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

PGR2025-00047

DECLARATION OF DAVID H. WILLIAMS REGARDING CLAIMS 1-82 OF U.S. PATENT NO. 12,056,736

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 have been informed that willful false statements are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code.

Date: _May 6, 2025_

David H. Williams

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3. [82.b] obtaining location information representing at least one physical geographic location of the mobile device as the mobile device moves over time; 103

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3. [1.b] [sending…to a content delivery platform:]…geographic reservation data to have the selected geographic area of interest reserved for delivery of the identifier to the computer program, wherein the geographic reservation data comprises a geometric construct used to establish at least one perimeter as a boundary for the selected geographic area of interest 108

4. [1.c] receiving, via the computer program, the identifier delivered by the content delivery platform after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the selected geographic area of interest and has remained therein for at least a predetermined length of time. 108

G. Claim 61 110

1. [61.pre] A method for creating and offloading location awareness, the method comprising: 110

2. [61.a] receiving, via a content delivery platform, a request to have an identifier, being associated with a selected geographic area of interest, delivered to a computer program on a mobile device after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the selected geographic area of interest; 110

3. [61.b] receiving, via the content delivery platform, geographic reservation data to have the selected geographic area of interest reserved for delivery of the identifier to the computer program, wherein the geographic reservation data comprises a geometric construct used to establish at least one perimeter as a boundary for the selected geographic area of interest; 111

4. [61.c] storing, in memory accessible to the content delivery platform, a record comprising the identifier; 111

5. [61.d] reserving the selected geographic area of interest for delivery of the identifier to the computer program; 111

6. [61.e] obtaining location information representing at least one physical geographic location of the mobile device; and 111

7. [61.f] delivering, via the content delivery platform, data comprising the identifier from the record stored in the memory to the computer program after it has been determined, using the obtained location information, that the mobile device has at least entered the selected geographic area of interest and has remained therein for at least a predetermined length of time. 112

H. Claim 62 113

1. [62.pre] A method for creating and offloading location awareness, the method comprising: 113

2. [62.a] receiving, via a content delivery platform, a request to reserve a selected geographic area of interest for delivery of an identifier associated with the selected geographic area of interest to a computer program on a mobile device; 114

3. [62.b] obtaining location information representing at least one physical geographic location of the mobile device as the mobile device moves over time; 114

4. [62.c] using location information to determine whether the mobile device has entered the selected geographic area of interest; 114

5. [62.d] using location information to determine whether the mobile device has remained within the selected geographic area of interest for a particular duration of time; and 114

6. [62.e] after it has been determined that the mobile device has remained within the selected geographic area of interest for the particular duration of time, delivering, via the content delivery platform, the identifier to the computer program. 114

I. Claim 82 115

1. [82.pre] A method for creating and offloading location awareness, the method comprising: 115

2. [82.a] receiving, via a content delivery platform, a request to reserve a selected geographic area of interest for delivery of an identifier associated with the selected geographic area of interest to a computer program on a mobile device; 115

3. [82.b] obtaining location information representing at least one physical geographic location of the mobile device as the mobile device moves over time; 115

4. [82.c] using location information to determine whether the mobile device is located within the selected geographic area of interest; 116

5. [82.d] using location information to determine whether the mobile device has remained within the selected geographic area of interest for a particular duration of time; and 116

6. [82.e] after it has been determined that the mobile device has remained within the selected geographic area of interest for the particular duration of time, delivering, via the content delivery platform, the identifier to the computer program..... 116

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INDEX OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 12,056,736.
1002	RESERVED
1003	File History of U.S. Pat. No. 12,056,736.
1004	Samsung Electronics America, Inc., v. Hardin, IPR2022-01331, Paper 4 (PTAB Aug. 2, 2022).
1005	Samsung Electronics America, Inc., v. Hardin, IPR2022-01331, Paper 14 (PTAB Feb. 8, 2023).
1006	Hardin v. Samsung Electronics Co., Case No. 2:21-cv-290-JRG, Document 218 (EDTX Jan. 28, 2023) ("Pretrial Conference").
1007	*H2 Intellect LLC v. The Home Depot, Inc.*, Case No. 2:24-cv-00694-JRG-RSP, Dkt. No. 26 (EDTX Jan. 29, 2025) ("**First Complaint**").
1008	U.S. Patent No. 8,433,296 ("**'296 patent**").
1009	U.S. Patent No. 8,977,247 ("**'247 patent**").
1010	U.S. Patent No. 9,286,625 ("**'625 patent**").
1011	U.S. Patent No. 9,779,418 ("**'418 patent**").
1012	U.S. Patent No. 10,049,387 ("**'387 patent**").
1013	U.S. Patent No. 10,984,447 ("**'447 patent**").
1014	U.S. Patent No. 11,948,171 ("**'171 patent**").
1015	U.S. Patent Publication No. 2014/0279018 ("**'018 publication**").
1016	File History of Application No. 14/292,204.
1017	File History of U.S. Patent No. 9,286,625.
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1020	File History of U.S. Patent No. 8,977,247.
1021	File History of U.S. Patent No. 10,049,387.
1022	File History of U.S. Patent No. 10,984,447.
1023	*H2 Intellect LLC v. The Home Depot, Inc., et al.*, Infringement Contentions, November 1, 2024.
1024	*Samsung Electronics Co., Ltd. v. Ryan Hardin*, IPR2022-01327, Paper 13 (PTAB Feb. 2, 2023).
1025	*Samsung Electronics Co., Ltd. v. Ryan Hardin*, IPR2022-01333, Paper 13 (PTAB Feb. 2, 2023).
1026	File History of U.S. Patent No. 11,948,171.
1027	U.S. Patent No. 6,807,427 ("**Sakamoto**").
1028	U.S. Patent Publication No. 2006/0149630 ("**Elliott**").

Exhibit No.	Description
1029	U.S. Patent Publication No. 2002/0161633 ("**Jacob**").
1030	Geofencing, Techopedia, https://www.techopedia.com/definition/14937/geofencing (last visited February 10, 2025).
1031	Jonathan P. Munson & Vineet K. Gupta, Location-Based Notification as a General-Purpose Service, Proceedings of the 2nd International Workshop on Mobile Commerce 40 (2002).
1032	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).
1033	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).
1034	U.S. Patent No. 7,133,685.
1035	U.S. Patent No. 7,164,986.
1036	U.S. Patent No. 8,536,999.
1037	U.S. Patent Publication No. US 2008/0094256.
1038	U.S. Patent No. 8,010,134.
1039	U.S. Patent Publication No. US 2006/0116817.
1040	*H2 Intellect LLC v. The Home Depot, Inc.*, Case No. 2:25-cv-00123-JRG-RSP, Dkt. No. 1 (EDTX Feb. 03, 2025) ("**Second Complaint**").
1041	Papers of H. Bentley Hahn: The Man Who Invented the 5-Digit ZIP Code. https://jfk.blogs.archives.gov/2021/07/01/papers-of-h-bentley-hahn-the-man-who-invented-the-5-digit-zip-code/ (July 1, 2021).

CHART OF CLAIMS
[1.pre] A method for creating and offloading location awareness, the method comprising:
[1.a] sending, via use of at least one processor, to a content delivery platform: a request to have an identifier, being associated with a selected geographic area of interest, delivered to a computer program on a mobile device after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the selected geographic area of interest; and
[1.b] [sending…to a content deliver platform:] geographic reservation data to have the selected geographic area of interest reserved for delivery of the identifier to the computer program, wherein the geographic reservation data comprises a geometric construct used to establish at least one perimeter as a boundary for the selected geographic area of interest; and
[1.c] receiving, via the computer program, the identifier delivered by the content delivery platform after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the selected geographic area of interest and has remained therein for at least a predetermined length of time.
[2] The method of claim 1, further comprising, in response to receiving, via the computer program, the identifier delivered by the content delivery platform, displaying content associated with the selected geographic area of interest.
[3] The method of claim 1, further comprising, sending the identifier to the content delivery platform.
[4] The method of claim 3, wherein a data string of characters comprises the identifier.
[5] The method of claim 1, wherein the geographic reservation data comprises information indicating an area bounded by the at least one perimeter as the selected geographic area of interest.
[6.pre] The method of claim 1, wherein the geographic reservation data comprises:
[6.a] first information indicating a first area bounded by the at least one perimeter as a first selected geographic area of interest; and
[6.b] second information indicating a second, distinct area bounded by the at least one perimeter as a second selected geographic area of interest.
[7] The method of claim 6, wherein the request comprises a request to have the identifier delivered to the computer program after it has been determined that the mobile device has at least entered the second selected geographic area of interest.

CHART OF CLAIMS
[8] The method of claim 7, further comprising receiving, via the computer program, the identifier delivered by the content delivery platform after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the second selected geographic area of interest.
[9] The method of claim 8, further comprising, in response to receiving, via the computer program, the identifier delivered by the content delivery platform, displaying content associated with the second selected geographic area of interest.
[10] The method of claim 1, further comprising providing the identifier for delivery to the mobile device via the computer program.
[11] The method of claim 1, further comprising providing the computer program to the mobile device.
[12.pre] The method of claim 1, further comprising:
[12.a] receiving, via the content delivery platform, the request and the geographic reservation data;
[12.b] storing, in memory accessible to the content delivery platform, a record comprising the identifier;
[12.c] reserving the selected geographic area of interest for delivery of the identifier to the computer program;
[12.d] obtaining location information representing at least one physical geographic location of the mobile device; and
[12.e] delivering, via the content delivery platform, data comprising the identifier from the record stored in the memory to the computer program after it has been determined, using the obtained location information, that the mobile device has at least entered the selected geographic area of interest.
[13] The method of claim 12, wherein delivering the data comprising the identifier to the computer program comprises delivering the data comprising the identifier to the computer program after it has been determined, using the obtained location information, that the mobile device has at least entered the selected geographic area of interest and after it has been determined that the mobile device has remained therein for at least a predetermined length of time.
[14] The method of claim 12, further comprising determining, using the obtained location information, that the mobile device has at least entered the selected geographic area of interest.
[15] The method of claim 14, further comprising determining that the mobile device has remained within the selected geographic area of interest for at least a predetermined length of time.

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CHART OF CLAIMS
[16] The method of claim 14, wherein the determining considers whether a portion of the selected geographic area of interest is at least partially located within a predetermined radial distance of the mobile device.
[17] The method of claim 12, further comprising creating a notification indicating that the mobile device has at least entered the selected geographic area of interest.
[18] The method of claim 12, further comprising creating a notification indicating that the mobile device has at least entered the selected geographic area of interest and has remained therein for at least a predetermined length of time.
[19.pre] The method of claim 12, wherein:
[19.a] the identifier is delivered to the computer program after availability for reservation of the selected geographic area of interest has been positively determined by the content delivery platform; and
[19.b] the method further comprises determining availability, by the content delivery platform, for reservation of the selected geographic area of interest for delivery of the identifier to the computer program.
[20.pre] The method of claim 12, wherein:
[20.a] reserving the selected geographic area of interest for delivery of the identifier to the computer program comprises reserving the selected geographic area of interest for delivery of the identifier to the computer program only if it has been determined that the selected geographic area of interest is available for reservation; and
[20.b] the method further comprises returning an indication to the computer program when the selected geographic area of interest is unavailable for reservation.
[21] The method of claim 12, further comprising returning an indication to the computer program that the selected geographic area of interest has been reserved.
[22] The method of claim 12, further comprising discontinuing future delivery of the identifier to the computer program after it is determined that the mobile device has exited the selected geographic area of interest.
[23] The method of claim 12, wherein the obtained location information comprises at least one physical geographic location of the mobile device when the computer program is not being executed on the mobile device.
[24] The method of claim 12, wherein delivering the data comprising the identifier to the computer program comprises delivering the data comprising the identifier when the computer program is not being executed on the mobile device.

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CHART OF CLAIMS
[25] The method of claim 12, further comprising considering the mobile device as a device being stationary after the mobile device has been considered as a device being carried by a person.
[26] The method of claim 12, further comprising considering the mobile device as a device being stationary after the mobile device has been considered as a device being transported in a motor vehicle.
[27] The method of claim 12, wherein the obtained location information is determined at least in part by using cellular tower information received via a cellular antenna of the mobile device and not by using information received via a GPS antenna of the mobile device.
[28] The method of claim 12, wherein the obtained location information is determined at least in part by using data received, by the mobile device, from one or more third party wireless networks and not by using information received via a GPS antenna of the mobile device.
[29] The method of claim 12, wherein the obtained location information is determined at least in part by using information received via a GPS antenna of the mobile device and not by using information received via a cellular antenna of the mobile device.
[30] The method of claim 12, wherein delivering the data comprising the identifier to the computer program comprises delivering the data comprising the identifier to the computer program after it has been determined, using the obtained location information, that at least a portion of the selected geographic area of interest is contained within an area having a predetermined radius encircling the physical geographic location of the mobile device.
[31] The method of claim 12, further comprising receiving location information from one or more mobile devices, wherein the received location information is received by the one or more mobile devices from one or more third party sources and is to be used, in combination with cellular tower information received by an antenna of the mobile device, for positioning the location of the mobile device.
[32.pre] The method of claim 31, further comprising:
[32.a] storing, on the mobile device, the received location information from the one or more mobile devices; and
[32.b] using the stored, received location information on the mobile device, in combination with cellular tower information received by an antenna of the mobile device operable to communicate with a cellular network, to position the location of the mobile device.
[33] The method of claim 12, further comprising receiving location information from one or more mobile devices, wherein the received location information is

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received by the one or more mobile devices from one or more third party sources and is to be used, in combination with data associated with a wireless data network received by an antenna of the mobile device, for positioning the location of the mobile device.
[34.pre] The method of claim 33, further comprising:
[34.a] storing, on the mobile device, the received location information from the one or more mobile devices; and
[34.b] using the stored, received location information on the mobile device, in combination with data associated with a wireless data network received by an antenna of the mobile device operable to communicate with one or more wireless data networks, to position the location of the mobile device.
[35] The method of claim 12, further comprising receiving, via the content delivery platform, data comprising the identifier.
[36] The method of claim 35, wherein the data comprising the identifier is sent to the content delivery platform.
[37] The method of claim 12, wherein delivering data comprising the identifier from the record stored in the memory to the computer program comprises delivering data comprising the identifier from the record stored in the memory exclusively to the computer program and not broadcast to other computer programs.
[38] The method of claim 12, further comprising performing a verification whether the computer program has authorization to initiate a location session with the content delivery platform.
[39.pre] The method of claim 38, wherein:
[39.a] if the verification passes, allowing the computer program to initiate a location session with the content delivery platform; and
[39.b] if the verification fails, not allowing the computer program to initiate a location session with the content delivery platform.
[40] The method of claim 38, wherein performing a verification comprises performing a check on a key associated with the computer program and stored on the mobile device.
[41] The method of claim 12, wherein delivering the data comprising the identifier to the computer program comprises delivering, via the content delivery platform, the data comprising the identifier from the record stored in the memory to the computer program after it has been determined, using the obtained location information, that the mobile device has at least entered the selected geographic area of interest and after a predetermined duration of time has passed following

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CHART OF CLAIMS
the determination that the mobile device has at least entered the selected geographic area of interest.
[42.pre] The method of claim 1, wherein:
[42.a] the request comprises a request to have the identifier delivered to the computer program after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the selected geographic area of interest and has remained therein for at least a predetermined length of time; and
[42.b] the request comprises the predetermined length of time.
[43.pre] The method of claim 1, wherein:
[43.a] the request comprises a request to have the identifier delivered to the computer program after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the selected geographic area of interest after a designated start time and during a designated duration of time; and
[43.b] the request comprises a data value representing the designated duration of time.
[44.pre] The method of claim 1, wherein:
[44.a] the geometric construct comprises at least a radius value, a latitude value, and a longitude value.
[45.pre] The method of claim 1, wherein:
[45.a] the geometric construct comprises at least three latitude and longitude coordinates.
[46] The method of claim 1, further comprising receiving, via the computer program, an indication that the selected geographic area of interest has been reserved.
[47] The method of claim 1, wherein third-party location information provided by one or more third party sources and received on the mobile device is used in combination with cellular tower information received by an antenna of the mobile device operable to communicate with a cellular network to position the location of the mobile device.
[48] The method of claim 1, wherein third-party location information provided by one or more third party sources and received on the mobile device is used in combination with data associated with a wireless data network received by an antenna of the mobile device operable to communicate with one or more wireless data networks to position the location of the mobile device.

CHART OF CLAIMS
[49.pre] The method of claim 1, further comprising sending, via use of the at least one processor, to the content delivery platform:
[49.a] a second request to have a second identifier, being associated with a second selected geographic area of interest, delivered to the computer program after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the second selected geographic area of interest; and
[49.b] second geographic reservation data defining the second selected geographic area of interest to reserve the second selected geographic area of interest for delivery of the second identifier to the computer program, wherein the second geographic reservation data comprises a second geometric construct used to establish at least one second perimeter as a boundary for the second selected geographic area of interest.
[50.pre] The method of claim 1, wherein:
[50.a] the computer program is a first computer program; and
[50.b] the method further comprises sending, via use of the at least one processor, to the content delivery platform:
[50.c] a second request to have a second identifier, being associated with a second selected geographic area of interest, delivered to a second computer program on the mobile device after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the second selected geographic area of interest; and
[50.d] second geographic reservation data defining the second selected geographic area of interest to reserve the second selected geographic area of interest for delivery of the second identifier to the second computer program, wherein the second geographic reservation data comprises a second geometric construct used to establish at least one second perimeter as a boundary for the second selected geographic area of interest.
[51.pre] The method of claim 50, further comprising sending, via use of the at least one processor, to the content delivery platform:
[51.a] a third request to have a third identifier, being associated with a third selected geographic area of interest, delivered to the first computer program after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the third selected geographic area of interest; and
[51.b] third geographic reservation data defining the third selected geographic area of interest to reserve the third selected geographic area of interest for

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delivery of the third identifier to the first computer program, wherein the third geographic reservation data comprises a third geometric construct used to establish at least one third perimeter as a boundary for the third selected geographic area of interest.
[52] The method of claim 1, wherein the identifier is associated with the boundary.
[53] The method of claim 1, wherein the request to have an identifier delivered to the computer program comprises a request to have an identifier delivered exclusively to the computer program and not broadcast to other computer programs.
[54] The method of claim 1, wherein receiving, via the computer program, the identifier delivered by the content delivery platform comprises receiving the identifier delivered by the content delivery platform exclusively to the computer program and not broadcast to other computer programs.
[55] The method of claim 1, wherein the computer program is an application program.
[56] The method of claim 1, wherein the computer program operates as a function of operating system software.
[57] The method of claim 1, wherein the content delivery platform operates as a function of operating system software.
[58] The method of claim 1, wherein the content delivery platform includes a communications interface.
[59] The method of claim 58, wherein the communications interface is an application programming interface.
[60] The method of claim 58, wherein the communications interface is a device driver interface.
[61.pre] A method for creating and offloading location awareness, the method comprising:
[61.a] receiving, via a content delivery platform, a request to have an identifier, being associated with a selected geographic area of interest, delivered to a computer program on a mobile device after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the selected geographic area of interest;
[61.b] receiving, via the content delivery platform, geographic reservation data to have the selected geographic area of interest reserved for delivery of the identifier to the computer program, wherein the geographic reservation data

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CHART OF CLAIMS
comprises a geometric construct used to establish at least one perimeter as a boundary for the selected geographic area of interest;
[61.c] storing, in memory accessible to the content delivery platform, a record comprising the identifier;
[61.d] reserving the selected geographic area of interest for delivery of the identifier to the computer program;
[61.e] obtaining location information representing at least one physical geographic location of the mobile device; and
[61.f] delivering, via the content delivery platform, data comprising the identifier from the record stored in the memory to the computer program after it has been determined, using the obtained location information, that the mobile device has at least entered the selected geographic area of interest and has remained therein for at least a predetermined length of time.
[62.pre] A method for creating and offloading location awareness, the method comprising:
[62.a] receiving, via a content delivery platform, a request to reserve a selected geographic area of interest for delivery of an identifier associated with the selected geographic area of interest to a computer program on a mobile device;
[62.b] obtaining location information representing at least one physical geographic location of the mobile device as the mobile device moves over time;
[62.c] using location information to determine whether the mobile device has entered the selected geographic area of interest;
[62.d] using location information to determine whether the mobile device has remained within the selected geographic area of interest for a particular duration of time; and
[62.e] after it has been determined that the mobile device has remained within the selected geographic area of interest for the particular duration of time, delivering, via the content delivery platform, the identifier to the computer program.
[63] The method of claim 62, wherein the request includes a value representing the particular duration of time.
[64] The method of claim 62, wherein the particular duration of time is a value associated with the selected geographic area of interest.
[65] The method of claim 62, wherein the particular duration of time is a desired length of time for increasing the precision of the content delivery.
[66] The method of claim 62, wherein delivering the identifier to the computer program comprises a notification that the mobile device has at least entered the selected geographic area of interest.

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CHART OF CLAIMS
[67] The method of claim 66, further comprising, receiving the notification that the mobile device has at least entered the selected geographic area of interest.
[68] The method of claim 67, further comprising, in response to receiving the notification, displaying content associated with the selected geographic area of interest.
[69] The method of claim 62, wherein using location information to determine whether the mobile device has remained within the selected geographic area of interest for a particular duration of time comprises using, after it has been determined that the mobile device has entered the selected geographic area of interest, location information to determine whether the mobile device has remained within the selected geographic area of interest for the particular duration of time.
[70] The method of claim 62, wherein the identifier is exclusively associated with both the selected geographic area of interest and the computer program and is not associated with other computer programs.
[71] The method of claim 62, further comprising sending data to the content delivery platform comprising the identifier associated with the selected geographic area of interest for delivery to the computer program.
[72] The method of claim 62, further comprising receiving, via the content delivery platform, data comprising the identifier associated with the selected geographic area of interest for delivery to the computer program.
[73] The method of claim 62, further comprising storing, in memory accessible to the content delivery platform, a record comprising the identifier for future delivery of the identifier to the computer program.
[74.pre] The method of claim 73, wherein:
[74.a] delivering the identifier to the computer program comprises delivering the identifier from the record stored in the memory; and
[74.b] the method further comprises restricting delivery of the identifier from the record stored in the memory to the computer program until after it has been determined that the mobile device has remained within the selected geographic area of interest for the particular duration of time.
[75] The method of claim 62, further comprising receiving, via the content delivery platform, geographic reservation data to have the selected geographic area of interest reserved for delivery of the identifier to the computer program, wherein the geographic reservation data comprises a geometric construct used to establish at least one perimeter as a boundary for the selected geographic area of interest.

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CHART OF CLAIMS
[76] The method of claim 62, further comprising reserving the selected geographic area of interest for delivery of the identifier to the computer program.
[77] The method of claim 62, wherein delivering the identifier to the computer program comprises delivering the identifier exclusively to the computer program and not to other computer programs.
[78] The method of claim 62, wherein the request to reserve a selected geographic area of interest for delivery of an identifier associated with the selected geographic area of interest to a computer program comprises a request to reserve a selected geographic area of interest for delivery of an identifier associated with the selected geographic area of interest exclusively to the computer program and not to other computer programs.
[79] The method of claim 62, further comprising performing a verification whether the computer program has authorization to initiate a location session with the content delivery platform.
[80.pre] The method of claim 79, wherein:
[80.a] if the verification passes, allowing the computer program to initiate a location session with the content delivery platform; and
[80.b] if the verification fails, not allowing the computer program to initiate a location session with the content delivery platform.
[81] The method of claim 79, wherein performing a verification comprises performing a check on a key associated with the computer program and stored on the mobile device.
[82.pre] A method for creating and offloading location awareness, the method comprising:
[82.a] receiving, via a content delivery platform, a request to reserve a selected geographic area of interest for delivery of an identifier associated with the selected geographic area of interest to a computer program on a mobile device;
[82.b] obtaining location information representing at least one physical geographic location of the mobile device as the mobile device moves over time;
[82.c] using location information to determine whether the mobile device is located within the selected geographic area of interest;
[82.d] using location information to determine whether the mobile device has remained within the selected geographic area of interest for a particular duration of time; and
[82.e] after it has been determined that the mobile device has remained within the selected geographic area of interest for the particular duration of time, delivering, via the content delivery platform, the identifier to the computer program.

I, David H. Williams, Ph.D., declare as follows:

I. INTRODUCTION

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. 12,056,736 ("736 patent") and to provide my expert opinions in support of the above-identified petition for post grant review of U.S. Patent No. 12,056,736 ("736 patent," EX1001), challenging the validity of claims 1-82 (the "Challenged Claims").

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 '736 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 have been informed 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.

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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.

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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.

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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

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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:

- The Definitive Guide to GPS, RFID, Wi-Fi, and Other Wireless Location Based Services (2005 and 2009 versions);
- The Definitive Guide to Wireless E911; and
- The Definitive Guide to Mobile Positioning and Location Management (coauthor).

16. 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

17. The technology at issue, at the time of the alleged priority date of March 11, 2008 (EX1023, 4) was well known. In particular, each of the components/disciplines involved had been well known. These include:

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- 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

18. Geofencing is "a technology that defines a virtual boundary around a real-world geographical area." EX1030, 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.

19. 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

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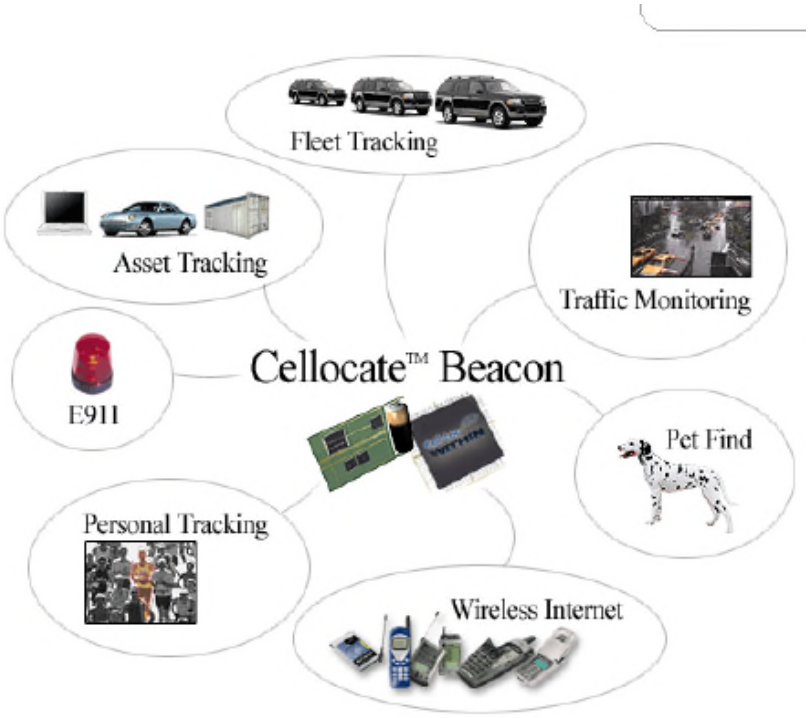
greatly increased the accuracy and precision of geofence-related calculations, and thus their overall utility and potential use cases.

20. 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." EX1031, 41. These capabilities supported a wide variety of applications, such as shown by a 2003 excerpt from Cell-Loc's website, below:



EX1032.

21. 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." EX1033, 82.

22. 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

23. 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.

24. 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=mobile+OR+wireless&before=priority:20080311

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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.

25. 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."

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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.

EX1034, Abstract.

26. 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.

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

EX1035, Abstract.

27. 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

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

28. 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.

29. 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:

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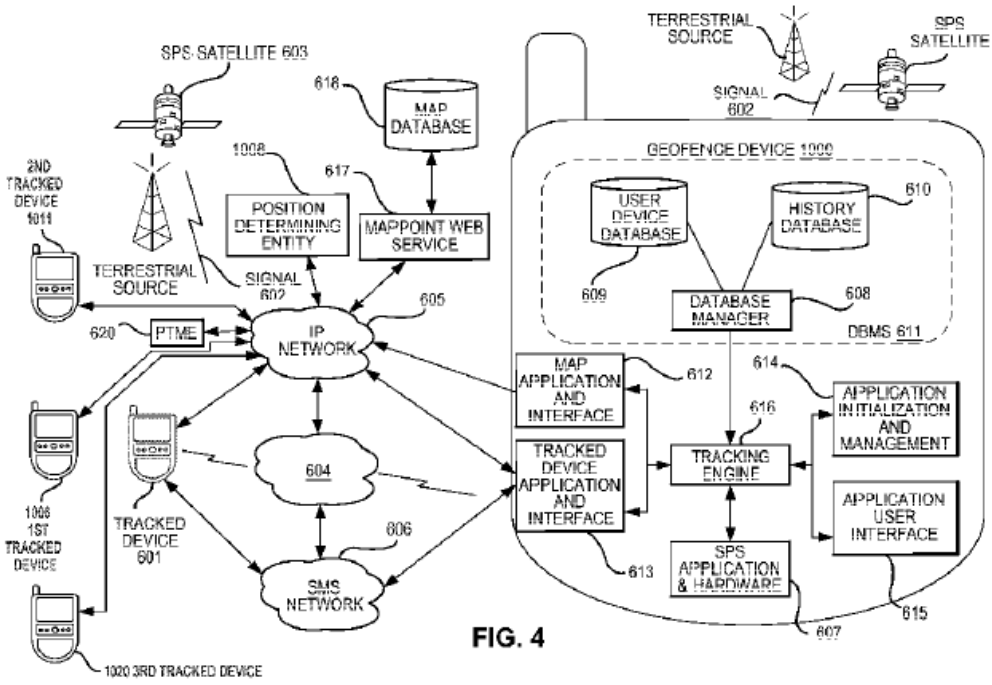

FIG. 4

EX1036, FIG. 4.

30. 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.

EX1036, 1:30-38.

31. 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.

EX1037, ¶30.

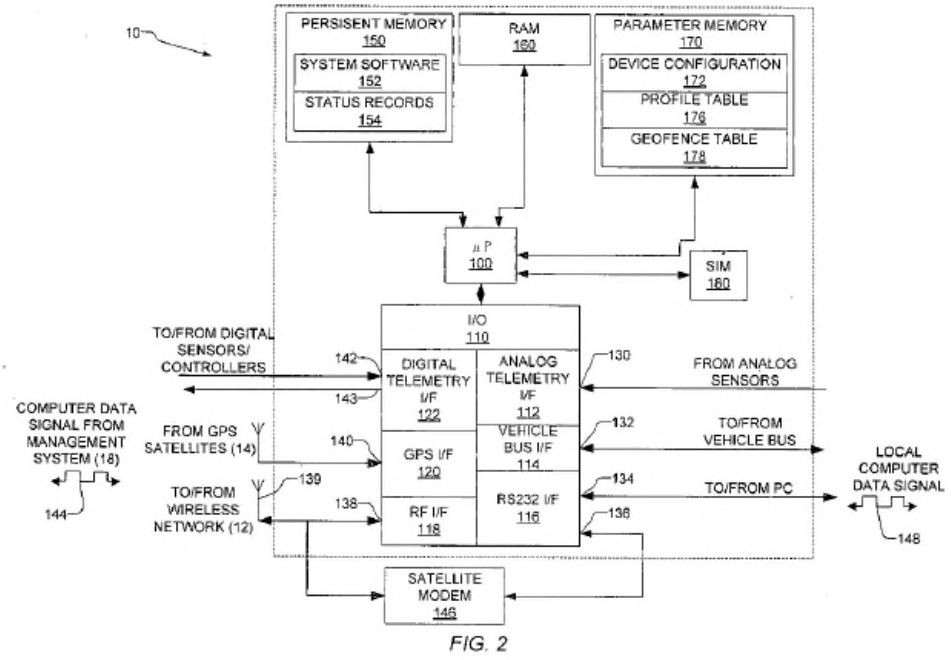

FIG. 2

EX1037, FIG. 2.

32. 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.
> EX1037, ¶2.

33. 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 March 2008.

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

34. Numerous applications leveraging the capabilities described above were well known by the ’736 patent’s effective filing date. Improving fleet management was a key application in the ’986 patent described earlier. Cell-Loc

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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.

35. 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

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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." EX1038, 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." EX1039, ¶39.

36. Thus, all of the key components and disciplines involved in the '736 patent were well-known by March 11, 2008, as were a wide variety of applications that could leverage those capabilities.

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C. Materials Reviewed

37. 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.

38. 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 STANDARDS

39. I am not an attorney and offer no legal opinions, but in the course of my work, I have had experience studying and analyzing patents and patent claims from the perspective of a person skilled in the art.

40. For the purposes of this Declaration, I have been informed about certain aspects of the law that are relevant to my analysis, as summarized below.

A. Priority Date

41. I have been informed that, to gain benefit of the filing date of an earlier patent application, each application in the chain leading back to the earlier application must comply with the statutory written description requirement.

42. I have been informed that, to satisfy the written description requirement, a patent's specification must reasonably convey to a person of ordinary skill in the art at the time of the effective filing date ("POSITA") that the inventor had possession of the claimed subject matter when the patent application

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was filed. I have been informed that, to show "possession" of the invention, the disclosure must describe the invention, including all its claimed limitations. I have been informed that it is not enough that a claimed invention is an obvious variant of that which is disclosed in the specification. I have been informed that while the meaning of terms, phrases, or diagrams in a disclosure is to be explained or interpreted from the vantage point of a POSITA, all the limitations must appear in the specification.

43. I have been informed that entitlement to a filing date extends only to subject matter that is disclosed and not to subject matter that is not disclosed but would be obvious over what is expressly disclosed. I have been informed that a prior application itself must describe an invention, and do so in sufficient detail that a POSITA can clearly conclude that the inventor invented the claimed invention as of the filing date sought.

44. I have been informed that a patent's priority date is a legal determination based on underlying factual issues. For that reason, I am not rendering a legal opinion on the ultimate legal question of priority date. Rather, my testimony addresses the underlying facts and factual analysis that would support a legal determination of the priority date.

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B. PGR Eligibility

45. I have been informed that a patent is eligible for PGR if the patent, or any of its priority applications, contains or contained at any time a claim with an effective filing date on or after March 16, 2013. *See* AIA §3(n)(1).

C. Claim Interpretation

46. I understand from Counsel that during a PRG proceeding, claims are to be construed in light of the specification as would be read by a person of ordinary skill in the relevant art at the time the application was filed. I have been informed that claim terms are given their ordinary and customary meaning as would be understood by a person of ordinary skill in the relevant art in the context of the entire disclosure. I have been informed that a claim term, however, will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the claim term in the specification. In that case, I have been informed that the claim term will receive the definition set forth in the patent.

D. Ineligible Subject Matter

47. I have been informed that whether a claim is patent-eligible under 35 U.S.C. §101 is a matter of law. I have been informed that an ineligibility determination may depend on whether certain claim elements were well-known, routine, and conventional at the time of filing, a subject on which expert testimony is appropriate.

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48. I have been informed that claims lack an inventive concept if they recite no more than well-understood, routine, and conventional activities previously known in the industry, and merely require generic computer implementation (e.g., "perform this known process on a computer") fails to transform an abstract idea into a patent eligible invention.

49. I have been informed that a claim's underlying idea does not become non-abstract by limiting the invention to a particular field of use or technological environment, such as the Internet.

E. Legal Standards for Prior Art

50. I have been informed that a patent or other publication must first qualify as prior art before it can be used to invalidate a patent claim.

51. I have been informed 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 have been informed 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.

52. I have been informed 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 have been informed that a

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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.

53. I have been informed that a U.S. patent qualifies as prior art to the asserted patent if the application for that patent was filed in the United Stated before the invention of the asserted patent.

F. Legal Standards for Anticipation

54. I have been informed that documents and materials that qualify as prior art can be used to invalidate a patent claim via anticipation or obviousness.

55. I have been informed 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.

56. I have been informed 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).

57. I have been informed that anticipation in a post grant review must be shown by a preponderance of the evidence.

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G. Legal Standards for Obviousness

58. I have been informed 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.

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

60. I have been informed 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.

61. I have been informed that an obviousness evaluation can be based on a combination of multiple prior art references. I have been informed 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 have been informed that obviousness analysis recognizes that market demand, rather than scientific literature, often drives innovation, and

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that a motivation to combine references may be supplied by the direction of the marketplace.

62. I have been informed 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.

63. I have been informed that practical and common-sense considerations should guide a proper obviousness analysis, because familiar items may have obvious uses beyond their primary purposes. I have been informed 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 have been informed 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.

64. I have been informed that a particular combination may be proven obvious merely by showing that it was obvious to try the combination. I have been informed that, 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.

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65. I have been informed that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. I have been informed that 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. I have been informed that if a POSITA can implement a predictable variation, the patent claim is likely obvious.

66. I have been informed 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 have been informed 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.

67. I have been informed that a proposed obviousness combination does not need to be the preferred, or most desirable, combination available, in order to render a claim obvious. I have been informed that 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.

68. Similarly, I have been informed 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, I have

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been informed that a proposed obviousness combination does not fail merely because it may be inferior to other systems used for the same use.

69. I have been informed 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, I have been informed that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. I have been informed that instead, the test is whether a claim is rendered obvious by the teachings of the prior art as a whole.

70. I have been informed 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.

71. I have been informed 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.

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72. I have been informed that there must be a relationship between any such secondary considerations and the invention. I have been informed that contemporaneous and independent invention by others is a secondary consideration supporting an obviousness determination.

73. 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.

74. I have been informed that obviousness in a post grant review must be shown by a preponderance of the evidence.

III. THE ’736 PATENT

A. Shared Specification

75. The ’736 patent issued from U.S. Patent Application No. 17/182,809 (the “’809 application”), filed February 23, 2021. I understand the ’736 patent claims priority to a series of applications, the earliest of which is U.S. Patent No. 8,433,296 (the “’296 patent”), filed May 1, 2009. EX1001, cover page. The ’809

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application and each of the purported priority applications share the same specification. EX1001; EX1008-EX1014.

76. In a lawsuit involving the related ’296 patent, I have been informed that Patent Owner asserts that the ’296 patent is entitled to a priority date of March 11, 2008. EX1023, 4. I have been asked to assume a March 11, 2008 priority date (*i.e.*, effective filing date) for the ’736 patent in this declaration.

77. The specification describes a content delivery system that delivers content to applications executing on mobile devices based on locations associated with the mobile devices. EX1001, 1:37-39, 1:66-2:7. 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, 3:9-19. 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, 3:20-24. According to the specification, “sponsors” can (i) reserve geographic areas, and (ii) provide “advertisements or other content controlled by the sponsor” to the content delivery platform for later delivery to mobile devices. *See, e.g.*, EX1001, 3:43-54, 9:12-16.

78. Figure 1 of the specification illustrates the basic architecture of the system, including a content delivery platform 112 (red), developer platform 108

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(green), one or more sponsors (e.g., sponsors 121, 123, 125) (yellow), and devices (blue):

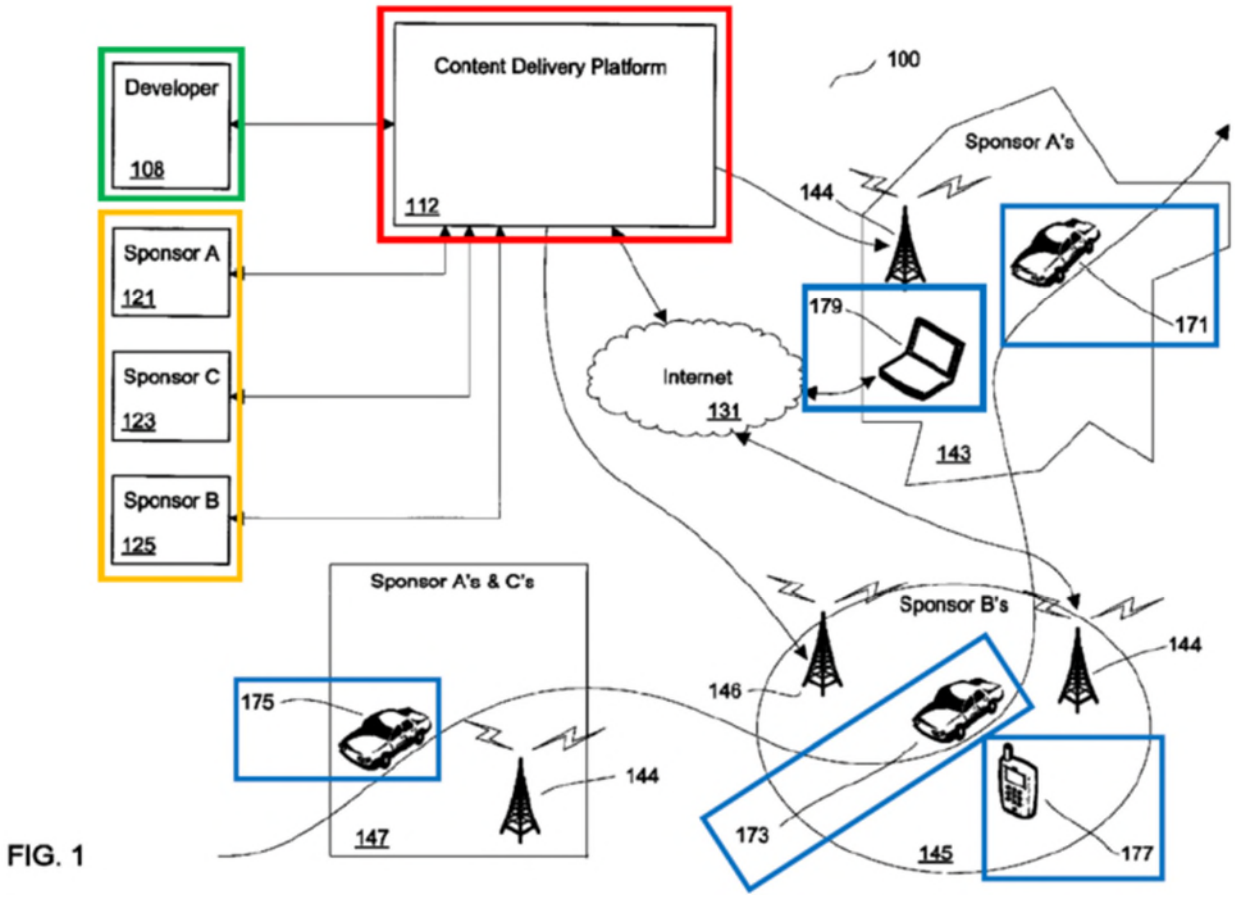

FIG. 1

EX1001, FIG. 1 (annotated), 3:20-42.

79. System 100 is used to "provide for exclusive delivery of advertising or other content to registered applications running on mobile devices located within a particular proximity to a reserved geographic area." EX1001, 3:21-24. In operation, developer platform 108 communicates a request to content delivery platform 112 "to register a program or other application for use on mobile devices"

such that content delivery platform "can use the registered application program to provide selected content to mobile devices." EX1001, 3:28-32.

80. Sponsors request to reserve specified geographic areas for delivering content (e.g., advertisements) to users through the registered application programs. EX1001, 3:43-50 ("Sponsor A 121, sponsor C 123, or sponsor B 125 can reserve an exclusive interest in a particular geographic area by sending a request to content delivery platform 112…the request can be for exclusive delivery of content to mobile devices running any registered application within given geographic areas, or for content to be delivered to particular registered applications based on a target location"), 9:8-10 ("a content delivery platform, for example content delivery platform 112...can receive a request for sponsor registration"), 9:12-16 ("the sponsor can establish perimeters defining geographic areas of exclusive or semi-exclusive control. These geographic areas are areas the sponsor wishes to reserve for delivery of his own advertisements or other content controlled by the sponsor"). The perimeter can be established based on a geographic construct, which can include information such as, but not limited to map features, latitude/longitude coordinates, or other various geometric constructs. EX1001, 9:17-30. When a mobile device is determined to be located proximate to a geographic area reserved for Sponsor A, content delivery platform 112 provides advertisements to mobile device to be displayed via the registered application program. EX1001, 4:16-27,

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4:23-26 (“because first motor vehicle 171 is located within sponsor A’s reserved geographic area 143, content delivery platform 121 provides content exclusively related to sponsor A”), 4:41-60, 10:12-13 (“a request for content can be received from a device running a registered application”), 10:21-24 (“a determination is made as to whether the application sending the request for content has a target location that is located within a sponsor’s reserved geographic area”). The specification also describes the sponsor as a separate component that is remote from the mobile device. EX1001, 3:32-36 (“a registered application program is provided to mobile devices by...one of sponsor A 121, sponsor C 123, or sponsor B 125”), 6:24-26 (“to allow second sponsor 225 to deliver second sponsor’s content 214 to registered application 231”), 9:53-55 (“sponsor can provide content for delivery to mobile devices having target locations contained within its reserved area”), 9:66-67 (“content can be delivered to a mobile device by the sponsor”). For example, the specification explains that the sponsors communicate with multiple mobile devices. EX1001, 6:24-26 (“to allow second sponsor 225 to deliver second sponsor’s content 214 to registered application 231”), 9:66-67 (“content can be delivered to a mobile device by the sponsor”). A POSITA would have understood that if the sponsor and the mobile device were one and the same, then the mobile device would not need to communicate with the content delivery platform to

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receive advertisements, still images, animations, video, audio, alphanumeric identifiers, or other content.

81. Importantly, nothing in the specification indicates that a mobile device or an application running on mobile device reserves the geographic area. Indeed, there is no reference to any entity other than a sponsor submitting a request to reserve a geographic area. In other words, there is no disclosure of a mobile device or a registered application running on a mobile device requesting to reserve a geographic area.

82. Figure 2 depicts a user of registered application 231 located within a first sponsor's reserved area 207 and an object of interest 233 located in a second sponsor's reserved area 205:

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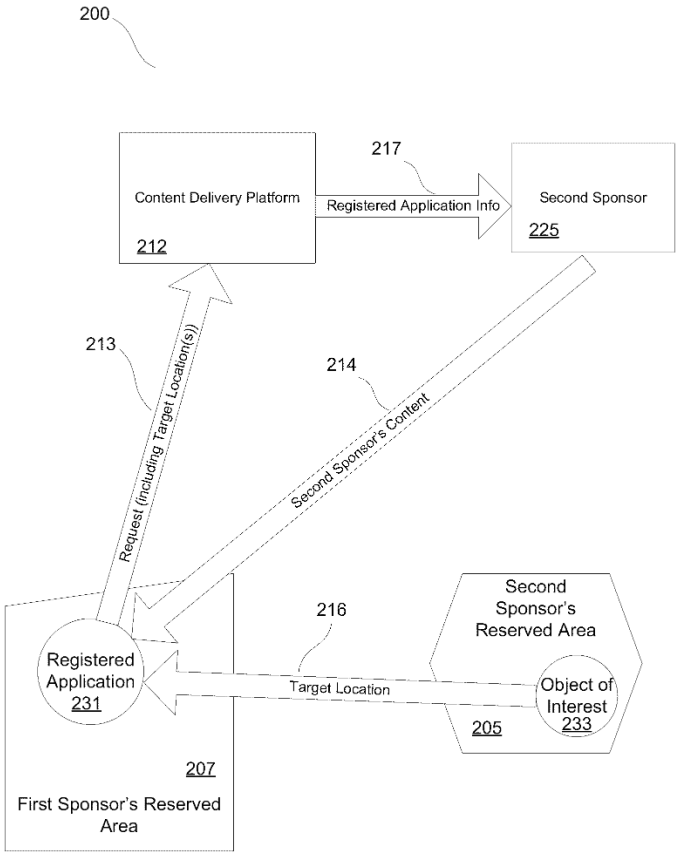

FIG. 2

EX1001, FIG. 2. Although Figure 2 shows that registered application 231 sends "request 213" to content delivery platform 212, request 213 is a request for content and not a request to reserve a geographic area. EX1001, 6:5-22. Further, request 213 may include "information indicating the location of object of interest 233, a request for content, information indicating the location of registered application 231, information indicating the identity of the registered application 231, and a previously received request identifier." EX1001, 6:8-13. Nothing in the specification discloses that an application program (or a mobile device) can request to reserve the geographic area.

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83. In addition, the specification describes the content delivery platform as a separate component that is remote from the mobile device. EX1001, 12:15-23 ("the mobile device can forward information associated with a target location to the content delivery platform, or the content delivery server can obtain location information from a third party application or device…or otherwise."); FIGs. 1-3, 3:33-35 ("a registered application program is provided to mobile devices by developer platform 108, content delivery platform 112…"), 11:48-49 ("a method of interaction between a mobile device and a content providing platform"), 12:1-3 ("a session can be initiated between the application on the mobile device, and the content delivery platform"). For example, the specification explains that the content delivery platform communicates with multiple mobile devices (and therefore cannot be hosted on the mobile devices). EX1001, FIG. 3, 7:13-36, 10:16-20 ("multiple devices may execute copies of the same registered application…and multiple different registered applications may be executed on multiple devices"). The specification also explains that the content delivery platform communicates with mobile devices via the internet and communication towers. EX1001, FIG. 1, 3:55-58 ("System 100 can include a network, for example Internet 131, through which content delivery platform 112, can communicate to other networked devices; and communication towers 144"). A POSITA would have understood that if the content delivery platform was on the same mobile device as

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the registered application, then it would not need to communicate with the mobile device via the internet or communication towers.

84. Indeed, the specification explains that the content delivery platform "may be implemented in a processing system executing a set of instructions stored in memory, or on a removable computer readable medium," as shown in Figure 7. EX1001, 13:4-19, FIG. 7, 2:42-48. A POSITA would have understood that such a generic statement, especially in the context of the entire specification, does not teach that the content delivery platform is implemented on a mobile device. Nothing in the specification discloses a content delivery platform implemented on the same mobile device as the registered application programs.

B. Prosecution History

85. The '736 patent's family tree:

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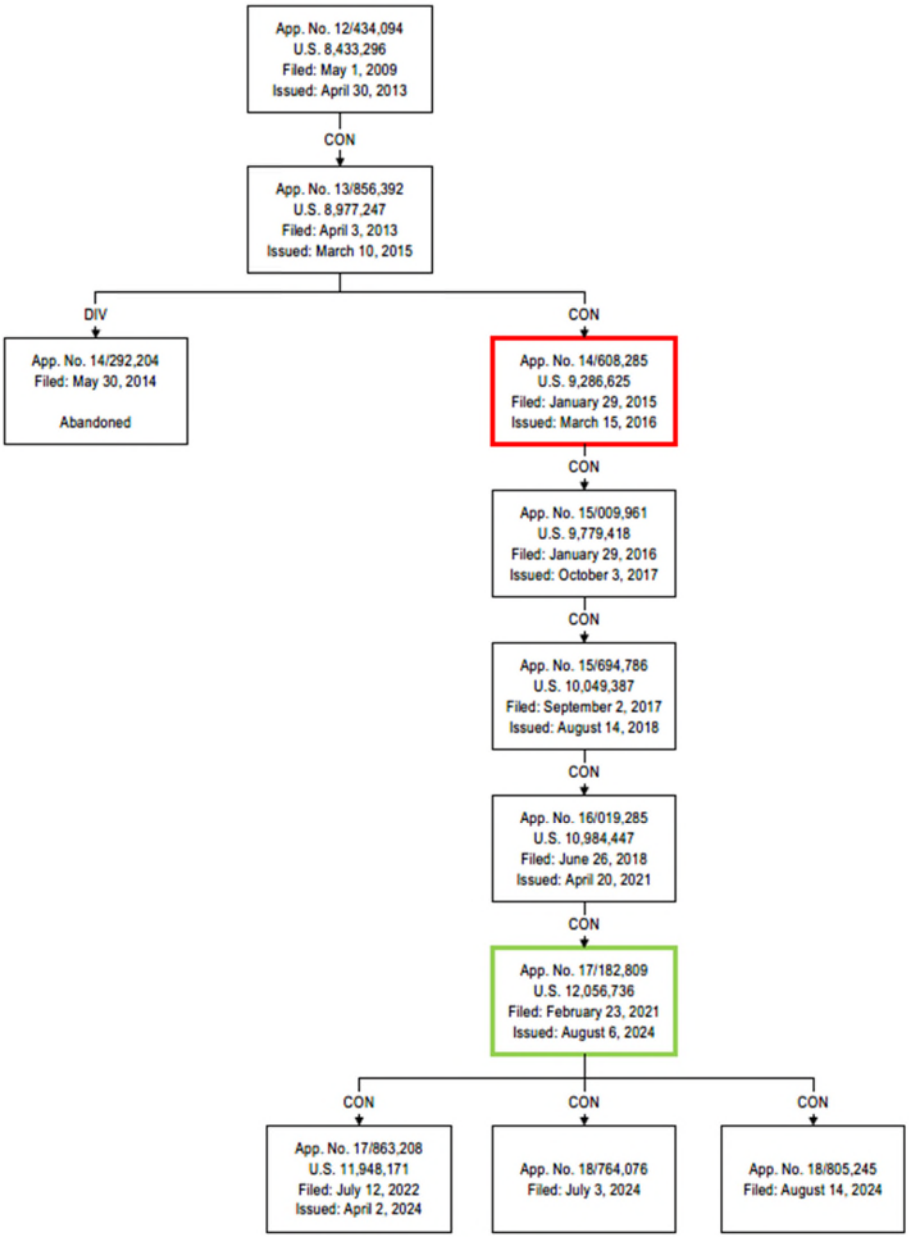

1. ’296 Patent (’094 Application)

86. As filed claim 1 of the first application in the chain, the ’094 application, recited, *inter alia*, “reserving respective ones of the plurality of geographic areas for delivery of content associated with respective ones of a

plurality of sponsors." EX1019, 263. As-filed independent claims 8 and 15 included similar limitations. EX1019, 264, 266. Thus, the as-filed independent claims of the '094 application did not recite which entity (*e.g.*, sponsors, application programs) submits requests to reserve geographic areas. As-filed dependent claims 5, 12, and 19, however, recited "***receiving, from a sponsor,*** a request to obtain an interest in a selected one of the plurality of geographic areas." EX1019, 264-267.

87. When the '094 application later issued as the '296 patent, claim 1 recited "***receiving, from a sponsor,*** a request to obtain an interest in a selected one of the plurality of geographic areas." EX1008, claim 1. Similarly, independent claims 6 and 11 recite an "instruction to ***receive, from a sponsor,*** a request to obtain an interest in a selected one of the plurality of geographic areas." EX1008, claims 6, 11. The claims do not recite receiving, ***from an application program,*** a request to reserve or obtain an interest in a geographic area.

2. '247 Patent ('392 Application)

88. The next application in the chain is the '392 application that issued as the '247 patent. Like the '094 application, the as-filed independent claims of the '392 application did not specify the entity submitting requests to reserve a geographic area. EX1020, 261-266 (claims 1, 8, 15). In contrast, certain dependent claims recited "***receiving, from a sponsor,*** a request to obtain an interest in a

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selected one of the plurality of geographic areas." EX1020, 261-266 (claims 5-6, 12-13, 19-20).

89. In response to a rejection, the Applicant amended claim 1 to recite, *inter alia*, "receiving" such requests "***from one or more sponsors.***" EX1020, 143-144. The Applicant also amended certain dependent claims to recite "the one or more sponsors ***is at least one of the one or more instances of the application program.***" EX1020, 145 (claim 6), 149 (claim 13), 152 (claim 18). The Applicant argued that this added language in the dependent claims "finds support in the specification…at least at paragraphs 0019, 0067 and 0068." EX1020, 160. However, from my review, these paragraphs do not disclose that sponsors can be application programs or identify the entity submitting the reservation request. EX1020, 243, 259.

90. In a later office action, the examiner determined that the amended claims were directed to a non-elected invention and withdrew the claims. EX1020, 135-139. The Applicant subsequently amended the independent claims to recite "receiving" the reservation request "***from the one or more of the registered application programs,***" and the '247 patent issued. EX1020, 110-131.

3. '204 Application

91. The Applicant filed the '204 application as a division of the '392 application. As-filed claim 1 recited, *inter alia*, "receiving, from one or more

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sponsors, at least one request to obtain an interest in a designated geographic area." EX1016, 114. The other independent claims included similar limitations. EX1016, 116-119. Certain dependent claims recited "wherein the one or more sponsors is at least one of the one or more instances of the application program." EX1016, 115 (claims 4, 6), 118 (claims 11, 13), 120 (claim 18).

92. Examiner Nguyen rejected all pending claims on several grounds, including under §112. EX1016, 3-24. In particular, the examiner rejected dependent claims 4, 6, 11, 13, and 18 reciting "wherein the one or more sponsors is at least one of the one or more instances of the application program" because "[t]he scope of this limitation is indefinite/unclear because it appears to be inconsistent meaning [sic] with the Applicant's specification." EX1016, 11-12. As the examiner explained, the specification does not describe a sponsor being an application program:

> [P]aras 0019-0020 mainly indicates application program is merely software that is running on the mobile devices, applicant program is registered by the Applicant developer/Applicant platform 108 but not the Sponsors, and ***the Applicant developer 108 and Sponsors are two different parties.*** Para 0020 mainly indicates sponsor requests for delivery of content to mobile devices running any application program….. ***These paras do not indicate "wherein the one or more sponsors is at least one of the one or more instances of the application program"*** as recited in these claims. Further, it is so

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> unclear how the one or more sponsors/advertisers is one of the application program (merely software that is running on the user mobile devices)? ***The Examiner has reviewed the rest of the Applicant's specification*** and has ***found no indication*** of "*wherein the one or more sponsors is at least one of the one or more instances of the application program*".

EX1016, 11-12.

93. I agree with the examiner's conclusions. The Applicant did not reply to this office action and the '204 application went abandoned. EX101 1-2.

4. '625 patent ('285 Application)

94. The '285 application, which issued as the '625 patent, included as-filed claim 1, which recited that "a request to obtain an interest in the designated geographic area" is received "from the registered application program." EX1017, 135. The other independent claims included similar limitations. EX1017, 138-134 (claims 19-20). From my review, this limitation—which is found in every issued claim of the '625 patent—is not disclosed by the specification or by the as-filed claims of the '094 and '392 applications. Thus, in my opinion, the '625 patent claims are not entitled to either the '094 or '392 application's filing date.

95. In addition, dependent claim 9 includes essentially the same limitation as the '204 application's dependent claims that were rejected on §112 grounds by Examiner Nguyen; namely, "wherein the registered application program is the at least one of the one or more sponsors." EX1017, 136; EX1016, 115, 118, 120

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(reciting “wherein the one or more sponsors is at least one of the one or more instances of the application program”). Examiner Akonai, however, did not reject this claim under §112 and allowed it in the ’625 patent. EX1010, claim 9.

96. Moreover, dependent claims 17 and 18 recite “wherein receiving the request to obtain the interest in the designated geographic area includes receiving the request on a mobile device” and “wherein the registered application program is being executed on the mobile device.” EX1010, claims 17-18. From my review, these limitations are not disclosed by the specification or by the as-filed claims of the ’094 and ’392 applications.

97. Thus, in my opinion, the issued claims of the ’625 patent are not entitled to the filing date of either the ’094 or ’392 application.

5. ’418 Patent (’961 Application)

98. The ’961 application, which issued as the ’418 patent, included as-filed claim 1 of the ’961 application, which recited that “at least one request to obtain an interest in the designated geographic area” is received “from the registered application program.” EX1018, 356. Again, from my review, this is not disclosed by the specification or by the as-filed claims of the ’094 and ’392 applications.

99. In a preliminary amendment, the Applicant cancelled claims 1-20 and added new claims 21-40. EX1018, 257-589. The examiner then rejected all

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pending claims on several grounds, including §112. EX1018, 222-229. The Applicant subsequently amended the claims, which the examiner allowed. EX1018, 155-206, 136-142. Each of the ’418 patent’s independent claims recite, *inter alia:*

> **implementing, on a mobile device,** at least one computer readable program instruction, made available for use by one or more distinct application programs operating on the mobile device, for **receiving, from a particular one application program…a request to reserve,** for the particular one application program, at least one designated geographic area of interest.

EX1011, Claims 1, 11, 19. From my review, these limitations are not disclosed by the specification or by the as-filed claims of the ’094 and ’392 applications.

100. Thus, in my opinion, the claims of the ’418 patent are not entitled to the filing date of either the ’094 or ’392 application.

6. ’736 Patent (’809 Application)

101. During prosecution, the Examiner issued an Office Action rejecting the pending claims under 35 U.S.C. §112 based on the Applicant attempting to obtain subject matter that was deemed unsupported in earlier filings. EX1003, 155-167. In response, Applicant filed several sets of claim amendments to overcome the rejection. EX1003, 91-109, 115-141. The Examiner then issued a notice of allowance. EX1003, 66-76. Shortly thereafter, Applicant filed a post allowance amendment. EX1003, 12-43.

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C. Priority of Claims

102. I was asked to determine whether (1) one or more of the ’736 patent’s priority applications contain a claim with an effective filing date after 03/16/2013; and (2) the ’809 application had contained, at some time during examination, a claim with an effective filing date after 03/16/2013.

103. Based on my review of the record, (1) one or more of the ’736 patent’s priority applications contain a claim with an effective filing date after 03/16/2013; and (2) the ’809 application had contained, at some time during examination, a claim with an effective filing date after 03/16/2013.

104. I have been told to assume that these facts mean that the ’736 patent is eligible for PGR.

1. ’736 Patent’s Priority Applications Contain a Claim With An Effective Filing Date After 03/16/2013

105. The ’736 patent claims priority to the ’625 patent and the ’418 patent. §III(B) (Prosecution History). For the reasons provided below, from my review, the ’625 patent and the ’418 patent include claims that have an effective filing date no earlier than January 29, 2015. As such, in my opinion, the ’625 patent and the ’418 patent include claims with an effective filing date on or after March 16, 2013.

b. ’285 Application’s Priority Date

106. The ’285 application, which issued as the ’625 patent, included as-filed claim 1, which recites that “a request to obtain an interest in the designated

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geographic area" is received "from the registered application program." §III(B)(4) ('285 Application). In other words, the claims require the "registered application program" to make the request to obtain an interest in or reserve a geographic area of interest. As I explained above, the specification only discloses a system in which sponsors can make reservation requests. *See* §III(A) (Shared Specification). From my review, the specification neither discloses a system in which an application program—or any entity other than a sponsor—can send a request to obtain an interest or reserve a geographic area of interest.

107. When the Applicant originally added this limitation while prosecuting the '392 application, the Applicant claimed that the limitation was supported by paragraphs [0019], [0067], and [0068] of the specification. *See* §III(B)(2) ('392 application); EX1020, 160. From my review, none of these paragraphs disclose a system in which an application program can send a reservation request or suggest that an application program could be a sponsor. Paragraph [0019] merely describes the architecture of system 100, which includes content delivery platform 112, developer platform 108, sponsors 121-125, and mobile devices. EX1003, 660-661. Paragraph [0067] merely explains that the invention can be implemented in hardware and/or software and paragraph [0068] generally describes the meaning of computer-usable or computer readable media. EX1003, 681. In my opinion, there

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is no support anywhere in the specification for this claim limitation. EX1016, 11-12.

108. Indeed, a USPTO examiner already found that the specification did not disclose that an application program could be a sponsor. As I explained above, the independent claims of the '204 application recited "receiving, from one or more sponsors, at least one request to obtain an interest in a designated geographic area," and certain dependent claims recited "wherein the one or more sponsors is at least one of the one or more instances of the application program." *See* §III(B)(3) ('204 application). The examiner rejected the dependent limitation because "[t]he scope of this limitation is indefinite/unclear because it appears to be inconsistent meaning[sic] with the Applicant's specification." EX1016, 11. Referring to paragraphs [0019]-[0021] of the specification, the examiner explained that "[t]hese paras do not indicate 'wherein the one or more sponsors is at least one of the one or more instances of the application program' as recited in these claims" and that the examiner "**has reviewed the rest of the Applicant's specification and has found no indication** of 'wherein the one or more sponsors is at least one of the one or more instances of the application program.'" EX1016, 11-12. Thus, the examiner rejected the claims under §112 based on a finding that there was no support for this limitation.

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109. Thus, in my opinion, the ’285 application included at least one claim with an earliest effective filing date of January 29, 2015.

c. ’961 Application’s Priority Date

110. Independent claim 11 of the ’418 patent (issued from the ’961 Application) recites “implementing, on the mobile device, at least one computer readable program instruction...for receiving, from a particular one application program...during the particular one application program’s execution on the mobile device, a request to reserve...at least one designated geographic area of interest.” EX1011. This claim 11 requires that the reservation request must be received on the same mobile device as the application that sent it or, in other words, the content delivery platform must run on the same mobile device as the application program making the request. As I discussed above, the specification only discloses a system in which the content delivery platform is separate from the mobile device. *See* §III(A) (Shared Specification); EX1001, FIG. 1-3, 3:32-41, 11:48-51, 12:1-3, 12:14-23. From my review, there is no disclosure in the specification of a system in which the content delivery platform runs on the mobile device. Indeed, the specification explains that the content delivery platform must communicate with a mobile device via the internet or communication towers. EX1001, FIG. 1, 3:55-4:15. The specification further explains that the content delivery platform registers applications on different mobile devices. EX1001, 7:13-36, 10:4-20.

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111. During prosecution of the ’418 patent, the Applicant amended the independent claims to recite “implementing, on a mobile device, at least one computer readable program instruction” for receiving a reservation request. EX1018, 156-162, 168-175, 179-186. The Applicant asserted that this limitation was supported by paragraphs [0022], [0064], and [0067] of the specification. EX1018, 201. This is incorrect. Paragraph [0022] generally describes how the content delivery platform communicates with mobile devices and the types of devices with which the content delivery platform can communicate. EX1018, 328-329. Paragraph [0064] generally explains that the content delivery platform may be “implemented in a processing system executing a set of instructions stored in memory.” EX1018, 347. Paragraph [0067] explains that the invention can be implemented in hardware and/or software. EX1018, 348. From my review, none of these paragraphs disclose that the content delivery platform may be implemented on the same mobile device as the registered application program. Furthermore, in my opinion, a POSITA would have understood that a client-server architecture, such as that described in the ’736 patent, a content delivery platform would be server-based, in contrast to an application executing on a mobile device. *See, e.g.,* EX1001, 12:14-23 (“For example, the mobile device can forward information associated with a target location to the content delivery platform, or the content delivery server can obtain location information from a third party application or

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device, from a home location register (HLR), from a visiting location register (VLR), from raw, differential, processed or semi-processed GPS data, from power signals used in code-division multiple access (CDMA) or other wireless communications systems, or otherwise"). Thus, in my opinion, there is no disclosure anywhere in the specification of a content delivery platform being embodied on a mobile device that receives reservation requests from an application program on the same mobile device.

112. As I explained above, the first instance of this functionality being disclosed in this family is with respect to dependent claims 17 and 18 of the '625 patent, which recite "wherein receiving the request to obtain the interest in the designated geographic area includes receiving the request on a mobile device" and "wherein the registered application program is being executed on the mobile device." *See* §III(B)(4) ('285 Application). In my opinion, these limitations are not disclosed by the specification or by the as-filed claims of the '094 and '392 applications.

113. Accordingly, in my opinion, because support for the limitation "implementing, on the mobile device, at least one computer program instruction...for receiving, from a particular one application program...during the particular one program's execution on the mobile device, a request to reserve...at least one designated area of interest" can be found only in the '285 application and

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not in the ’094 or ’392 applications, the ’418 includes a claim that has an earliest effective filing date of 01/29/2015.

d. My Expert Opinions in Prior IPRs Involving the Same Patent Family

114. I was previously utilized as an expert for the petition in IPR2022-01331, which sought to invalidate claims of the ’418 patent on the basis that the ’418 patent cannot claim priority all the way back to the ’296 patent (i.e., the ’094 application) because there is no support that the mobile device can reserve the geographic area. The Board instituted *inter partes* review based on this position. EX1005, 28 (“we agree with Petitioner that the ’094 application consistently and repeatedly discloses that a sponsor makes such a request and does not attribute that action expressly, inherently, or otherwise to any other aspect of the invention”); EX1004, 3-19, 21-27; EX1005, 30 (“we determine that the challenged claims of the ’418 patent are not entitled to the priority date of the ’094 application”). I was also the expert utilized for inter partes review of the ’387 patent and the ’447 patent. In these proceedings, the Board also made the same finding. EX1024-EX1025.

115. While these prior institution decisions are consistent with my prior and current opinions regarding the ’736, ’418, ’296, ’387, and ’447 patents, I am not relying on these prior institution decisions for purposes of this proceeding.

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2. ’809 Application Had Pending Claims with an Effective Filing Date After March 16, 2013

116. In my opinion, the ’809 application contained at some point in time a claim with an effective filing date on or after March 16, 2013 during the prosecution of the ’809 application (’736 patent’s application). Specifically, original claim 1 of the ’809 application recites, in part:

> 1. A non-transitory computer readable medium tangibly embodying a program of computer executable instructions, wherein the program of computer executable instructions comprises at least one instruction for:
>
> sending, via at least use of at least one processor tangibly embodied by a mobile device and via the program of computer executable instructions, to at least one module resident in the mobile device:
>
> a request for having at least a particular identifier being associated with a particular designated geographic area of interest provided to the program of computer executable instructions after it has been determined, by at least use of the at least one processor and of location information representing at least one physical geographic location of the mobile device as determined by a location-determination component tangibly embodied by the mobile device, that the mobile device has at least entered the particular designated geographic area of interest…
>
> particular geographic data to be used for defining the particular designated geographic area of interest and to be used

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with the particular identifier to establish, in a memory tangibly embodied by the mobile device and coupled to the at least one processor, the particular designated geographic area of interest as an area specifically reserved for delivery of the particular identifier related to the program of computer executable instructions, wherein:

the particular geographic data from the program of computer executable instructions comprises at least one particular geometric construct that establishes at least one particular perimeter for defining the particular designated geographic area of interest…

EX1003, 653-654. Claim 1 recites that at least one processor tangibly embodied by a mobile device sends to a module resident in the mobile device " particular geographic data to be used for defining the particular designated geographic area of interest and to be used with the particular identifier to establish, in a memory tangibly embodied by the mobile device and coupled to the at least one processor, the particular designated geographic area of interest as an area specifically reserved for delivery of the particular identifier related to the program of computer executable instructions." As I previously discussed, the shared specification discloses that sponsors are the only party that can define designated geographic areas of interest, i.e., reserve a geographic area of interest, not the computer program of the mobile device. §III(B) (Prosecution History), §III(D)(1) (Priority

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Applications). Based on my review of the shared specification, in my opinion, the earliest application in the priority family that provides support for this claim language is the ’285 application. §III(B)(4)-(5) (’625 patent, ’418 patent), §III(C)(1) (Priority Applications). Therefore, in my opinion, the effective filing date of original claim 1 is January 29, 2015, which is after March 16, 2013.

117. Accordingly, it is my opinion that the application that led to the ’736 patent included at some time a claim that has an effective filing date after March 16, 2013.

D. Person of Ordinary Skill in the Art

118. It is my opinion that a person of ordinary skill in the art as of 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 academic experience. Additional graduate education could substitute for professional experience, and significant experience in the field could substitute for formal education.

E. Claim Construction

119. Below are claim construction that, in my opinion, would have been their ordinary and customary meaning according to a POSITA.

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1. **“at least one processor”** (claim 1)

120. It is my opinion that this limitation requires that the processor (i.e., at least one processor) must be capable of performing each of the instructions included in the code that is configured for execution. In other words, in claim 1, the same single processor must be able to perform the sending of both the request to have an identifier delivered to a computer program on a mobile device and geographic reservation data.

121. Because the sending must be performed by the same processor, in my opinion, the “at least one processor” must be construed as being the processor of the sponsor. Claim 1 requires that the processor executes code that includes instructions for “sending to a content delivery platform ....” Therefore, the processor cannot be that of the content delivery platform. Claim 1 also recites that the processor executes code for “sending, to a content delivery platform...a request to have an identifier...delivered to a computer program on the mobile device...and...geographic reservation data to have the selected geographic area of interest reserved for delivery of the identifier to the computer program....” As I previously established, only the sponsor is able to reserve a geographic area of interest. §III(A) (Shared Specification). Furthermore, the claim requires that the same single processor be capable of sending each item to the content delivery

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platform. Therefore, in my opinion, the "at least one processor" must be a processor of the sponsor.

2. "geometric construct" (claims 1 and 61)

122. The '736 patent explains that perimeters "can be based on map features, such as streets, rivers, landmarks, or any of the other various map features…by latitude and longitude, or various ***geometric constructs having a given relative position to either a point location, a map location, a physical address, or otherwise***." EX1001, 9:17-22 (emphasis added). Perimeters may also be "based on a combination of the various types of constructs." EX1001, 9:23-24. As such, in my opinion, a geometric construct is data that defines a geographic location relative to either a point location, a map location, a physical address, or otherwise.

3. "identifier" (claims 1, 61-62, 82)

123. During prosecution of the '171 patent, which is a continuation of the '736 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." EX1026, 204. In my opinion, that lexicography is consistent with the plain meaning of that term and should be adopted.

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4. **"reserving"** (claim 61)

124. It is my opinion that a POSITA would have understood "reserving" to include making an exclusive or non-exclusive reservation. EX1001, 3:14-16 ("Sponsors can reserve an exclusive interest, or in some embodiments, a semi-exclusive interest, in a geographic area"), 3:53-54 ("the reserved interest can be either completely exclusive, or semi-exclusive"), 9:47-49 ("if an area selected for exclusive or semi-exclusive content delivery is available, the selected geographic area can be reserved for the sponsor").

IV. GROUND 1: CLAIMS 1-82 ARE UNPATENTABLE UNDER 35 U.S.C. §101

125. In my opinion, the Challenged Claims recite nothing more than simply delivering content to a mobile device when it enters a certain geographic area and remains therein for a threshold amount of time based on known computer technology. The claim limitations merely set forth registering the content to be provided, defining the location, and providing the content when a device is determined to be within the defined location and has remained therein for the threshold amount of time. *See* Limitations 1.a-1.c

126. In my opinion, the Challenged Claims simply use generic technology (e.g., a computing device having a processor and a memory) and conventional processes to implement the process of delivering content based on location. There is nothing inventive about the instructions, nor is there any claim to a new

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innovative type of software instruction. The specification does not describe specific computer instructions on the desired functionality and results.

127. In my opinion, the Challenged Claims do not recite any improvement over a conventional or generic personal computing device, which would have a processor and a memory. Claim 1, for example, recites "via use of at least one processor" for sending information to a content delivery platform. In my opinion, there is nothing whatsoever in the claim which would support the notion that this processor is anything other than a generic, conventional software component. Claim 1 neither seeks to solve any technological problems arising in the realm of computers or computer networks nor offer any unconventional technological solutions. The specification of the '736 patent confirms that this is indeed the intention of claim 1. EX1001, 13:10-13 ("Processing System 700 includes one or more central processing units, ... which may be *conventional* microprocessors.") (emphasis added); 13:20-24 ("Processing system 700 includes random access memory (RAM) 720; read-only memory (ROM) 715, wherein the ROM 715 could also be erasable programmable read-only memory (EPROM) or electrically erasable programmable read-only memory (EEPROM)").

128. Neither the specification nor claim 1 provide any explanation of how to perform the various computer implemented instructions, methods, or systems, and instead rely on the pre-existing knowledge of a person of ordinary skill in the

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art. For example, the claims recite result-focused functional language that lacks specificity on how to achieve the desired results. Outside of the "delivering content" limitation, there is nothing more than a combination of routine, conventional, and well-known steps, *i.e.*, sending/receiving a request to have an identifier be delivered to the mobile device, sending/receiving geographic reservation data to designate the geographic area of interest, and sending/receiving the identifier when the mobile device entered the selected geographic area of interest and has remained therein for a predetermined length of time.

129. In my opinion, the Challenged Claims do not recite any novel or specific arrangement of components. For example, the claims do not recite any novel location determination process or novel utilization of geofencing-related concepts and associated technologies. Rather, the components and processes recited in the claims are in the natural and logical order for carrying out the abstract idea of delivering content based on location: (1) designate the information (*i.e.*, identifier) to be sent to a mobile device, (2) define the geographic area, and (3) deliver the information when the mobile device entered the designated geographic area and has remained therein for the predetermined length of time.

130. In my opinion, the Challenged Claims neither seek to solve any technological problems arising in the realm of computers or computer networks nor offer any unconventional technological solutions. Rather, the computer is the

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platform for performing the abstract idea of delivering content based on location. Claim 1 does not purport to operate or use a computer or any described technology component in an unconventional manner. Instead, it recites computer instructions for delivering content based on location, *e.g.*, sending a request to have an identifier be delivered to the mobile device, sending geographic reservation data to designate the geographic area of interest, and receiving the identifier when the mobile device entered the selected geographic area of interest and remained therein for a predetermined length of time—none of which address a technological problem arising in the realm of computers or networks.

131. I have reviewed Patent Owner's First Complaint involving the '296 patent and Patent Owner's Second Complaint involving the '274 patent and the '625 patent (collective, the "Complaints"), all of which shares the same specification as the '736 patent. The Patent Owner's Complaints alleges that the claims are directed to "particular technical solutions that overcome the disadvantages of the conventional methods while being specifically applicable to the unique nature of mobile devices." EX1007, ¶22; EX1040, ¶23. Specifically, Patent Owner's Complaints allege multiple purported advantages in preemptively addressing eligibility. EX1007, ¶¶24-29; EX1040, ¶¶25-31. I disagree with this analysis and submit that the Challenged Claims do not recite any technical

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improvement as alleged by the Patent Owner for the detailed reasons provided below.

132. **Customizable Content.** The Complaints allege that "content delivery is customizable, which enables delivery of content in near-real time to areas as specific as particular business or home locations." This area could be defined by "map features, such as streets, rivers, [or] landmarks…" EX1007, ¶24; EX1040, ¶25. Based on my review, the '736 claims, however, say nothing about "real-time" delivery, nor do they mention specific map features such as streets, rivers or landmarks. Instead, two of the '736 independent claims simply mention "the geographic reservation data comprises a geometric construct used to establish at least one perimeter as a boundary for the selected geographic area of interest" (EX1001, claim 1[b], 61[b]), while the remaining independent claims only generically refer to a "geographic area of interest" (EX1001, claim 62[a], 82[a]). In my opinion, this limitation is nothing more defining desired locations for content delivery.

133. **Dwell Time/Alert Spam.** The Second Complaint further alleges that "delivery of content is based on the mobile device entering an area for a predetermined/specified period of time," and this feature allowed the industry to avoid the problem of "alert spam." EX1040, ¶¶26-27. Based on my review, this feature, however, is just another rule for delivering content, devoid of any

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technological improvement. Furthermore, there is no description of *how* to determine what the predetermined time should be or *how* to apply these restrictions. At best, from my review, only claims 62 and 82 specify that this is determined using location information. Claims 62 and 82 similarly do not specify ***how*** the location information is used to make this determination. Further, while the claims recite that the mobile device "remained therein for at least a predetermined length of time" (*see, e.g.,* limitation 1.c), the claims do not recite how that length of time is determined, what that length of time is, or how it is determined that the mobile device remained therein. Rules related to content delivery have been well known for years, including rules based on geographic location, time, duration, or other location-related attributes. *See* §I(B) (Technology Background). From my review, without any further details regarding the duration of the length of time, the mobile device simply existing or entering the geographic area of interest could satisfy the claim limitation because the predetermined length of time can be set to any non-zero positive value.

134. **Centralized Management System.** The Complaints further allege that using a centralized management system "can thereby deliver specific content to each of a number of registered apps within specific regions under centralized management." EX1007, ¶25; EX1040, ¶28. Once again, this alleged improvement is simply a location-based content delivery process. Moreover, without any more

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specificity, such as reference to a centralized main frame or centralized server-bank data center, the generic reference to "centralized" could have a variety of different meanings, particularly in contrast to "decentralized." Furthermore, none of the asserted claims recite "centralized management" or a "central management system" or anything similar. At best, some recite a "content delivery platform," which can be a generic computer or Internet server that communicates with the mobile devices as depicted in Figure 1 of the '736 patent. *See also* Fig. 7; EX1001, 13:11-36 (describing conventional microprocessor-based computer systems). Moreover, the Complaints further allege that the "centralized management solution allows for battery savings through the reduction of instances in which a device's location must be polled." EX1007, ¶29; EX1040, ¶31. However, from my review, this power savings is not claimed (or depicted anywhere in the specification).

135. **Identifier.** The First Complaint further alleges that providing a request identifier for each request for content from an application program is "a unique technical solution for the tracking of user interaction with content delivered based on geographic areas of interest and allowing further tailored content to be delivered to the user." EX1007, ¶26. Again, from my review, the use of a request identifier to track user interaction with content is not claimed; instead, in my opinion, claim 1, at best, recites a generic identifier that is sent and received between the content delivery platform and the mobile device.

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136. **Exclusivity/Resolving Competing Claims.** The Complaints also allege the features that geographic areas can be exclusively reserved – and that competing claims to geographic areas can be resolved – as technological improvements. EX1007, ¶¶27-28; EX1040, ¶¶29-30. But, from my review, these concepts are not embodied in the claim language; instead, the '736 patent claims discuss "sending…geographic reservation data to have the selected geographic area of interest reserved for delivery of the identifier to the computer program." Nothing in the '736 patent claims talks about an *exclusive* reservation or resolving *competing* claims. Moreover, PO's purported improvements apply to traditional broadcast as well. Radio and TV stations can only broadcast one commercial in a timeslot. Thus, scheduling of advertisements, i.e., resolving competing claims, already existed (e.g., TV stations auctioned off advertisement timeslots). Even if the claims did recite exclusivity, semi-exclusivity, or scheduling of advertisements, in my opinion, they are not improvements.

137. The independent claims of the '736 patent generally require the following:

- Reserving a geographic area for delivery of an identifier (e.g., claims 1[b], 61[b]-[d], 62[a], and 82[c]);
- Determining/obtaining a mobile device location within the geographic area (e.g., claims 1[c], 61[e], 62[b]-[c], and 82[b]-[c]);

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- Determining that a mobile device is located within the geographic area for a threshold period of time (e.g., claims 1[c], 61[f], 62[d], and 82[d]);
- Requesting/receiving an identifier associated with a geographic area (e.g., claims 1[a], 61[a], 62[a], and 82[a]); and
- Receiving/Delivering the identifier when the mobile device is located within a geographic area for the threshold period of time (e.g., claims 1[c], 61[f], 62[e], and 82[e]).

138. Based on my review of the claims, in my opinion, claim 1 is representative of the Challenged Claims and includes the above limitations. Claim 61 is similar to claim 1, with the difference being that claim 61 is drafted from the perspective of the content delivery platform—limitations 1.a-1.b correspond to limitations 61.a-61.b, 61.d (sending/receiving and reserving information between the sponsor and the content delivery platform); limitation 61.c recites a conventional and routine storing step; limitations 61.e-61.f correspond to limitation 1.c (obtaining and delivering the identifier based on location information). In my opinion, this difference is not relevant to the analysis under §101. Claim 62 is substantially the same as claim 61, with the differences being that claim 62 does not require receipt of the geographic reservation data and that the location information is obtained as the mobile device moves over time. In my opinion, these differences are not relevant to the analysis under §101. Similarly, claim 82 is substantially the same as claim 62, with the difference being that claim 82 recites

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"whether the mobile device *is located within* the selected geographic area of interest" rather than "whether the mobile device *has entered* the selected geographic area of interest." In my opinion, this difference is not relevant to the analysis under §101.

139. In my opinion, the dependent claims of the '736 patent merely add additional conventional and routine limitations as described below:

- Claim 2 requires the display of content associated with the geographic area of interest when the identifier is received via the computer program.
- Claims 3, 71-72 require the identifier be sent to the content delivery platform and/or received via the content delivery platform.
- Claim 4 requires the identifier to be a data string of characters.
- Claim 5 requires the geographic reservation data to be an area bounded by a perimeter.
- Claim 6 requires the geographic reservation data to include two geographic areas of interest.
- Claims 7-8 require the identifier be sent/received when the mobile device enters the second geographic area of interest.
- Claim 9 requires display of content associated with the geographic area of interest when the identifier is received via the computer program.
- Claim 10 requires the identifier be sent via the computer program.
- Claim 11 requires the computer program be provided to the mobile device.
- Claims 12-15 cover the same process recited in claim 1, but is drafted from the perspective of the content delivery platform.

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- Claim 16 requires the geographic area of interest be located within a predetermined radial distance of the mobile device.
- Claims 17-18, 66-68 require the creation of a notification when the mobile device enters the geographic area of interest.
- Claim 19-20 requires determining the availability for the reservation of the geographic area before providing the identifier and making the reservation.
- Claim 21 requires returning an indication that the geographic area of interest was reserved.
- Claim 22 requires discontinuing delivery of the identifier when the mobile device has exited the geographic area of interest.
- Claim 23 requires the location information be obtained when the computer program is not being executed on the mobile device.
- Claim 24 requires the identifier be delivered when the computer program is not being executed on the mobile device.
- Claim 25 requires considering the device stationary if the mobile device was carried by a person.
- Claim 25 requires considering the device stationary if the mobile device was transported in a motor vehicle.
- Claims 27-29 recite ways in which the location information is determined, e.g., cellular tower, GPS, wireless networks.
- Claim 30 requires use of a predetermined radius encircling the physical location of the mobile device in determining the location of the mobile device.
- Claims 31-34 require use of one or more third party sources in combination with cell tower information or a wireless data network for determining the location of the mobile device.

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- Claims 35-36 require receipt of data that includes the identifier.
- Claim 37 requires the delivery of the identifier exclusively to the computer program.
- Claim 38-40, 79-81 require a verification check to determine a location of the mobile device.
- Claims 41-43, 63-65, and 69 requires delivery of the content after it has been determined that the mobile device was in the geographic area for a predetermined duration and/or satisfies further constraints of the request.
- Claims 44-45 define the geometric construct as including a radius value, a latitude value, and a longitude value or at least three latitude and longitude coordinates.
- Claim 46 requires receipt of an indication that the geographic area of interest was reserved.
- Claims 47-48 require use of one or more third party sources in combination with cell tower information or a wireless data network for determining the location of the mobile device.
- Claims 49-50 simply allow second requests, second identifiers, and second selected geographic areas of interest.
- Claim 51 simply allows third requests, third identifiers, and third selected geographic areas of interest.
- Claim 52 requires the identifier be associated with the boundary.
- Claims 53-54, 70 require the request to include a request to have an identifier delivered exclusively to the computer program and not broadcast to other computer programs.
- Claim 55 requires the computer program to be an application program.

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- Claim 56 requires the computer program to operate as a function of operating system software.
- Claim 57 requires the content delivery platform to operate as a function of operating system software.
- Claims 58-60 require the content delivery platform to includes a communications interface and defines the communications interface as an application programming interface or a device driver interface.
- Claims 73-74 require storing a record of the identifier for future delivery of the identifier to the computer program and use of that record for delivering the identifier.
- Claim 75 requires receipt of geographic reservation data and defines the geographic reservation data as including a geometric construct used to establish at least one perimeter as a boundary for the selected geographic area of interest.
- Claim 76 requires reserving the selected geographic area of interest for delivery of the identifier to the computer program.
- Claims 77-78 require exclusive delivery of the identifier to the computer program and not to other computer programs.

140. In my opinion, none of these additional limitations change the fundamental character of the claims and none of these limitations are new. Therefore, all dependent claims are linked to the abstract idea of claim 1—delivering content based on location.

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V. GROUND 2 – CLAIMS 1, 61, 62, AND 82 ARE UNPATENTABLE OVER ELLIOTT AND JACOB

A. Overview of Elliott

141. U.S. Patent Appl. Pub. No. 2006/0149630 ("Elliott") was filed November 16, 2005, and published July 6, 2006. EX1028, cover page. I have been informed that Elliott is prior art under 35 U.S.C. §§102(a), (b), and (e) (pre-AIA).

142. Elliott generally relates to systems and methods for delivering advertisements to mobile devices. EX1028, ¶3, ¶9. Figure 1 reproduced below broadly illustrates the core components of Elliott's system:

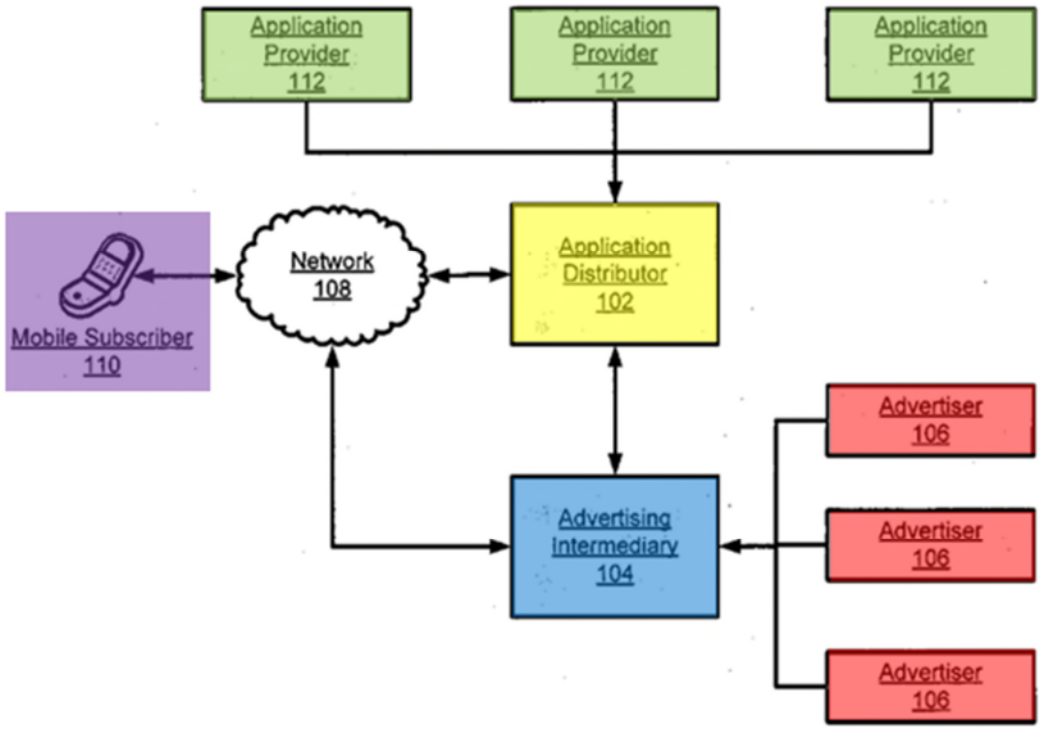

Fig. 1

EX1028, 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). EX1028, ¶13. Each of the plurality of advertisers 106 provides advertisements to advertising intermediary 104 for delivery to mobile subscriber 110. EX1028, ¶13. Each of the plurality of application providers 112 provides applications to application distributor 102 for delivery to mobile subscriber 110. EX1028, ¶13. Application provider 112 may provide application distributor 102 with one of the advertisements for delivery to the mobile subscriber 110.

143. 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." EX1028, ¶15. Advertising intermediary 104 stores the advertisements in advertisement database 206 along with the targeting information. EX1028, ¶15. Advertising intermediary 104 also includes a subscriber database 208 that stores account information for each mobile phone service subscriber 110. EX1028, ¶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

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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." EX1028, ¶17.

144. In my opinion, Elliott is analogous art to the '736 patent. Elliott is from the same field of endeavor, specifically, they are both patents in the field of advertisement delivery systems. In addition, Elliott is reasonably relevant to the problem the patent is concerned with, as shown in my analysis below in Section V-VI. Based on my review of the prosecution history (EX1003), Elliott appears to have not been considered during prosecution of the '736 patent.

B. Overview of Jacob

145. Jacob was filed on April 27, 2001, and published on October 31, 2002. EX1029, 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).

146. Jacob discloses an advertising system based on a user's location. EX1029, Abstract. As shown in the annotated Figure 1 below, the system includes information providers (red) such as advertisers 119, 121 who send information

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through a service provider 123 (green) to a consumer's communications unit 103, 105 (blue), which can be a mobile device. EX1029, Abstract.

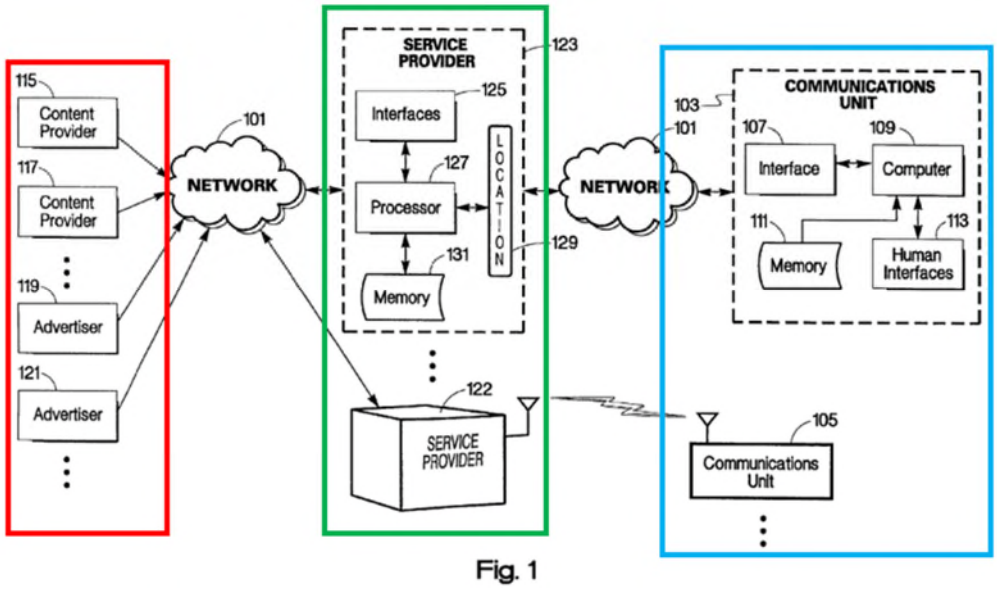

Fig. 1

EX1029, Fig. 1, ¶23.

147. 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)." EX1029, ¶28. The service provider stores advertisements and advertisement attributes corresponding to the advertisements. EX1029, ¶22. One of the advertisement attributes includes geographic location. EX1029, ¶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)").

148. In operation, the communications unit 103, 105 sends location information to the service provider 122, 123. EX1029, ¶29, ¶32. The service provider 122, 123 converts the information to a format to enable a match with the aforementioned location "attributes." EX1029, ¶29, ¶32. 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. EX1029, ¶¶29-30, ¶32.

149. In my opinion, Jacob is analogous art to the '736 patent. Jacob is from the same field of endeavor, specifically, they are both patents in the field of advertisement delivery systems. In addition, Jacob is reasonably relevant to the problem the patent is concerned with, as shown in my analysis below in Sections V-VI. Based on my review of the prosecution history (EX1003), Jacob was not considered during prosecution of the '736 patent.

C. Motivation to Combine

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

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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. EX1028, ¶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"); EX1029, ¶17. In my opinion, a POSITA would have been motivated by the teachings of Jacob to implement Jacob's geographic location advertisement attribute with Elliott's targeting information to further individualize "content tailored to the expressed preferences of a person." EX1029, ¶3. 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

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within the skillset of a POSITA. The proposed combination would not have required undue experimentation and would have yielded a predictable result.

151. I have been asked to opine in the circumstance that Patent Owner argues the portions of Elliott or Jacob 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.

D. Claim 1

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

1. [1.pre] A method for creating and offloading location awareness, the method comprising:

153. In my opinion, the Elliott-Jacob combination discloses *a method for creating and offloading location awareness.* EX1028, ¶3 ("The present invention relates generally to the delivery of advertisements on mobile devices"); EX1029, ¶1 ("The present invention generally relates to…delivery of advertisements included with content in an electronic publication that have a geographic location significance to a user"), ¶27 ("One of the attributes that can be assigned to an advertisement is that of geographic location. The significance of the geographic

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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"), ¶¶28-32.

2. [1.a] sending, via use of at least one processor, to a content delivery platform: a request to have an identifier, being associated with a selected geographic area of interest, delivered to a computer program on a mobile device after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the selected geographic area of interest;

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

155. In my opinion, the Elliott-Jacob combination discloses *sending, via use of at least one processor* (processor of advertiser device), *to a content delivery platform* (application distributor 102 and advertising intermediary 104): *a request to have an identifier* (indication of advertisement in response mechanism), *being associated with a selected geographic area of interest, delivered to a computer program* (application) *on a mobile device* (mobile subscriber) *after it has been determined, by at least use of location information representing at least one physical geographic location* (location coordinates) *of the mobile device, that the mobile device has at least entered the selected geographic area of interest*. EX1028, ¶¶13-15, ¶17, ¶21, ¶¶32-33, FIG. 2; EX1029, ¶22, ¶¶27-29, ¶32, ¶37, FIGS. 3, 9.

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156. Elliott discloses *sending, via use of at least one processor* (processor of advertiser device), *to a content delivery platform* (application distributor 102 and advertising intermediary 104). Elliott's system includes one or more advertisers 106 communicating with advertising intermediary 104:

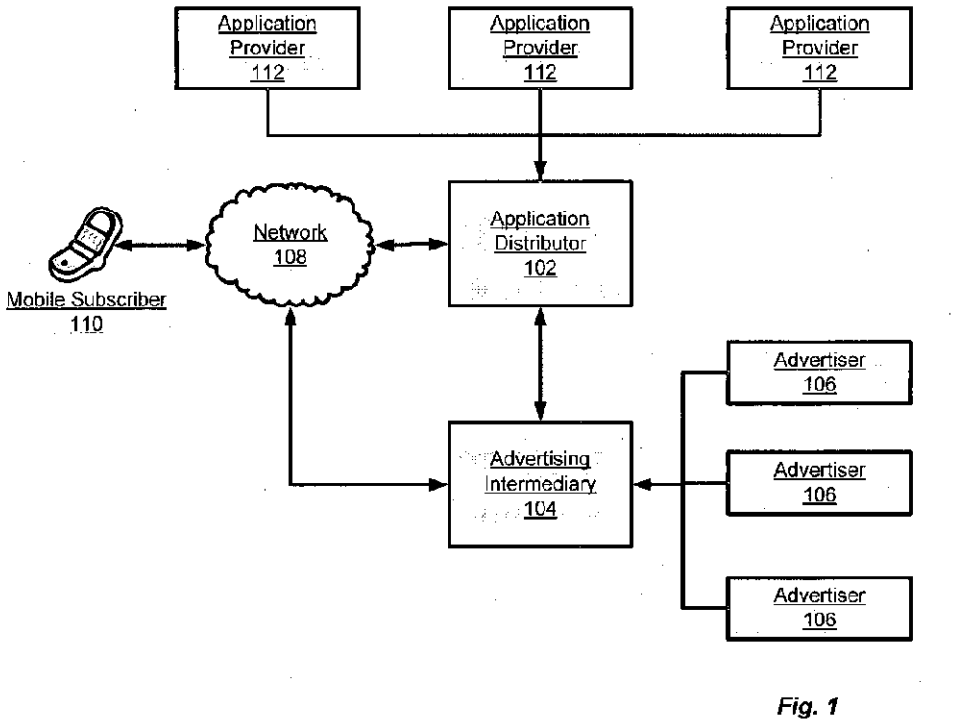

Fig. 1

EX1028, FIG. 1. Elliott's advertisers 106 send requests to advertising intermediary 104 and application distributor 102 (collectively, the content delivery platform) to deliver an advertisement to an application executing on a mobile device of mobile subscriber 110. EX1028, ¶13 ("FIG. 1 includes a plurality of advertisers 106, each of which provides advertisements to advertising intermediary 104" and an "[a]pplication distributor 102 [which] distributes…advertisements over a network

108 to a mobile device 110"), ¶14 ("advertiser 106 provides advertisements that appear on all or part of a display screen of a subscriber's mobile device 110"), ¶15 ("Advertisers 106 provide their advertisements to advertising intermediary 104"). This request is sent *via use of at least one processor* (processor of a computing device sponsor uses to communicate with advertising intermediary 104, *i.e.*, processor of advertiser device). EX1028, ¶14, ¶27, ¶33, FIG. 3 (element 302).

157. Elliott's advertiser's request to the advertising intermediary 104 to deliver an advertisement to the mobile device is *a request to have an identifier* (indication of the advertisement in the response mechanism)*…delivered to a computer program on the mobile device*. In particular, when an application in Elliott "requests an advertisement from application distributor 102, application distributor 102 transmits 304 data to advertising intermediary 104 about which subscriber is using which application" and "[i]n response to the request for an advertisement…advertisement intermediary 104 selects an appropriate advertisement and transmits 306 the selected advertisement back to application distribution 102," which "forwards 308 advertisement to the mobile subscriber" for display via the requesting application. EX1028, ¶27. 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." EX1028, ¶21, ¶17 ("Each advertisement preferably includes a response option by

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which the mobile phone service subscriber can reply to an advertisement that piques his interest"). Elliott's 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. EX1028, ¶17 ("In one embodiment, the response option is a link…displayed as part of the advertisement").

158. In my opinion, a POSITA would have understood that Elliott's link (*i.e.*, URL) that includes the indication of the advertisement (*i.e.*, the response mechanism) is an identifier, *i.e.*, 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.*, EX1028, ¶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"); §III(E)(3) ("identifier" construction).

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159. Furthermore, in my opinion, the Elliott-Jacob combination discloses the identifier *being associated with a selected geographic area of interest.* EX1028, ¶15; EX1029, ¶22, ¶¶27-28, FIG. 3, Abstract. Elliott's request from the advertiser to deliver an advertisement includes targeting information that specifies the advertiser's 106 "preference[s] for which demographic should receive each advertisement." EX1028, ¶15. Though Elliott does not explicitly describe that the advertisement or identifier is associated with a selected geographic area of interest, 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. EX1029, Abstract. The service provider stores advertisements and advertisement attributes corresponding to the advertisements. EX1029, ¶22. One of the advertisement attributes includes geographic location specified as a zip code. EX1029, ¶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)").

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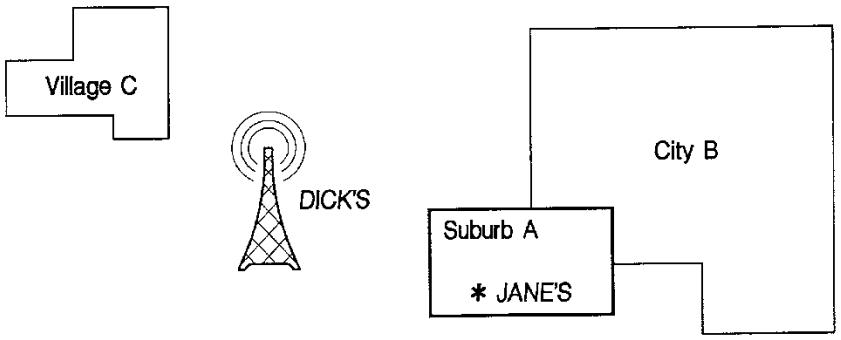

Fig. 3

EX1029, 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). Because Jacob's advertisement includes the advertisement attributes of geographic location, the advertisement is *associated with a selected geographic area of interest*. Moreover, in my opinion, a POSITA would have understood and found it obvious to implement the targeting information provided by Elliott's advertisers 106 to advertising intermediary 104 to include Jacob's location attributes provided by the advertisers 119, 121 to the service provider 123. §V(C) (motivation to combine). Therefore, because the Elliott-Jacob combination discloses an advertisement that is associated with a selected geographic area of interest and that the advertisement includes an identifier in the form of a response mechanism, in my opinion, a POSITA would have understood and found obvious that the Elliott-Jacob combination discloses that the identifier is associated with a selected geographic area of interest.

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160. In my opinion, the Elliott-Jacob combination discloses that the *identifier* (indication of the advertisement in the response mechanism) is delivered to the application on the mobile device *after it has been determined…that the mobile device has at least entered the selected geographic area of interest.* EX1029, ¶29, ¶37; §V(C) (motivation to combine). Jacob discloses delivering an advertisement from a particular advertiser to mobile devices when the mobile devices are determined to have at least entered (e.g., be within) a geographic area of interest. EX1029, ¶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"). Therefore, because the Elliott-Jacob combination discloses delivering the advertisement to the computer program on the mobile device when the mobile device enters a geographic area, in my opinion, the Elliott-Jacob combination discloses that the identifier that is included with the advertisement is

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delivered to the computer program on the mobile device when the mobile device enters the geographic area because the identifier is sent with the advertisement.

161. In my opinion, the Elliott-Jacob combination discloses that a determination that the mobile device has entered a selected geographic area of interest is performed using *location information* (location coordinates or similar data) *representing at least one physical geographic location* (current location) *of the mobile device* (mobile subscriber). §V(C) (motivation to combine). As I describe above, the Elliott-Jacob combination uses location coordinates to determine the physical location of the mobile subscriber. EX1029, ¶29 ("the communications unit provides location coordinates (or similar data) to the service provider, which then uses a conventional algorithm to detect, or otherwise convert, the location coordinates to a ZIP code area"), ¶37 ("the user communications unit derives its location information from an integral global positioning receiver that receives signals from GPS satellites and conventionally calculates the position coordinates for the communications unit, as identified at 902 in FIG. 9. Other location techniques may alternatively be employed, for example, the use of cellular radiotelephone base site location information"), FIG. 9.

3. [1.b] [sending…to a content delivery platform:]…geographic reservation data to have the selected geographic area of interest reserved for delivery of the identifier to the computer program, wherein the geographic reservation data comprises a geometric

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construct used to establish at least one perimeter as a boundary for the selected geographic area of interest

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

163. As I discussed in limitation 1.a, Elliott's advertiser sends to the advertising intermediary 104 (*i.e.*, the content delivery platform) a request to send an advertisement to mobile subscribers. Elliott's request further includes advertisement targeting information that specifies the advertiser's 106 "preference[s] for which demographic should receive each advertisement." EX1028, ¶15. Though Elliott does not explicitly describe sending geographic reservation data with the request, in my opinion, Jacob discloses this functionality. In particular, when Jacob's advertisers provide their advertisements to service provider 123 for delivery to mobile devices, Jacob's advertisers also send advertisement attributes associated with the advertisements. EX1029, ¶22. One of Jacob's advertisement attributes is a geographic location attribute. EX1029, ¶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)"). Jacob's request to deliver advertisements to a particular geographic area using the geographic location attribute constitutes geographic reservation data to have the

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selected geographic area of interest reserved for the delivery of the advertisement with the response mechanism to the application on the mobile device. EX1029, ¶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: 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. 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. §V(C) (motivation to combine).

164. In my opinion, the Elliott-Jacob combination further discloses *the geographic reservation data* (geographic location attribute) *comprises a geometric construct* (e.g., zip code) *used to establish at least one perimeter as a boundary for*

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the selected geographic area of interest. §III(E)(2) ("geometric construct" construction). One of Jacob's advertisement attributes is a geographic location attribute specified as a zip code. EX1029, ¶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)").

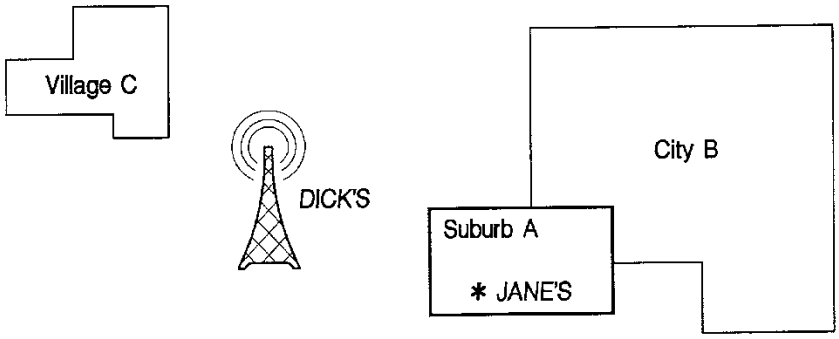

Fig. 3

EX1029, 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 a geometric construct because it is data that defines a geographic location relative to a point location, a map location, a physical address, or otherwise. §III(E)(2) ("geometric construct" construction). Furthermore, in my opinion, a zip code is well-known and long-established to be a pre-established perimeter that acts as a boundary for the geographic area of interest. *See, e.g.*, EX1041, 4 ("The first three

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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"). Therefore, Jacob's ZIP codes constitute the claimed geometric construct used to establish at least one perimeter as a boundary for the selected geographic area of interest. In my opinion, a POSITA would have understood and found obvious to implement Jacob's geographic location advertisement attribute with Elliott's targeting information to further individualize "content tailored to the expressed preferences of a person," such as content tailored to the current location of the user. EX1029, ¶3; §V(C) (motivation to combine).

4. [1.c] receiving, via the computer program, the identifier delivered by the content delivery platform after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the selected geographic area of interest and has remained therein for at least a predetermined length of time.

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

166. In my opinion, Elliott discloses *receiving, via the computer program* (application on mobile device)*, the identifier* (indication of the advertisement) *delivered by the content delivery platform* (application distributor 102 and advertising intermediary 104). EX1028, ¶17, ¶21; §V(D)(2) (limitation 1.a). 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

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intermediary." EX1028, ¶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. EX1028, ¶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 because Elliot's advertisement is displayed via the application that requested the advertisement, the message is sent *via the computer program*. §V(D)(2) (limitation 1.a); EX1028, ¶27. In my opinion, a POSITA would have further understood that Elliot's message sent from the mobile subscriber (*i.e., via the computer program*) to the response engine 204 of advertising intermediary 104 must necessarily include the identifier, because activating the link or URL response mechanism provides the advertising intermediary with information corresponding to the link or URL. *See, e.g.*, EX1028, ¶21 ("the message includes information to identify the

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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").

167. In my opinion, the Elliott-Jacob combination further discloses that *the identifier is* received *after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the selected geographic area of interest*. In particular, in my opinion, in order to receive the identifier from the mobile device, the identifier is first provided to the mobile device based on the determination. §V(D)(2) (limitation 1.a). Therefore, in my opinion, the identifier received by the content delivery platform is received ***after*** it is sent to the mobile device because the mobile device cannot send an identifier it has not received.

168. In my opinion, the Elliott-Jacob combination further discloses that the identifier is received after it has been determined that the mobile device…*has remained therein for at least a predetermined length of time.* As I explain above in this Section, the Elliott-Jacob combination discloses that the content management system receives the identifier delivered by the content delivery platform after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the selected geographic area of interest. Because the identifier is sent

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to the mobile device when the mobile device is determined to have entered the selected geographic area of interest, in my opinion, a POSITA would have understood and found obvious that the identifier is sent to the mobile device upon a determination that the mobile device has remained within the selected geographic area of interest for a predetermined length of time, where the predetermined length of time is anytime greater than 0 seconds. Moreover, it was well-known in the art to predicate actions of a remote device based on being in a location for a predetermined length of time. *See*, *e.g.*, EX1027, 5:5-8 (showing that pushing information to a remote device predicated on the remote device remaining in a location for a prescribed period of time was well-known in the art).

E. Claim 61

169. In my opinion, Elliott renders this claim obvious in combination with Jacob.

1. [61.pre] A method for creating and offloading location awareness, the method comprising:

170. In my opinion, the Elliott-Jacob combination discloses this limitation. *See* §V(D)(1) (limitation 1.pre).

2. [61.a] receiving, via a content delivery platform, a request to have an identifier, being associated with a selected geographic area of interest, delivered to a computer program on a mobile device after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the

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mobile device has at least entered the selected geographic area of interest;

171. In my opinion, the Elliott-Jacob combination discloses this limitation. This limitation is substantially similar to limitation 1.a. §IV; §V(D)(2) (limitation 1.a).

3. [61.b] receiving, via the content delivery platform, geographic reservation data to have the selected geographic area of interest reserved for delivery of the identifier to the computer program, wherein the geographic reservation data comprises a geometric construct used to establish at least one perimeter as a boundary for the selected geographic area of interest;

172. In my opinion, the Elliott-Jacob combination discloses this limitation. This limitation is substantially similar to limitation 1.b. §IV; §V(D)(3) (limitation 1.b).

4. [61.c] storing, in memory accessible to the content delivery platform, a record comprising the identifier;

173. In my opinion, the Elliott-Jacob combination discloses this limitation. EX1028, ¶15, ¶17.

174. Elliott's advertising intermediary 104 stores advertisements in advertisement database 206 along with the targeting information. EX1028, ¶15. As indicated above for limitation 61.a, Elliott's advertising intermediary 104 generates response mechanisms or response options for each advertisement that it delivers so that the mobile subscriber can reply to an advertisement that piques their interest. EX1028, ¶17; §V(E)(2) (limitation 61.a). In my opinion, A POSITA would have

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understood and found it obvious to modify Elliott's advertisement database to include the advertisement identifiers to be sent with each advertisement. Such a modification is supported by the teachings of Elliott because Elliott teaches storing additional information in advertisement database 206 with the advertisements, such as an indication of the type of advertisement and the targeting information supplied with the advertisements. EX1028, ¶15. Furthermore, in my opinion, a POSITA would have understood and found it obvious to modify each advertisement record to include a corresponding advertisement identifier for inclusion in the response mechanism or response option so that the advertisement identifier need not be generated each time an advertisement is retrieved from advertisement database 206.

5. [61.d] reserving the selected geographic area of interest for delivery of the identifier to the computer program;

175. In my opinion, the Elliott-Jacob combination discloses this limitation. EX1028, ¶¶14-18; §V(D)(3) (limitation 1.b); §III(E)(4) ("reserving" construction). This limitation is substantially similar to limitations 1.a-1.b. §IV.

176. The Elliott-Jacob combination discloses that when an advertiser interfaces with advertising intermediary 104 for the delivery of advertisements to the mobile subscriber, the advertising intermediary 104 creates an exclusive or non-exclusive reservation in the selected geographic area of interest to deliver the advertisement that includes the identifier to the computer program. EX1028, ¶15

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(Elliott's advertisement intermediary 104 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"). In my opinion, a POSITA would have found it obvious to modify Elliott's targeting information to include Jacob's location attributes provided by the advertisers 119, 121 to the service provider 123. §V(D)(3) (limitation 1.b); §V(C) (motivation to combine). Elliott's act of advertisement intermediary 104 interfacing with advertisers 106 to receive the advertisements, along with the modified targeting information, for subsequent delivery of the advertisements and the identifier in accordance with the targeting information in an exclusive or non-exclusive manner is an act of making a reservation. EX1028, ¶¶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)(4) ("reserving" construction).

6. [61.e] obtaining location information representing at least one physical geographic location of the mobile device; and

177. In my opinion, the Elliott-Jacob combination discloses this limitation. Specifically, the Elliott-Jacob combination discloses *obtaining location*

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information (location coordinates or similar data) *representing at least one physical geographic location of the mobile device*. EX1029, ¶29, ¶37, FIG. 9. This limitation is substantially similar to limitation 1.c. §IV.

178. The Elliott-Jacob combination discloses a content delivery system (advertising intermediary 104 and application distributor 102) that obtains the mobile subscriber's current location coordinates from the mobile subscriber for purposes of delivering an advertisement to the mobile subscriber. EX1028, ¶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" and "advertisement selection engine 202 of advertisement intermediary 104 selects an appropriate advertisement and transmits 306 the selected advertisement back to application distributor 102"), ¶17 ("Advertisement selection engine 202…choosing the most desirable advertisements to show to each subscriber based both on the advertiser's specified target demographic for the advertisement"); EX1029, ¶29 ("the communications unit provides location coordinates (or similar data) to the service provider, which then uses a conventional algorithm to detect, or otherwise convert, the location coordinates to a ZIP code area"), ¶37 ("the user communications unit derives its location information from an integral global positioning receiver that receives signals from GPS satellites and conventionally calculates the position coordinates

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for the communications unit, as identified at 902 in FIG. 9. Other location techniques may alternatively be employed, for example, the use of cellular radiotelephone base site location information"), FIG. 9.

179. In my opinion, a POSITA would have been motivated by the teachings of Jacob to implement Jacob's geographic location advertisement attribute in Elliott's advertisers' target demographic information to further individualize "content tailored to the expressed preferences of a person." EX1029, ¶3. Such a combination involves a simple addition of one known element (Jacob's geographic location advertisement) with other similar elements (*e.g.*, Elliott's target demographic information or targeting information) to obtain predictable results (providing advertisers with the ability to define the geographic area for delivering advertisements). In my opinion, a POSITA would have understood that in order for the content delivery system to deliver advertisements based on geographic area, the content management system would request location information from the mobile device to determine which advertisements are relevant to the mobile subscriber based on their location. §V(C) (motivation to combine).

7. [61.f] delivering, via the content delivery platform, data comprising the identifier from the record stored in the memory to the computer program after it has been determined, using the obtained location information, that the mobile device has at least entered the selected

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geographic area of interest and has remained therein for at least a predetermined length of time.

180. In my opinion, the Elliott-Jacob combination discloses this limitation. This limitation is substantially similar to limitation 1.c. §IV; §V(D)(4) (limitation 1.c); §V(E)(6) (limitation 61.e).

F. Claim 62

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

1. [62.pre] A method for creating and offloading location awareness, the method comprising:

182. In my opinion, the Elliott-Jacob combination discloses this limitation. §V(E)(1) (limitation 61.pre).

2. [62.a] receiving, via a content delivery platform, a request to reserve a selected geographic area of interest for delivery of an identifier associated with the selected geographic area of interest to a computer program on a mobile device;

183. In my opinion, the Elliott-Jacob combination discloses this limitation. This limitation is substantially similar to limitations 61.a-61.b, but is much broader in scope. Limitations 61.a-61.b encompasses the process described in limitation 62.a. §§V(E)(2)-(3) (limitations 61.a-61.b).

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3. [62.b] obtaining location information representing at least one physical geographic location of the mobile device as the mobile device moves over time;

184. In my opinion, the Elliott-Jacob combination discloses this limitation. *See* §V(E)(6) (limitation 61.e); EX1029, ¶23, ¶28.

185. In my opinion, the Elliott-Jacob combination discloses *obtaining location information* (location coordinates or similar data) *representing at least one physical geographic location of the mobile device*. *See* §V(E)(6) (limitation 61.e).

186. The Elliott-Jacob combination further discloses that the location information is obtained *as the mobile device moves over time*. EX1029, ¶23 ("communications unit 103, 105 is a moveable, portable device" and "the most useful application of the present invention is for moveable communications units"), ¶28 ("Dick's Television Broadcasting Company wants to advertise to those users on the move throughout the geographic area include Suburb A, City B, and Village C and includes those ZIP codes for those areas in the advertising attributes stored by the service provider").

4. [62.c] using location information to determine whether the mobile device has entered the selected geographic area of interest;

187. In my opinion, the Elliott-Jacob combination discloses this limitation. Specifically, in my opinion, the Elliott-Jacob combination discloses *using location information* (location coordinates or similar data) *to determine whether the mobile*

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device (mobile subscriber) *has entered the selected geographic area of interest*. EX1029, ¶29, ¶37, FIG. 9.

188. The Elliott-Jacob combination discloses a content delivery system (advertising intermediary 104 and application distributor 102) that uses location information for determining whether the mobile device has entered the geographic area of interest. EX1028, ¶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" and "advertisement selection engine 202 of advertisement intermediary 104 selects an appropriate advertisement and transmits 306 the selected advertisement back to application distributor 102"), ¶17 ("Advertisement selection engine 202…choosing the most desirable advertisements to show to each subscriber based both on the advertiser's specified target demographic for the advertisement"); EX1029, ¶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

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transmits (publishes) the publication to the communications unit"). This determination is performed using *location information* (location coordinates or similar data). EX1029, ¶29 ("the communications unit provides location coordinates (or similar data) to the service provider, which then uses a conventional algorithm to detect, or otherwise convert, the location coordinates to a ZIP code area"), ¶37 ("the user communications unit derives its location information from an integral global positioning receiver that receives signals from GPS satellites and conventionally calculates the position coordinates for the communications unit, as identified at 902 in FIG. 9. Other location techniques may alternatively be employed, for example, the use of cellular radiotelephone base site location information"), FIG. 9.

189. A POSITA would have been motivated by the teachings of Jacob to implement Jacob's geographic location advertisement attribute with Elliott's advertisers' target demographic information to further individualize "content tailored to the expressed preferences of a person." EX1029, ¶3. Such a combination involves a simple addition of one known element (Jacob's geographic location advertisement) with other similar elements (*e.g.*, Elliott's target demographic information or targeting information) to obtain predictable results (providing advertisers with the ability to define the geographic area for delivering advertisements). In my opinion, a POSITA would have understood that in order for

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the content delivery system to deliver advertisements based on geographic area, the content management system would use location information from the mobile device to determine which advertisements are relevant to the mobile subscriber based on their location. §V(C) (motivation to combine).

5. [62.d] using location information to determine whether the mobile device has remained within the selected geographic area of interest for a particular duration of time; and

190. In my opinion, the Elliott-Jacob combination discloses using location information (location coordinates or similar data) to determine whether the mobile device (mobile subscriber) has remained within the selected geographic area of interest for a particular duration of time.

191. As I previously discussed for limitation 62.c, the Elliott-Jacob combination discloses that the content management system uses location information to determine whether the mobile device has entered the selected geographic area of interest. §V(E)(4) (limitation 62.c). Because the Elliott-Jacob combination uses location information to determine whether the mobile device has entered into the selected geographic area of interest, in my opinion, a POSITA would have understood and found obvious that the Elliott-Jacob combination also uses this information to determine whether the mobile device has remained within the selected geographic area of interest for a particular duration of time, where the particular duration of time is any duration of time greater than 0 seconds. *See, e.g.,*

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EX1027, 5:5-8 (showing that pushing information to a remote device predicated on the remote device remaining in a location for a prescribed period of time is well-known in the art).

6. [62.e] after it has been determined that the mobile device has remained within the selected geographic area of interest for the particular duration of time, delivering, via the content delivery platform, the identifier to the computer program.

192. In my opinion, the Elliott-Jacob combination discloses this limitation. §V(E)(7) (limitation 61.f).

G. Claim 82

193. In my opinion, Elliott renders this claim obvious in combination with Jacob.

1. [82.pre] A method for creating and offloading location awareness, the method comprising:

194. In my opinion, the Elliott-Jacob combination discloses this limitation. §V(F)(1) (limitation 62.pre).

2. [82.a] receiving, via a content delivery platform, a request to reserve a selected geographic area of interest for delivery of an identifier associated with the selected geographic area of interest to a computer program on a mobile device;

195. In my opinion, the Elliott-Jacob combination discloses this limitation. §V(F)(2) (limitation 62.a).

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3. [82.b] obtaining location information representing at least one physical geographic location of the mobile device as the mobile device moves over time;

196. In my opinion, the Elliott-Jacob combination discloses this limitation. §V(F)(3) (limitation 62.b).

4. [82.c] using location information to determine whether the mobile device is located within the selected geographic area of interest;

197. In my opinion, the Elliott-Jacob combination discloses this limitation. §V(F)(4) (limitation 62.c). Claim 82 is substantially the same as claim 62, with the difference being that claim 82 recites "whether the mobile device *is located within* the selected geographic area of interest" rather than "whether the mobile device *has entered* the selected geographic area of interest."

5. [82.d] using location information to determine whether the mobile device has remained within the selected geographic area of interest for a particular duration of time; and

198. In my opinion, the Elliott-Jacob combination discloses this limitation. §V(F)(5) (limitation 62.d).

6. [82.e] after it has been determined that the mobile device has remained within the selected geographic area of interest for the particular duration of time, delivering, via the content delivery platform, the identifier to the computer program.

199. In my opinion, the Elliott-Jacob combination discloses this limitation. §V(F)(6) (limitation 62.e).

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VI. GROUND 3 – CLAIMS 1, 61, 62, AND 82 ARE UNPATENTABLE OVER ELLIOTT, JACOB, AND SAKAMOTO

A. Overview of Elliott

200. My explanation of the Elliott reference is above and incorporated here by reference into Ground 3. *See* §V(A).

B. Overview of Jacob

201. My explanation of the Jacob reference is above and incorporated here by reference into Ground 3. *See* §V(B).

C. Motivation to Combine Elliott and Jacob

202. My explanation of the motivation to combine Elliott and Jacob is above and incorporated here by reference into Ground 3. *See* §V(C) (motivation to combine).

D. Overview of Sakamoto

203. Sakamoto was filed on November 28, 2000, and published on October 19, 2004. EX1027, cover page. I have been informed that Sakamoto is prior art under at least 35 U.S.C. §§102(a), (b), and (e) (pre-AIA).

204. Sakamoto is generally directed to a radio communication system in which base stations for transmitting push-type distribution information are provided. EX1027, abstract. This push-type information "can be advertisement information or the like that is broadcasted by the radio base station." EX1027, 8:42-44. Sakamoto's radio terminal receives the push-type distribution information

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"when the radio terminal stays in the same area for more than a prescribed period of time." EX1027, 5:7-8. The radio terminal includes a time location recognition unit 103 and a measurement unit 104. EX1027, FIG. 1. Time location recognition unit 103 is configured for "recognizing a location of this radio terminal 101." EX1027, 5:18-19. Measurement unit 104 is configured "for measuring a period of time for which this radio terminal 101 stays in the same area by utilizing information regarding a location recognized by the location recognition unit 103." EX1027, 5:21-24. In operation, location recognition unit 103 "recognizes the location of the radio terminal 101 by utilizing a radio base station identifier or the like that is contained in the control information" transmitted by the base station. EX1027, 5:55-58. Measurement unit uses this information to determine whether the radio terminal has remained in a given area. EX1027, 5:62-67. When the radio terminal has remained in a given location for the prescribed period of time, the radio terminal is able to receive the push notification. EX1027, 6:21-27.

205. In my opinion, Sakamoto is analogous art to the '736 patent. Sakamoto is from the same field of endeavor, specifically, they are both patents in the field of advertisement delivery systems. In addition, Jacob is reasonably relevant to the problem the patent is concerned with, as shown in my analysis below in Sections VI. Based on my review of the prosecution history (EX1003), Jacob was not considered during prosecution of the '736 patent.

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E. Motivation to Combine Sakamoto with Elliott and Jacob

206. As indicated above, in my opinion, a POSITA would have been motivated to modify the teachings of Elliott (§V(A)) based on the teachings of Jacob (§V(B)). §VI(C) (motivation to combine).

207. In my opinion, a POSITA would have been further motivated to modify the combination of Elliott and Jacob based on the teachings of Sakamoto because the Elliott-Jacob combination discloses use of geographic location attributes in determining whether to send advertisements to a given mobile subscriber and Sakamoto discloses pushing information to a mobile radio terminal "when the radio terminal stays in the same area for more than a prescribed period of time." EX1027, 5:5-8. In my opinion, a POSITA would have been motivated by the teachings of Sakamoto to implement Sakomoto's selective approach for pushing information based on a radio terminal remaining in the same area for a threshold amount of time so as to "prevent the radio terminal from receiving an excessively large amount of advertising information and thereby improve the handling of the radio terminal for the user" when the radio terminal is in transit and is only passing through the area of interest. EX1027, 7:8-11. Such a combination involves a simple addition of one known element (Sakamoto's timing mechanism) with other similar elements (*e.g.*, the Elliott-Jacob's location-based advertising system) to obtain predictable results (sending advertisements to mobile subscribers

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that remain in a geographic area of interest for a predefined duration). 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 Sakamoto. Such a combination would have required minimal modifications to the Elliott-Jacob combination to implement Sakamoto's time thresholding for delivering notifications to radio terminals 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.

208. I have been asked to opine in the circumstance that Patent Owner argues the portions of Elliott, Jacob, or Sakamoto cited below relate to different, incompatible embodiments (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.

F. Claim 1

209. In my opinion, Elliott renders this claim obvious in combination with Jacob and Sakamoto.

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1. [1.pre] A method for creating and offloading location awareness, the method comprising:

210. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §V(D)(1) (limitation 1.pre).

2. [1.a] sending, via use of at least one processor, to a content delivery platform: a request to have an identifier, being associated with a selected geographic area of interest, delivered to a computer program on a mobile device after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the selected geographic area of interest;

211. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §V(D)(2) (limitation 1.a).

3. [1.b] [sending…to a content delivery platform:]…geographic reservation data to have the selected geographic area of interest reserved for delivery of the identifier to the computer program, wherein the geographic reservation data comprises a geometric construct used to establish at least one perimeter as a boundary for the selected geographic area of interest

212. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §V(D)(3) (limitation 1.b).

4. [1.c] receiving, via the computer program, the identifier delivered by the content delivery platform after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the

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selected geographic area of interest and has remained therein for at least a predetermined length of time.

213. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §V(D)(4) (limitation 1.c).

214. To the extent that it is determined that the Elliott-Jacob combination does not render obvious that the identifier is received after it has been determined that the mobile device *has remained therein for at least a predetermined length of time*, in my opinion, Sakamoto discloses this limitation. EX1027, 5:5-8; §VI(E) (motivation to combine).

215. Sakamoto discloses that a radio base station pushes notifications to a radio terminal "when the radio terminal stays in the same area for more than a prescribed period of time." EX1027, 5:5-8. Once the radio terminal determines that it has stayed in a given location for the prescribed threshold, the radio terminal's "reception control unit 105 controls the reception unit 102 to receive the push type distribution information transmitted by the radio base station." EX1027, 8:38-44.

216. In my opinion, a POSITA would have been further motivated to modify the combination of Elliott and Jacob based on the teachings of Sakamoto because the Elliott-Jacob combination discloses use of geographic location attributes in determining whether to send advertisements to a given mobile subscriber and Sakamoto discloses pushing information to a mobile radio terminal "when the radio terminal stays in the same area for more than a prescribed period

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of time." EX1027, 5:5-8. In my opinion, a POSITA would have been motivated by the teachings of Sakamoto to implement Sakomoto's selective approach for pushing information based on a radio terminal remaining in the same area for a threshold amount of time so as to "prevent the radio terminal from receiving an excessively large amount of advertising information and thereby improve the handling of the radio terminal for the user" when the radio terminal is in transit and is only passing through the area of interest. Such a combination involves a simple addition of one known element (Sakamoto's timing mechanism) with other similar elements (*e.g.*, Elliott-Jacob's location-based advertising system) to obtain predictable results (sending advertisements to mobile subscribers that remain in a geographic area of interest for a predefined duration.

G. Claim 61

217. In my opinion, Elliott renders this claim obvious in combination with Jacob and Sakamoto.

1. [61.pre] A method for creating and offloading location awareness, the method comprising:

218. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. *See* §V(G)(1) (limitation 61.pre).

2. [61.a] receiving, via a content delivery platform, a request to have an identifier, being associated with a selected geographic area of interest, delivered to a computer program on a mobile device after it has been determined, by at least use of location information representing at least one

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physical geographic location of the mobile device, that the mobile device has at least entered the selected geographic area of interest;

219. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. *See* §V(G)(2) (limitation 61.a).

3. [61.b] receiving, via the content delivery platform, geographic reservation data to have the selected geographic area of interest reserved for delivery of the identifier to the computer program, wherein the geographic reservation data comprises a geometric construct used to establish at least one perimeter as a boundary for the selected geographic area of interest;

220. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. *See* §V(G)(3) (limitation 61.b).

4. [61.c] storing, in memory accessible to the content delivery platform, a record comprising the identifier;

221. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. *See* §V(G)(4) (limitation 61.c).

5. [61.d] reserving the selected geographic area of interest for delivery of the identifier to the computer program;

222. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. *See* §V(G)(5) (limitation 61.d).

6. [61.e] obtaining location information representing at least one physical geographic location of the mobile device; and

223. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. *See* §V(G)(6) (limitation 61.e).

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7. [61.f] delivering, via the content delivery platform, data comprising the identifier from the record stored in the memory to the computer program after it has been determined, using the obtained location information, that the mobile device has at least entered the selected geographic area of interest and has remained therein for at least a predetermined length of time.

224. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §V(D)(7) (limitation 61.f).

225. To the extent that the Elliott-Jacob combination does not explicitly disclose or suggest that the identifier is delivered after it has been determined that the mobile device *has remained therein for at least a predetermined length of time,* in my opinion, Sakamoto discloses this limitation. EX1027, 5:5-8; §VI(E) (motivation to combine).

226. Sakamoto discloses that a radio base station pushes notifications to a radio terminal "when the radio terminal stays in the same area for more than a prescribed period of time." EX1027, 5:5-8. Once the radio terminal determines that it has stayed in a given location for the prescribed threshold, the radio terminal's "reception control unit 105 controls the reception unit 102 to receive the push type distribution information transmitted by the radio base station." EX1027, 8:38-44.

227. In my opinion, a POSITA would have been further motivated to modify the combination of Elliott and Jacob based on the teachings of Sakamoto because the Elliott-Jacob combination discloses use of geographic location

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attributes in determining whether to send advertisements to a given mobile subscriber and Sakamoto discloses pushing information to a mobile radio terminal "when the radio terminal stays in the same area for more than a prescribed period of time." EX1027, 5:5-8. In my opinion, a POSITA would have been motivated by the teachings of Sakamoto to implement Sakomoto's selective approach for pushing information based on a radio terminal remaining in the same area for a threshold amount of time so as to "prevent the radio terminal from receiving an excessively large amount of advertising information and thereby improve the handling of the radio terminal for the user" when the radio terminal is in transmit and is only passing through the area of interest. Such a combination involves a simple addition of one known element (Sakamoto's timing mechanism) with other similar elements (*e.g.*, Elliott-Jacob's location-based advertising system) to obtain predictable results (sending advertisements to mobile subscribers that remain in a geographic area of interest for a predefined duration.

H. Claim 62

228. In my opinion, Elliott renders this claim obvious in combination with Jacob and Sakamoto.

1. [62.pre] A method for creating and offloading location awareness, the method comprising:

229. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §VI(G)(1) (limitation 61.pre), §V(F)(1) (limitation 62.pre).

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2. [62.a] receiving, via a content delivery platform, a request to reserve a selected geographic area of interest for delivery of an identifier associated with the selected geographic area of interest to a computer program on a mobile device;

230. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §VI(G)(2) (limitation 61.a), §V(F)(2) (limitation 62.a).

3. [62.b] obtaining location information representing at least one physical geographic location of the mobile device as the mobile device moves over time;

231. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §VI(G)(6) (limitation 61.e), §V(F)(3) (limitation 62.b).

4. [62.c] using location information to determine whether the mobile device has entered the selected geographic area of interest;

232. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §V(F)(4) (limitation 62.c).

5. [62.d] using location information to determine whether the mobile device has remained within the selected geographic area of interest for a particular duration of time; and

233. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §VI(G)(7) (limitation 61.f), §V(F)(5) (limitation 62.d).

6. [62.e] after it has been determined that the mobile device has remained within the selected geographic area of interest for the particular duration of time, delivering, via the

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content delivery platform, the identifier to the computer program.

234. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §VI(G)(7) (limitation 61.f), §V(F)(6) (limitation 62.e).

I. Claim 82

235. In my opinion, Elliott renders this claim obvious in combination with Jacob and Sakamoto.

1. [82.pre] A method for creating and offloading location awareness, the method comprising:

236. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §VI(H)(1) (limitation 62.pre), §V(G)(1) (limitation 82.pre).

2. [82.a] receiving, via a content delivery platform, a request to reserve a selected geographic area of interest for delivery of an identifier associated with the selected geographic area of interest to a computer program on a mobile device;

237. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §VI(H)(2) (limitation 62.a), §V(G)(2) (limitation 82.a).

3. [82.b] obtaining location information representing at least one physical geographic location of the mobile device as the mobile device moves over time;

238. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §VI(H)(3) (limitation 62.b), §V(G)(3) (limitation 82.b).

4. [82.c] using location information to determine whether the mobile device is located within the selected geographic area of interest;

239. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §VI(H)(4) (limitation 62.c), §V(G)(4) (limitation 82.c).

5. [82.d] using location information to determine whether the mobile device has remained within the selected geographic area of interest for a particular duration of time; and

240. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §VI(H)(5) (limitation 62.d), §V(G)(5) (limitation 82.d).

6. [82.e] after it has been determined that the mobile device has remained within the selected geographic area of interest for the particular duration of time, delivering, via the content delivery platform, the identifier to the computer program.

241. In my opinion, the Elliott-Jacob-Sakamoto combination discloses this limitation. §VI(H)(6) (limitation 62.e), §V(G)(6) (limitation 82.e).

VII. SECONDARY CONSIDERATIONS

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

VIII. RIGHT TO SUPPLEMENT

243. 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

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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 on my continuing analysis of the materials already provided.

IX. CONCLUSION

244. 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.

245. 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.

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APPENDIX A

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, Tegris, 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: Tegris
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 Trauig**
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 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 **XYVerify (3)**
Projects: 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 **Civil and Criminal Forensics**
Matters: Various
Project: 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 **Sterne Kessler Goldstein Fox**
Matter: Volkswagen
Project: Provided expert support for IPR involving Location-Based Messaging in automotive related use matter/environments.

Date: 2017-2018 **Finnegan & Henderson**
Matter: Fed Ex
Project: 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 **Sterne Kessler Goldstein Fox**
Matter: VIVINT
Project: Providing expert support, reports, and deposition for IPR involving several location-related patents for home security/energy company. Report and Deposition.

Date: 2015 **Hogan Lovells**
Matter: Apple
Project: 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 **Thompson Hine LLP**
Matters: Macropoint
Project: Provided expert support for patent litigation efforts involving fleet management devices, software, and services. Report and Report and Deposition.

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Date: 2013-2014 **Williams & Connolly**
Matter: State of Maryland
Project: Provided expert services in assessing validity of GPS tracking bracelet/system in parole violation matter. Report.

Date: 2013-2014 **Cravath, Swaine & Moore**
Matter: Qualcomm
Project: Provided expert litigation support, technical consulting, and advisory services in Anti-Trust matter regarding location services technologies, platforms, and standards.

Date: 2014 **Patterson Thuente Pedersen, P.A.**
Matter: Kaspersky Internet Security
Project: Provided expert litigation support and technical consulting in patent countersuit involving internet security services. Report.

Date: 2014 **Sullivan & Cromwell LLP, others**
Matter: Peschke
Project: Provided expert support and technical consulting in location services infringement patent dispute involving interactive mapping applications. Report and Deposition.

Date: 2012-2013 **Covington & Burling**
Matter: 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

Year	College/University	Degree
1987	The University of Texas at Austin (1st 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)