. Focused on (in)accuracies of GPS-based vehicle tracking system relative to a variety of key events. Report, Testimony at trial.
- Date: 2019-2020 **Perkins Coie**
Matter: Zillow
Project: Provided expert support, report, and deposition for non-Infringement matter for major real estate services firm and associated subsidiaries involving a wide array of location determination technologies on smartphones. Report and Deposition.
- Date: 2019-2020 **Baker Botts**
Matter: Lyft
Project: Provided expert support, report, and deposition is support of Claim Construction brief associated with non-infringement matter.
- Date: 2016-2021 **Sterne Kessler Goldstein Fox**
Matters: Google (Multiple matters); Google (Nest, Multiple matters)
Projects: Providing expert support, reports, and deposition for several IPRs

of location/context-related patents on behalf of leading Internet services company utilizing a wide variety of communications and location technologies. Reports and Depositions.

Date: 2013, 2019/2020
 Projects: **XYVerify (3)**
 Patent Re-Submission and Approval; Patent Application Creation (Re)wrote patent applications for LBS/financial verification system using multiple location determination methods including RFID, Bluetooth, WPS, and GPS. Efforts enabled patents to be approved after initial rejection by USPTO.

Date: 2013-2025
 Matters: **Civil and Criminal Forensics**
 Project: Various
 Provided/Providing cellphone, vehicle/telematics, specialty device, and computer-based location forensics expertise in over 50 criminal and civil matters involving numerous location determination technologies and associated applications and systems. Criminal matters include homicide, attempted murder, assault (multiple types), arson (building and land), armed robbery, breaking and entering, assault (various types), and property crime. Civil matters include trade secrets, product liability, accident liability, fraud, breach-of-contract disputes, and employment matters.

Applications/Platforms for criminal and civil forensics analysis include cellular records, 911 records, Facebook/Instagram/Messenger/social media apps, Google/search, Google tracking apps (e.g. Timeline, others), vehicle tracking systems, specialty GPS (e.g. GPS ankle bracelets, specialty devices) surveillance and safety systems, smart home systems, aviation, vehicle infotainment systems, and connected cars, Expert/knowledgeable in numerous forensic technologies, tools, and accident/incident reconstruction methods including CDR, NELOS, PCMD, RTT, EVDO, Cellebrite, Paraben, Google Earth/Timeline, and Hawk Analytics/CellHawk, as well as specialized knowledge on iOS and Android smartphone location determination techniques and data collection, analysis, and management of all types including KML/KMZ, (Geo)JSON, CSV, (E)WKT/WKB, Shapefile, ESRI, and other GIS vector/raster systems, technologies, formats, and models.

Date: 2019
 Matter: **Sterne Kessler Goldstein Fox**
 Project: Volkswagen
 Provided expert support for IPR involving Location-Based Messaging in automotive related use matter/environments.

Date: 2017-2018
 Matter: **Finnegan & Henderson**
 Project: Fed Ex
 Provided expert support, consulting, reports, deposition, and trial

testifying for infringement and district court invalidity proceedings on behalf of leading transportation/shipping company in The Eastern District Court of Texas. Report, Deposition and Testimony.

- Date: 2017-2018 **Polsinelli**
Matter: Uber
Project: Provided expert support and reports for Trade Secrets matter involving major shared transportation provider. Report.
- Date: 2017-2018 **Renner Otto**
Matters: Macropoint; Timekeeping Systems Inc.
Projects: Providing consulting, expert services, report and deposition in invalidity matters for transportation and employee tracking patents. Report.
- Date: 2016-2018 **Paul Hastings**
Matters: Samsung (2 matters)
Project: Provided expert services for Inter Partes Review (IPR) of multiple location, safety, and security patents on behalf of major telecommunications equipment and services provider.
- Date: 2016-2017 **European Firm**
Matter: Patent Infringement/Claim Chart Analysis
Project: Provided consulting, market analysis, and claim chart development for patent holder involving RTLS-related repeater technologies, particularly using WPAN/Zigbee networks.
- Date: 2016-2017 **Baker Botts**
Matter: Twilio
Project: Provided location/E911-related expert services, report, and deposition for IPR of mobile registration patent on behalf of Voice & Video, Messaging, and Authentication APIs provider. Consultation on Report, Deposition
- Date: 2016 **Los Angeles District Attorney's Office**
Matter: People v. Dawud Abdulwali
Project: Provided expert services on location technologies used to identify and trace accused arsonist on behalf of L.A. District Attorney's (Prosecutors) office. Report.
- Date: 2016-2017 **Fitzpatrick, Cella, Harper & Scinto**
Matter: Geotab
Project: Providing expert support, reports, and deposition for infringement defense of multiple asserted patents on behalf of fleet management/telematics provider in EDTX. Report and Deposition.
- Date: 2015-2016 **The Ogg Law Firm PLLC**

Matter:	City of Houston Police Department
Project:	Provided expert services/testimony regarding veracity of Automatic Vehicle Locator (AVL) systems in officer suspension matter. Report and Testimony.
Date:	2015-2016
Matter:	Sterne Kessler Goldstein Fox
Project:	VIVINT Providing expert support, reports, and deposition for IPR involving several location-related patents for home security/energy company. Report and Deposition.
Date:	2015
Matter:	Hogan Lovells
Project:	Apple Provided expert support for multiple location-related patent Inter Partes Review (IPR) and infringement proceedings for leading mobile platform, application and services provider.
Date:	2015
Matters:	Thompson Hine LLP
Project:	Macropoint Provided expert support for patent litigation efforts involving fleet management devices, software, and services. Report and Report and Deposition.
Date:	2013-2014
Matter:	Williams & Connolly
Project:	State of Maryland Provided expert services in assessing validity of GPS tracking bracelet/system in parole violation matter. Report.
Date:	2013-2014
Matter:	Cravath, Swaine & Moore
Project:	Qualcomm Provided expert litigation support, technical consulting, and advisory services in Anti-Trust matter regarding location services technologies, platforms, and standards.
Date:	2014
Matter:	Patterson Thunete Pedersen, P.A.
Project:	Kaspersky Internet Security Provided expert litigation support and technical consulting in patent countersuit involving internet security services. Report.
Date:	2014
Matter:	Sullivan & Cromwell LLP, others
Project:	Peschke Provided expert support and technical consulting in location services infringement patent dispute involving interactive mapping applications. Report and Deposition.
Date:	2012-2013
Matter:	Covington & Burling
	Samsung (ITC Court)

Project: Provided expert litigation support and technical consulting and advisory services in International Trade Commission matter.

Date: 2011-2013 **Connolly Bove Lodge & Hutz**
Matter: Enovsys
Project: Provided expert litigation support and technical consulting and advisory services for pursuit of LBS patent royalties and infringement settlements.

Date: 2011-2013 **Voxson**
Matters: Various
Project: Provided expert litigation support and technical consulting and advisory services for pursuit of E911 and LBS patent infringement royalties and settlements.

Date: 2010-2012 **Morrison & Foerster LLP**
Matter: Cellco Partnership (dba Verizon Wireless)
Project: Provided expert advisory and report services in support of IPR re-examination process of E911 and LBS patents. Reports.

Date: 2011-2012 **Dovel & Luner**
Matter: TrackBeam
Project: Provided market/technical consulting, expertise and research analysis of LBS patents to identify potential licensing candidates.

Date: 2011 **SNR Denton**
Matter: Wavemarket
Project: Provided market and technical consulting and advisory services for defense of LBS patent lawsuits.

Date: 2010 **State of New Jersey**
Project: Provided wireless location consulting expertise in development of economic growth strategy for State of New Jersey.

Date: 2007-2008 **General Electric**
Project: Provided consulting research and guidance on LBS and E911 technology, GE-owned patents, prior artwork, technology direction.

Education

<u>Year</u>	<u>College/University</u>	<u>Degree</u>
1987	The University of Texas at Austin (1 st in graduating class)	MBA, Information Systems Management
1983	Purdue University, West Lafayette, Indiana (Top honors; Tau Beta Pi, Eta Kappa Nu)	BSEE, Digital System Design emphasis

Patents

- "Method and apparatus for providing mobile social networking privacy." (U.S. Patent Number 8,613,109, issued on December 17, 2013).
- "Systems and methods of using wireless location, context, and/or one or more communication networks for monitoring for, preempting, and/or mitigating pre-identified behavior." (U.S. Patent Number 10,477,342, Issued November 12, 2019).
- "Systems and methods for monitoring for and preempting pre-identified restriction violation-related behavior(s) of persons under restriction." (U.S. Patent Number 10,497,242, Issued December 3, 2019).
- "Systems and methods for providing location-based security and/or privacy for restricting user access." (U.S. Patent Number 10,555,112, Issued February 4, 2020).
- "Systems and methods for developing, monitoring, and enforcing agreements, understandings, and/or contracts." (U.S. Patent Number 10,853,897, Issued 12/1/2020).
- "Systems and methods for monitoring for and preempting pre-identified restriction violation-related behavior(s) of persons under restriction." (U.S. Patent Number 10,861,307, Issued December 8, 2020).
- "Systems and methods for monitoring for and lowering the risk of addiction-related or restriction violation-related behavior(s)." (U.S. Patent Number 11,388,546, Issued July 12, 2022).
- "Systems and methods for monitoring for and preempting the risk of a future occurrence of a quarantine violation." (U.S. Patent Number 11,412,353, Issued August 9, 2022).
- "Dynamic and adaptive systems and methods for rewarding and/or disincentivizing behaviors" (U.S. Patent Number 11,636,941, Issued April 25, 2023).
- "Systems and Methods for Conducting/Defending Digital Warfare or Conflict" (U.S. Patent US 12,096,308, September 17, 2024)
- Numerous other patents pending.

Publications

Books:

1. The Definitive Guide to IoT Sensors (In development)
2. The Definitive Guide to IoT Use Cases (In development)
3. The Practical Guide to The Internet of Things (IoT): Use Matters and Enabling Technologies (In development)
4. The Definitive Guide to GPS, RFID, Wi-Fi, and Other Wireless Location-Based Services (2 versions, plus version in development)
5. The Definitive Guide to Wireless E911
6. The Definitive Guide to Mobile Positioning and Location Management (Co-authored)

Articles/Quotations:

1. Medium.com (Predict). January 31, 2023. "ChatGPT and Its Impact on Criminal Forensics (and Criminals)"
2. Medium.com. October 3, 2022. "What if GPS Fails?"
3. Location Data Privacy posts/blog. Ongoing at www.E911-LBS.com.
4. Linked In. March 3, 2020. "Facial Recognition: Good, Bad, or Ugly?"

5. The Columbus Dispatch. February 17, 2017. "Experts: GPS monitors couldn't save OSU student's life"
6. E911-LBS.com. May 2012. "The Pacifier Generation – How Wireless is Impacting Our Society"
7. Nbizmag.com. Summer 2008. "How Will the Convergence of LBS Technologies Affect Business?"
8. Directions Magazine. November 30, 2005. "The Deadline for the E911 Mandate Approaches...Where Do Things Stand?"
9. Computerworld. May 23, 2005. "Beyond The Supply Chain: The Impact of RFID on Business Operations and IT Infrastructure"
10. RFID Journal. June 12, 2005. "IT's Impact on RFID"
11. Directions Magazine. July 29, 2004. "The Strategic Implications of the Wal-Mart RFID Mandate"
12. Directions Magazine. February 25, 2004. "RFID-Hot Technology with Wide-Ranging Applications"
13. WirelessDevNet.com. 1/30/2003. "It's The (Location-Based) Applications – Stupid!"

Languages/Tools

- C/C++, Java, Basic, Cobol, Fortran, Pascal, APL, Assembly, Python, Others
- CDRs, including NELOS, PCMD, RTT, EVDO; Cellebrite, Paraben, Google Earth/Timeline, Hawk Analytics/CellHawk, various Telematics-related applications/systems such as Geotab, as well as specialized knowledge on iOS and Android smartphone location determination techniques.
- Analysis of geofence warrants.
- Data collection, analysis, and management of all types including KML/KMZ, (Geo)JSON, CSV, (E)WKT/WKB, Binary, Shapefile, ESRI, and other GIS vector/raster systems, technologies, formats, and models.

Associations and Achievements

- IEEE, NENA, APCO. Certified in Emergency Management Response (CERT)