US008433296B2

(12) **United States Patent**
Hardin et al.

(10) **Patent No.: US 8,433,296 B2**
(45) **Date of Patent: Apr. 30, 2013**

(54) **EXCLUSIVE DELIVERY OF CONTENT WITHIN GEOGRAPHIC AREAS**

(76) Inventors: **Ryan Hardin**, Henderson, TX (US); **Andrew Hill**, Houston, TX (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 379 days.

(21) Appl. No.: **12/434,094**

(22) Filed: **May 1, 2009**

(65) **Prior Publication Data**

US 2010/0279665 A1 Nov. 4, 2010

(51) **Int. Cl.**
H04M 3/42 (2006.01)

(52) **U.S. Cl.**
USPC **455/414.1**; 705/14.2; 705/14.55; 705/14.58; 705/14.4; 707/743; 455/412.1; 455/415; 455/466; 455/456.3; 455/414.2; 455/456.1; 455/412.2

(58) **Field of Classification Search** 705/14.58
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,810,323	B1	10/2004	Bullock et al.	
6,847,888	B2	1/2005	Fox et al.	
6,867,733	B2	3/2005	Sandhu et al.	
7,009,556	B2	3/2006	Stewart	
7,080,402	B2	7/2006	Bates et al.	
7,089,264	B1	8/2006	Guido et al.	
7,096,117	B1	8/2006	Gale et al.	
7,103,368	B2 *	9/2006	Teshima	455/456.3
7,124,370	B2	10/2006	Fish	
7,200,673	B1	4/2007	Augart	
7,207,802	B2	4/2007	Wilson	
7,219,303	B2	5/2007	Fish	
7,814,106	B2 *	10/2010	Guido et al.	707/743
2003/0064705	A1	4/2003	Desiderio	
2003/0198346	A1 *	10/2003	Meifu et al.	380/258
2004/0214550	A1	10/2004	Jenkins	
2004/0220906	A1	11/2004	Gargi et al.	
2004/0253965	A1 *	12/2004	Sato et al.	455/456.3
2006/0064346	A1 *	3/2006	Steenstra et al.	705/14
2007/0185768	A1	8/2007	Vengroff et al.	
2008/0004952	A1 *	1/2008	Koli	705/14
2008/0154728	A1	6/2008	Thomas	
2008/0162032	A1	7/2008	Wuersch et al.	
2008/0163073	A1	7/2008	Becker et al.	
2008/0215524	A1	9/2008	Fuchs et al.	

(Continued)

OTHER PUBLICATIONS

Wayback machine "Iphone App Advertisement" http://www.blog.yieldbuild.com/2008/08/21/iphone-app-advertising/. Aug. 24, 2008.*

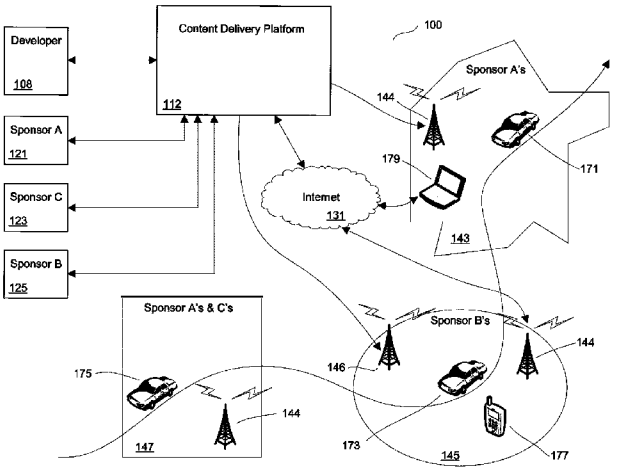
(Continued)

Primary Examiner — Kent Chang
Assistant Examiner — Benjamin Morales Fernandez

(57) **ABSTRACT**

Application developers can request to have their applications registered for use with a content delivery platform. The operator of the content delivery platform establishes perimeters defining geographic areas, and maintains records reserving particular areas for delivery of content associated with particular sponsors. Registered applications running on mobile devices can request content from the content delivery platform. Based at least in part on the request, the content delivery platform can identify a target location, which may be the location of the mobile device, or some other location indicated in the request. A mobile device can be provided content based on the relationship of the target location to the geographic areas, so that a registered application running on a mobile device with a target location contained within a geographic area assigned to a particular sponsor will receive content related to that sponsor.

15 Claims, 7 Drawing Sheets



U.S. PATENT DOCUMENTS

2008/0262897	A1	10/2008	Howarter et al.	
2008/0307498	A1	12/2008	Johnson et al.	
2008/0313039	A1	12/2008	Altberge et al.	
2009/0024476	A1 *	1/2009	Baar et al.	705/14
2009/0063424	A1	3/2009	Iwamura et al.	
2010/0312646	A1 *	12/2010	Gupta et al.	705/14.58

OTHER PUBLICATIONS

Ad Mob, Inc., "Help for Advertisers—Ad Pricing", http://www.admob.com/home/help/helpfiles/Advertisers/Ad Pricing, May 19, 2009.

AdMob, Inc., "Help for Advertisers—Target the Specific User You Want to Reach", http://www.admob.com/home/help/helpfiles/Advertisers/Target, May 19, 2009.

AdMob, Inc., "iPhone for Advertisers", http://www.admob.com/home/help/helpfiles/Advertisers/iPhone Ad, May 19, 2009.

Google, Inc., "What are the different options for targeting ads to mobile phones and devices?", https://adwords.google.com/support/bin/answer=107265&hl=en_US, May 18, 2009.

Google, Inc., "How does customized targeting work?", http://adwords.google.com/support/bin/answer.py?answer=116, May 18, 2009.

Google, Inc., "How are ads ranked?", http://adwords.google.com/support/bin/answer.py?hl=en&answer=6111, May 18, 2009.

Google, Inc., "How do ads cycle through the search page results?", http://adwords.google.com/support/bin/answer.py?hl=en&answer=87402, May 18, 2009.

Google, Inc., "How do I create a mobile ad?", http://adwords.google.com/support/bin/answer=29488&cbid, May 18, 2009.

Google, Inc., "Lesson 3c: Language & Location Targeting", http://www.google.com/adwords/learningcenter/text/print-19158.html, May 19, 2009.

Google, Inc., "What is position preference?", http://adwords.google.com/support/bin/answer.py?hl=en&answer=31788, May 19, 2009.

Google, Inc., "What are mobile ads?", http://adwords.google.com/support/bin/answer.py?answer=29492&cbid, May 18, 2009.

Google, Inc., "Why can't I see my ad?", http://adwords.google.com/support/bin/answer.py?hl=en&answer=6105, May 18, 2009.

* cited by examiner

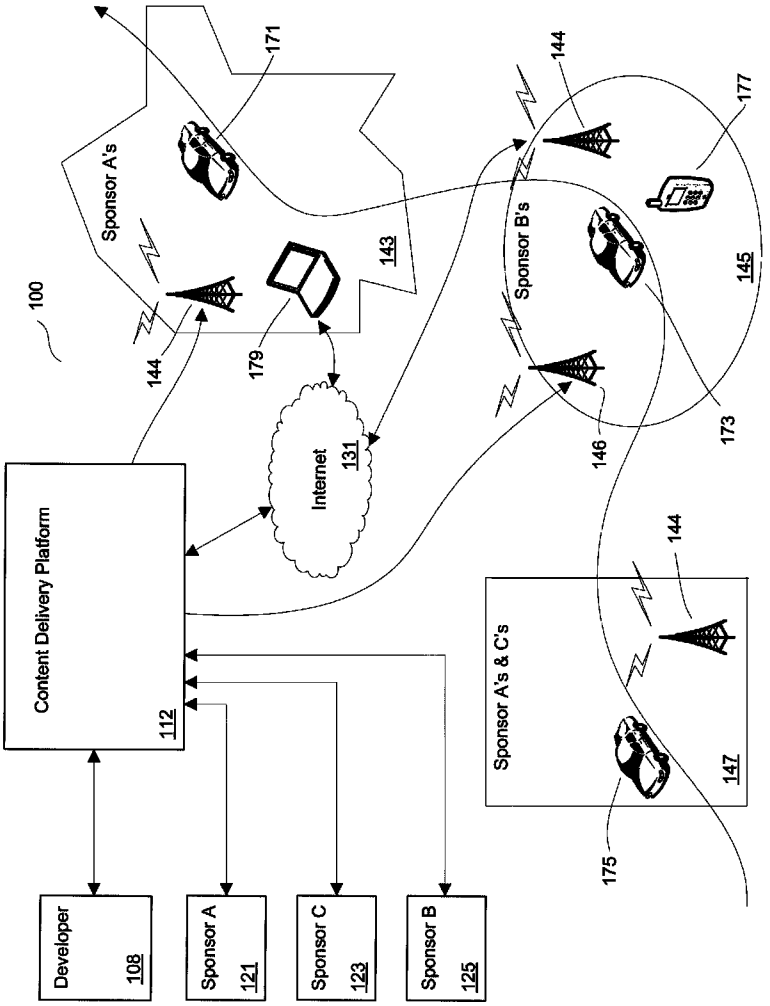

100
Sponsor A's
171
143
144
179
Internet
131
Content Delivery Platform
112
Sponsor B's
144
177
145
146
173
Sponsor A's & C's
144
147
175
Developer
108
Sponsor A
121
Sponsor C
123
Sponsor B
125

FIG. 1

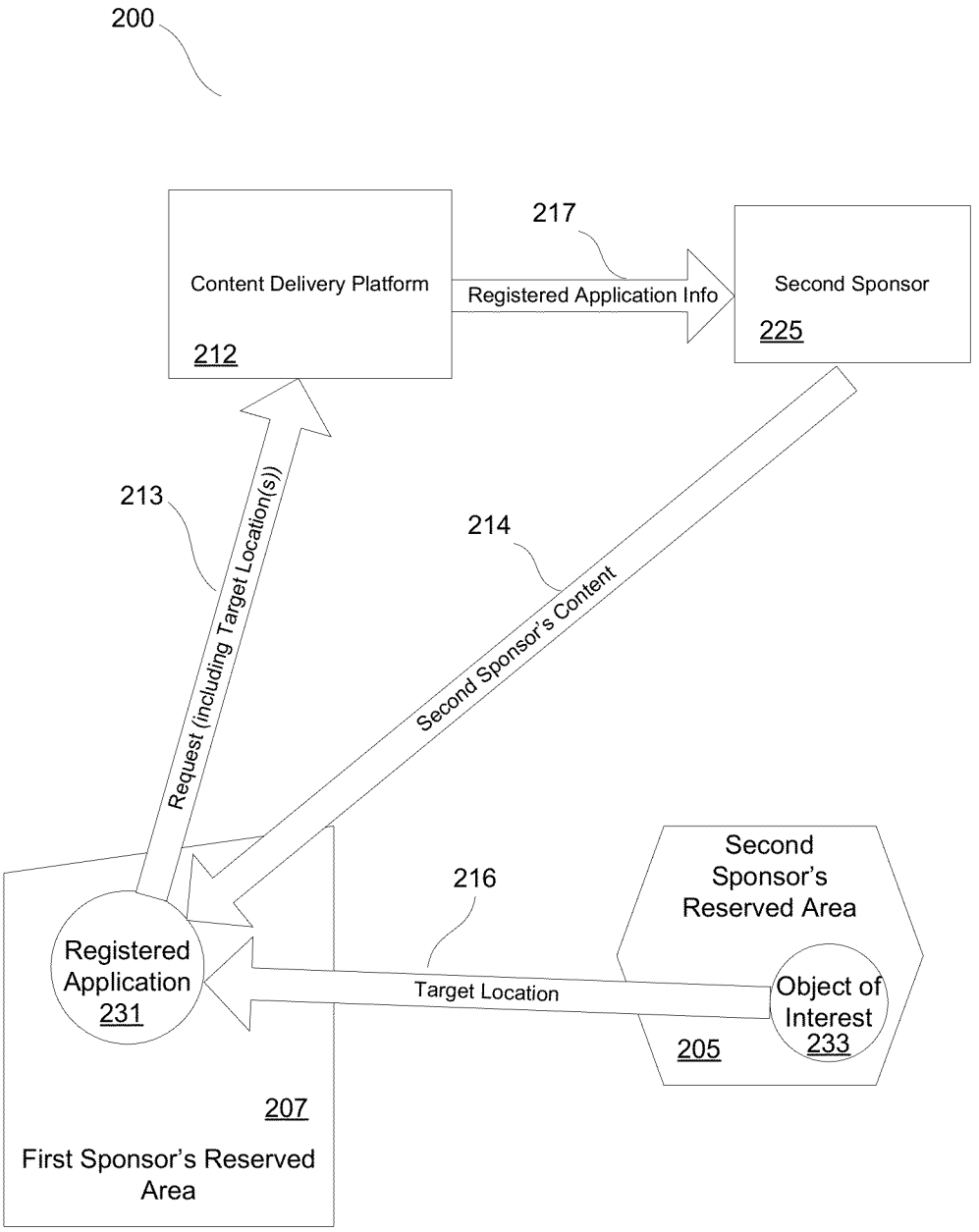

200
Content Delivery Platform
212
217
Registered Application Info
Second Sponsor
225
213
Request (including Target Location(s))
214
Second Sponsor's Content
Second Sponsor's Reserved Area
216
Registered Application 231
Target Location
Object of Interest 233
205
207
First Sponsor's Reserved Area

FIG. 2

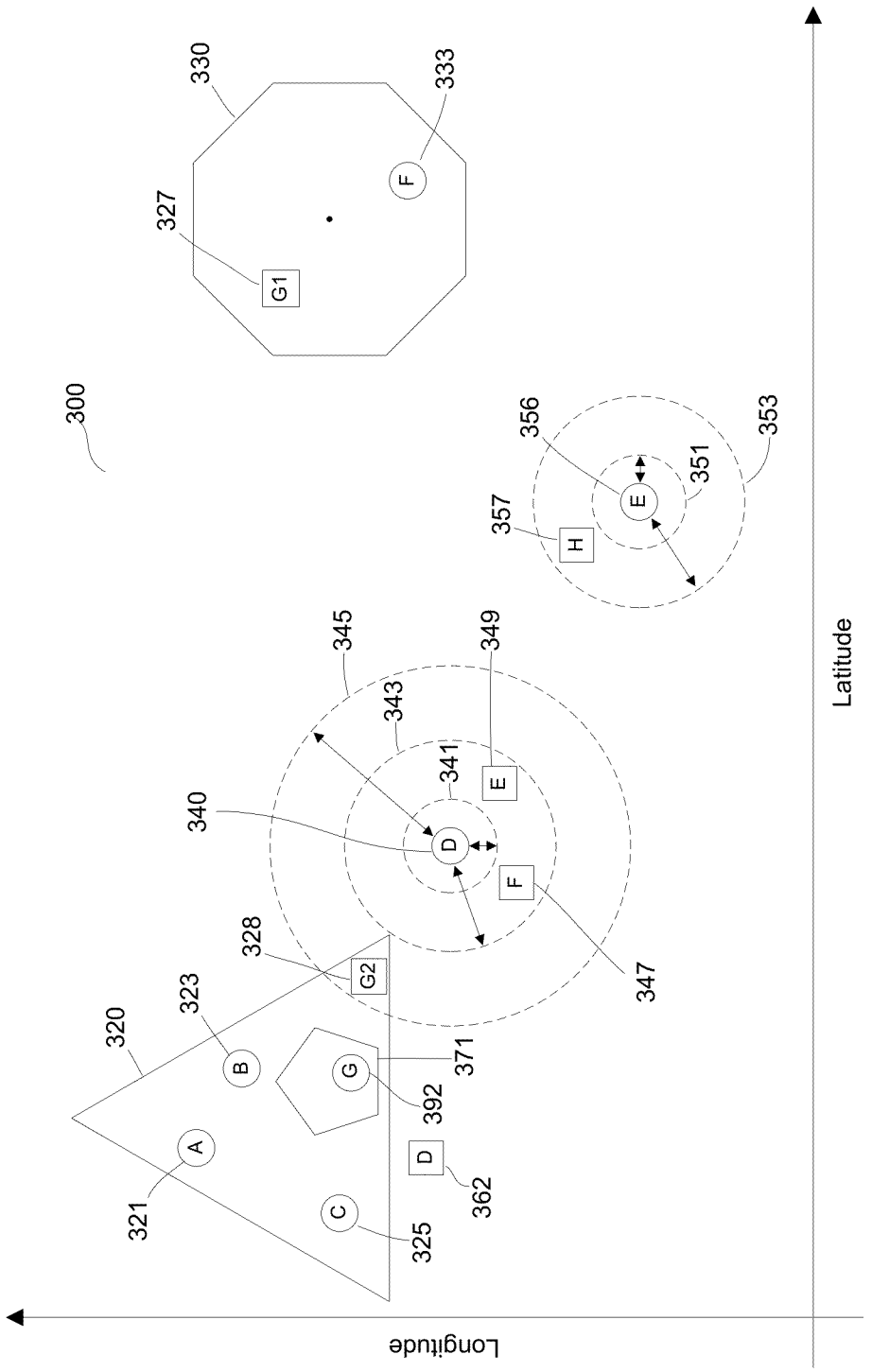

300
330
333
327
G1
F
356
353
351
357
H
E
345
349
343
341
340
D
E
F
347
328
G2
323
320
B
G
371
392
A
321
D
362
C
325
Longitude
Latitude

FIG. 3

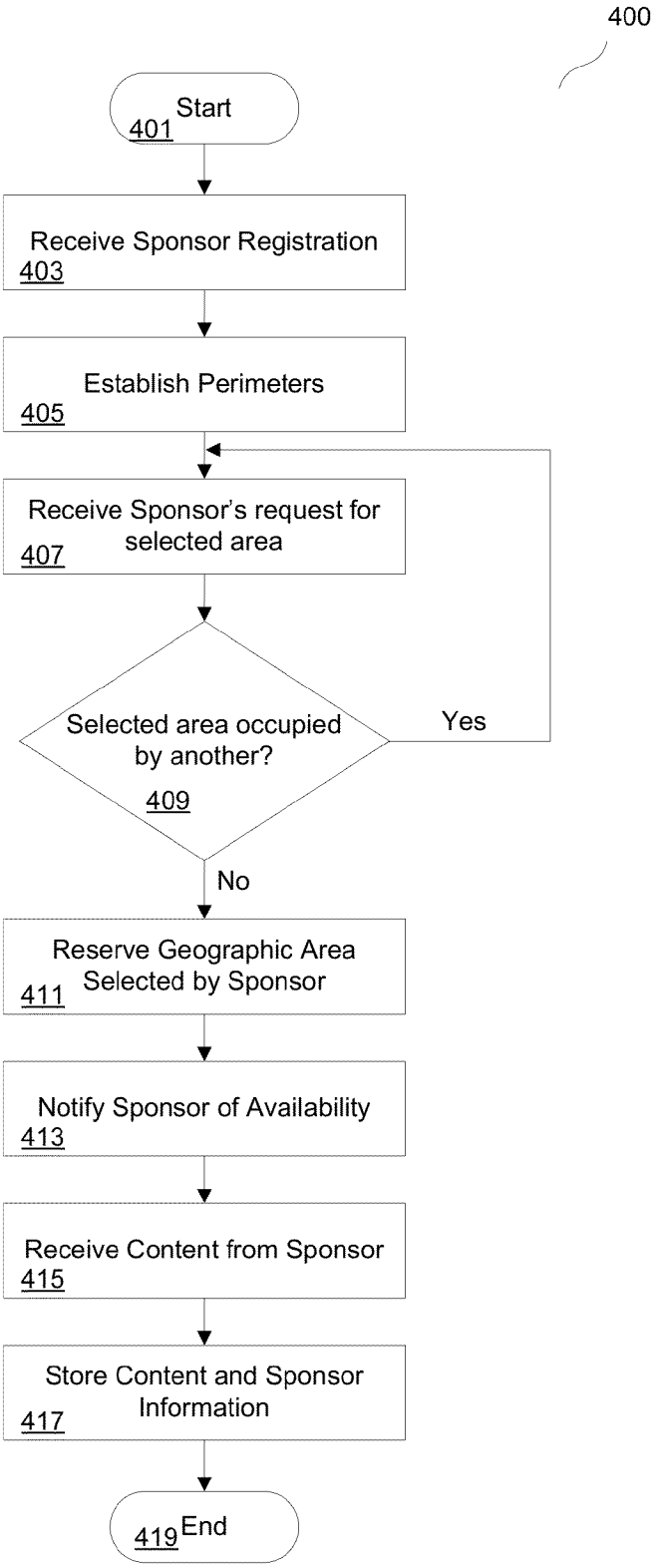

400
Start
401
Receive Sponsor Registration
403
Establish Perimeters
405
Receive Sponsor's request for selected area
407
Selected area occupied by another?
409
Yes
No
Reserve Geographic Area Selected by Sponsor
411
Notify Sponsor of Availability
413
Receive Content from Sponsor
415
Store Content and Sponsor Information
417
End
419

FIG. 4

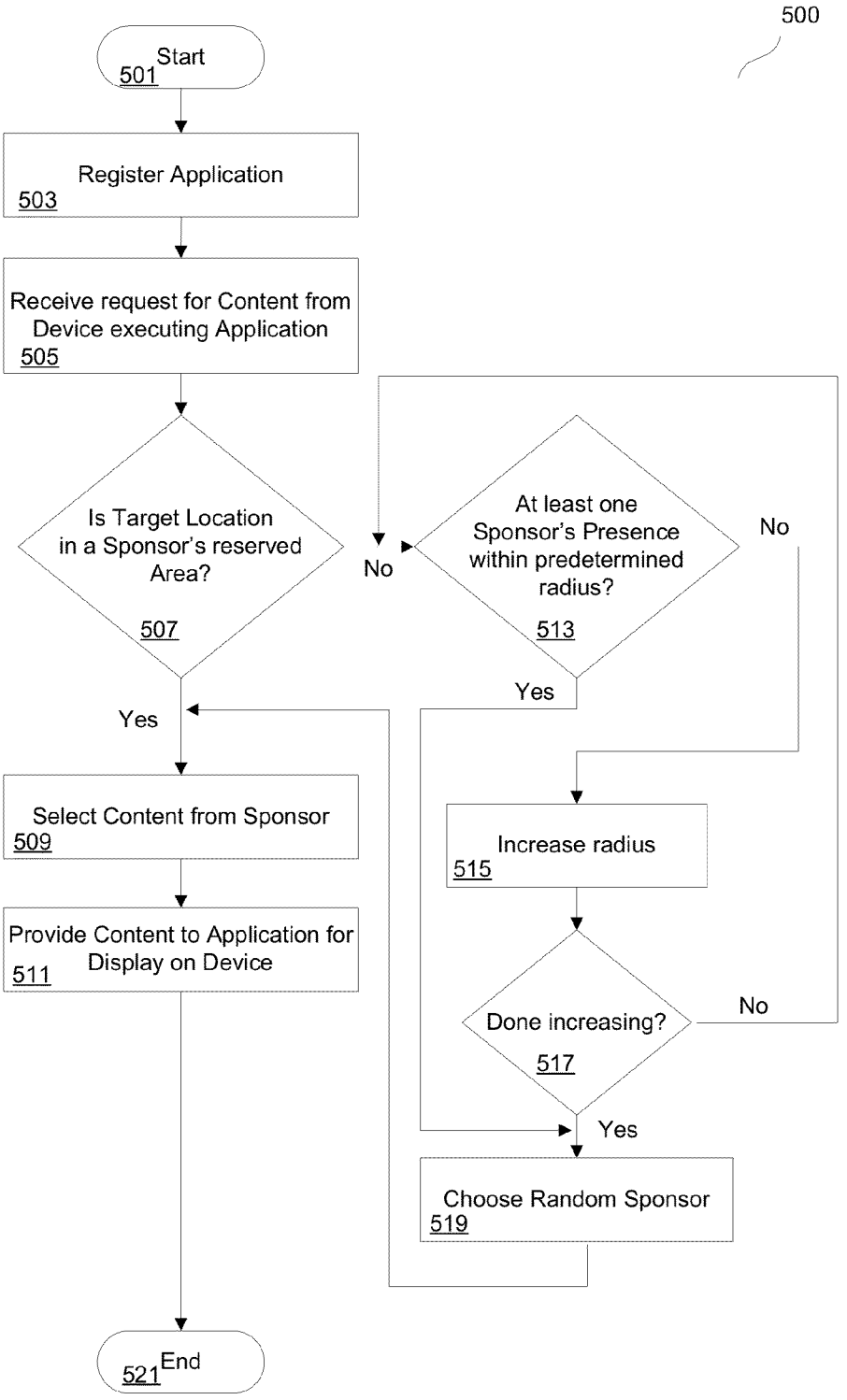

500
Start
501
Register Application
503
Receive request for Content from Device executing Application
505
Is Target Location in a Sponsor's reserved Area?
507
No
At least one Sponsor's Presence within predetermined radius?
513
No
Yes
Yes
Select Content from Sponsor
509
Provide Content to Application for Display on Device
511
Increase radius
515
Done increasing?
517
No
Yes
Choose Random Sponsor
519
End
521

FIG. 5

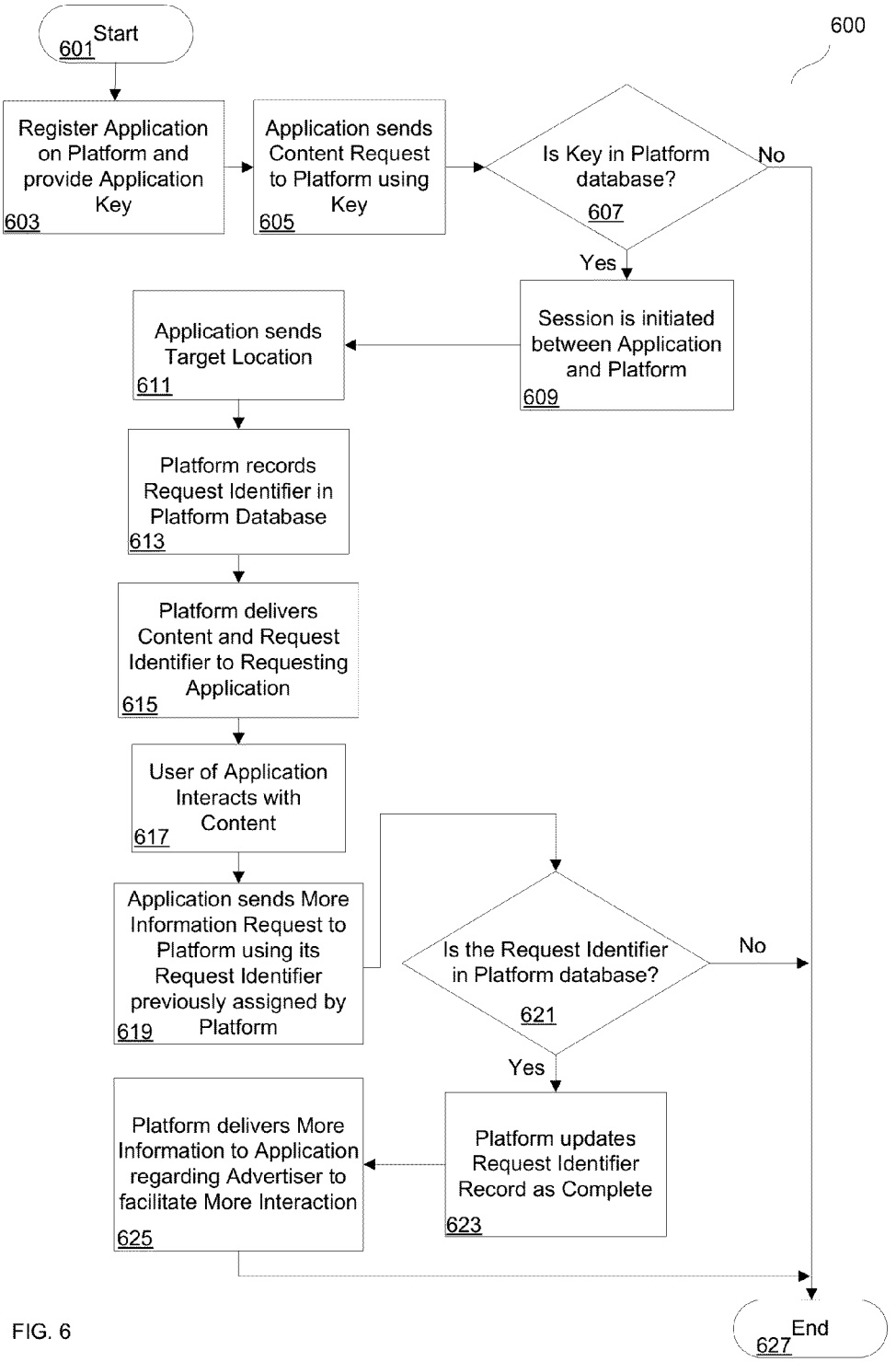

600
Start
601
Register Application on Platform and provide Application Key
603
Application sends Content Request to Platform using Key
605
Is Key in Platform database?
607
No
Yes
Session is initiated between Application and Platform
609
Application sends Target Location
611
Platform records Request Identifier in Platform Database
613
Platform delivers Content and Request Identifier to Requesting Application
615
User of Application Interacts with Content
617
Application sends More Information Request to Platform using its Request Identifier previously assigned by Platform
619
Is the Request Identifier in Platform database?
621
No
Yes
Platform updates Request Identifier Record as Complete
623
Platform delivers More Information to Application regarding Advertiser to facilitate More Interaction
625
End
627

FIG. 6

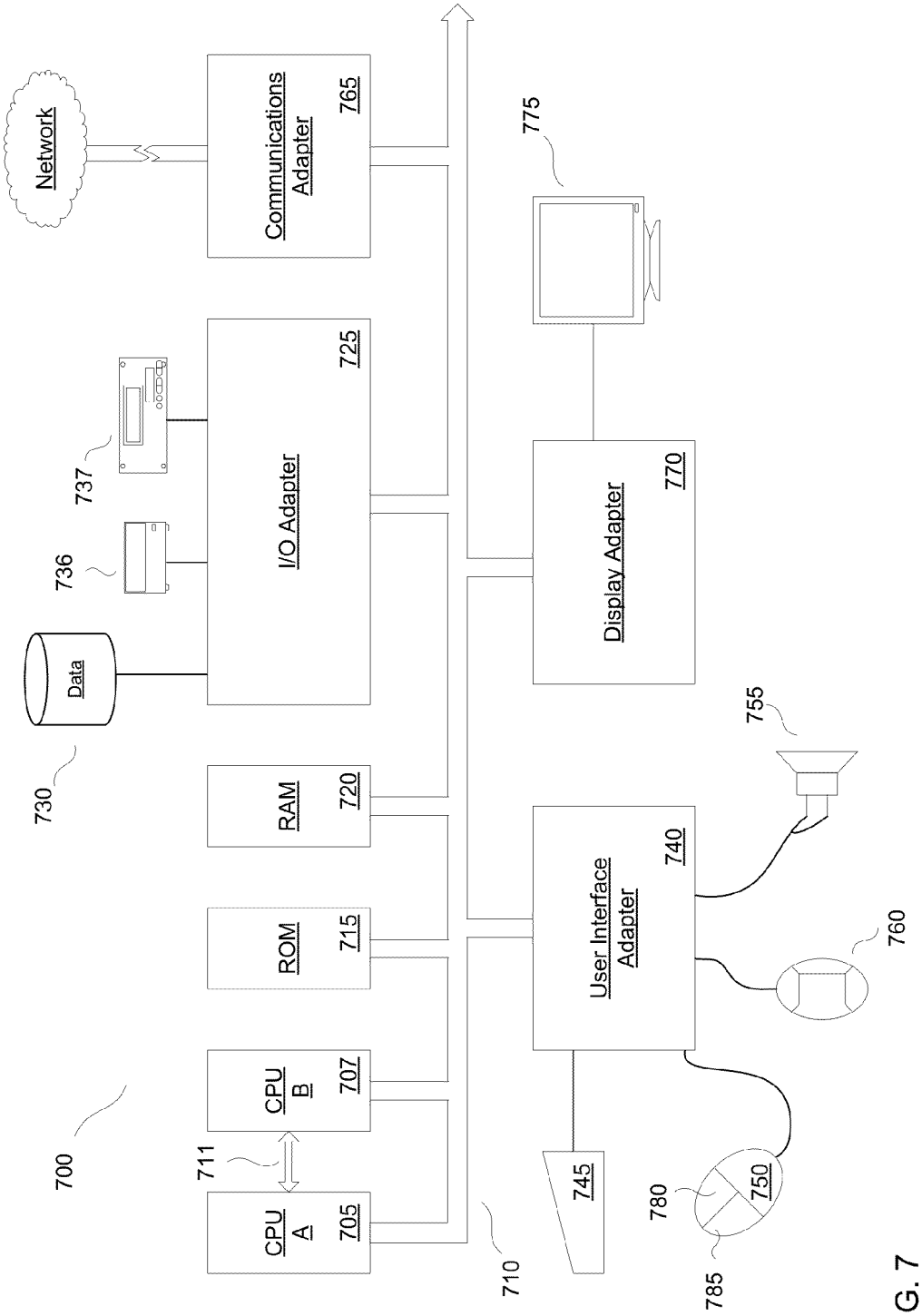

Network
Communications Adapter
765
775
I/O Adapter
725
737
736
Data
730
Display Adapter
770
RAM
720
ROM
715
User Interface Adapter
740
755
760
CPU B
707
CPU A
705
700
711
710
745
780
750
785

FIG. 7

EXCLUSIVE DELIVERY OF CONTENT WITHIN GEOGRAPHIC AREAS

FIELD

This disclosure relates generally to delivery of content, and more particularly to delivery of content within reserved geographic areas.

BACKGROUND

Advertisements can be delivered to various devices, including mobile devices, within communications range of areas transmitters or other information providers. For example, advertisements can be delivered to cellular phones within range of a particular cellular phone provider's network area. Furthermore, advertisements can be delivered using digital billboards, or via the Internet, based on user interactions and preferences.

When delivering advertisements and other content to some mobile devices, currently available technologies can broadcast the content to all devices equipped to receive them. In some cases, advertisements are broadcast to any mobile device within a city, or a similar area. When delivering non-broadcast content, for example via the Internet, it is common to deliver the content in response to a request, received from the receiving device. In some cases, push technology can be used to deliver content to multiple users concurrently.

In each of these cases, a mobile device can usually receive content from multiple different content providers. Current technologies are, therefore, less than perfect.

SUMMARY

Various embodiments disclosed herein include registering an application program for use with a content delivery platform, establishing multiple perimeters defining respective geographic areas, and maintaining records associating sponsors with particular geographic areas. The content delivery platform can receive a request from a registered application program for content to be displayed on a mobile device, and the request can be used to determine a target location. In some embodiments, a sponsor is selected based on a relationship between the target location and one or more reserved geographic areas. Content is then provided to the application program.

In some embodiments, the content delivery platform can record a request identifier associated with a received request, and provide the request identifier to the mobile device to assist in tracking future actions relating to the request for content. The content delivery platform can also receive information related to user interaction with the provided content, including the request identifier, and provide additional content in response to the received information.

Content can be delivered to a mobile device running a registered application if a target location is at least partially within a predetermined radial distance of a geographical area associated with a sponsor; if the mobile device is not located within the predetermined radial distance, the radial distance can be increased. In some embodiments, content is delivered if the target location, e.g. the location of the mobile device or another location of interest, is located entirely within a geographic area exclusively reserved by a particular sponsor. In some embodiments, the content delivery platform can select from among several sponsors in deciding which content to deliver to a mobile device.

In at least one embodiment, the content delivery system reserves exclusive interests in geographic areas for particular sponsors based on the sponsors' requests, and store a record of that interest. In some embodiments, the content delivery system receives, from a sponsor, content to be delivered to mobile devices based on a target location being positioned within particular geographic areas. The content delivery system can also reserve an interest in geographic areas that remain unreserved by other sponsors. Furthermore, some embodiments include time based restrictions.

Various embodiments can be implemented as a system that includes memory, a communications interface, and a processor that cooperate to store and execute a program of instructions implementing various methods and techniques described herein. Furthermore, some embodiments can be implemented as a computer readable medium tangibly embodying a program of instructions.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is an abstract representation of exclusive content delivery to particular reserved areas according to various embodiments of the present disclosure;

FIG. **2** is a diagram illustrating a target location other than the location of the mobile device executing a registered application, according to embodiments of the present disclosure;

FIG. **3** is a graph representing expanded search areas to determine which content is delivered according to various embodiments of the present disclosure;

FIG. **4** is a flowchart illustrating a method of reserving a geographic area according to embodiments of the present disclosure;

FIG. **5** is a flowchart illustrating registration of an application for content delivery according to embodiments of the present disclosure;

FIG. **6** is a flowchart illustrating delivery of content to particular applications in a reserved area according to embodiments of the present disclosure;

FIG. **7** is a diagram illustrating a processing system according to embodiments of the present disclosure.

DETAILED DESCRIPTION

Various embodiments of the present disclosure provide for delivering content, such as advertising, to registered applications being run on any of various mobile electronic devices configured to be readily moved, carried, or otherwise transported between different various geographic areas defined by perimeters. Sponsors can reserve an exclusive interest, or in some embodiments a semi-exclusive interest, in a geographic area, so that other sponsors' advertisements are excluded from being broadcast or otherwise provided to a registered program being executed on a mobile device located within a reserved geographic area.

Referring first to FIG. **1**, system **100**, is illustrated. System **100** can 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. System **100**, as illustrated, includes content delivery platform **112**, which is in communication with developer platform **108**, and systems or individuals operating under control of sponsor A **121**, sponsor C **123**, and sponsor B **125**. Content delivery platform **112** receives a request from developer platform **108** to register a program or other application for use on mobile devices. Content delivery platform **112** can use the registered application program to provide selected content to mobile devices.

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

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**. In some embodiments, 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. The request can also include time limitations, limitations based on the length of time a mobile device remains within a given geographic area, or other desired limitations. Furthermore, the reserved interest can be either completely exclusive, or semi-exclusive.

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**, which can include AM or FM broadcast towers, mobile telephone stations, or other suitable communication infrastructure, including satellites (not illustrated) that might be useful in providing content based on a target location. Content delivery platform **112** can use this communication infrastructure to communicate with various computing devices, including portable computer **179**, which may include laptop computers, desktop computers, palmtop computers, tablet computers, digital video recorders (DVRs), television set-top boxes, or any of various general or dedicated purpose computers that can be carried or transported; wireless device **177**, which can include personal digital assistants (PDAs), cellular telephones, personal communication system (PCS) devices, music players, video players, gaming consoles, or portable televisions; or any of various devices that may be included in, or carried by, motor vehicles **171**, **173**, or **175**, including navigation systems, satellite radios, or the like. It should be noted that the term "mobile device" can include all computing devices as listed above that can communicate with content delivery platform **112**, that the above listing of devices is not exhaustive, and that a device that qualifies as one type of device may also be considered to be of another type. For example, a mobile phone may also be a general purpose computing device, a radio, a television, and a navigation system.

Still referring to FIG. **1**, consider first motor vehicle **171**, which is located within sponsor A's reserved geographic area **143**. A driver of first motor vehicle **171** can receive advertisements or other content from Sponsor A via a registered application running on a radio, a PDA, a cellular telephone, a laptop, or a global positioning navigation device (none of which are specifically illustrated). In this example, 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 **121**; advertisements or other content from sponsor C **123** and sponsor B **125** can be excluded.

Portable computer **179** can be connected to Internet **131** via a hardwired network connection, a Wi-Fi connection or other suitable communication connection. In some embodiments, if portable computer **179** is running a registered program application, the user of portable computer **179** will receive content related exclusively to sponsor A as long as he is within sponsor A's reserved geographic area **143**. In some embodiments, the driver of first motor vehicle **171** and the user of laptop **179** will still be able to receive advertisements from other sponsors through devices not running a program that has been registered on content delivery platform **112**, or through non-registered programs running on the same device.

In some embodiments, the location of mobile devices, or another target location, can be determined using various suitable methods. For example, a mobile device running a registered application can provide location information to content delivery platform **112** in the form of latitude or longitude coordinates, raw or processed GPS data, or other location information received and recorded by either the device itself or another device. In some embodiments, a target location, e.g. the location of a mobile device, can be determined based on signals received from cellular transmission towers, satellites, or methods such as triangulation or dead reckoning, or by IP address. Content delivery platform **112** can receive the location of mobile devices from a third source, for example a location provider, a cellular telephone network provider, or a third party tracking source, rather than from the mobile device itself. Thus, the location of a mobile device can be received from the mobile device, determined by content delivery platform **112**, received from a third-party source, or determined based on a combination of these or other methods.

Sponsor A's reserved geographic area **143** illustrates an embodiment in which a perimeter can be defined by streets, county boundaries, city boundaries, landmarks, or other features commonly found on maps. In contrast, sponsor B's reserved geographic area **145** can be an ellipse, circle, oval, or other geometric shape that can be determined, at least in part, based on a radius.

In this example, both second motor vehicle **173** and wireless device **177** are located within sponsor B's reserved geographic area **145**. The driver of second motor vehicle **173** and the user of wireless device **177** can receive advertisements or other content via towers **144**. For example, if the driver of second motor vehicle **173** is operating a navigation device executing an application program registered by developer **108**, advertisements and other content received on the navigation device can be determined based on the location within sponsor B's reserved geographic area **145**. Likewise, the user of wireless device **177** will receive advertisements related to sponsor B from within a registered application. In some embodiments, content delivery platform **112** can prevent content from sponsor A **121** and sponsor C **123** from being delivered to a mobile device carried by second motor vehicle **173** and wireless device **177**, because both motor vehicle **173** and wireless device **177** are located in sponsor B's reserved geographic area **145**.

Turning next to sponsor A and sponsor C's reserved geographic area **147**, note that the perimeter is a square, rectangle or similarly shaped. In some embodiments, the perimeter may be defined entirely by longitude and latitude lines and/or coordinates that constitute an area. In other embodiments, sponsor A and sponsor C's reserved geographic area **147** can be partially bounded by a longitude or latitude line, a road, river, railway, county, state, parish, city, locality, or other desired boundary. In some embodiments, the perimeter of a sponsor A and sponsor C's reserved geographic area **147** can be defined by a combination of longitude or latitude lines, with one or more remaining boundaries defined based on radius or diameter.

Because third motor vehicle **175** is within sponsor A and sponsor C's reserved geographic area **147**, a mobile device carried by third motor vehicle **175** can receive advertising

content from either or both sponsor A and sponsor C. In some embodiments, the interest in sponsor A and sponsor C's reserved geographic area **147** can be equally divided between sponsor A **121** and sponsor C **123**, while in other embodiments one of sponsor A **121** and sponsor C **123** can have an interest superior to that of the other. In some embodiments, content delivery platform **112** can deliver advertisements or other content related to Sponsor A at selected times, while content related to Sponsor C is delivered at other times. Additionally, content related to sponsor A may be delivered via a first registered application, while content related to sponsor C can be delivered via a second registered application. Thus, sponsors can advertise or provide other content to members of particular demographics based on a type of application a particular demographic is more likely to use.

Referring next to FIG. **2**, a target location other than a mobile device in a system **200** is illustrated according to embodiments of the present disclosure. As shown in FIG. **2**, a user of registered application **231** is located within the perimeter defining first sponsor's reserved area **207**. Object of interest **233** is located in second sponsor's reserved area **205**. In some embodiments, object of interest **233** can be any type of object of interest to the user of registered application **231**. For example, object of interest **233** could be a friend of the user of registered application **231**, and this friend may be employing a mobile phone, a laptop, a kiosk computer, a PDA, or any other device capable of sending location information **216** directly or indirectly to registered application **231**. In some embodiments, target location information **216** can be any type of information that can be used to determine the location of the object of interest **233**. In at least one embodiment, target location information **216** may be a geo-coded twitter message. In another example, object of interest **233** could be an end destination on a map, and the location information **216** of this end destination can be sent to registered application **231**.

In response to receiving the target location information **216** from object of interest **233**, registered application **231** can send a request **213** to content delivery platform **212**. The request can include, but is not limited to, 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.

Content delivery platform **212** can receive and process request **213** to identify the location of registered application **231** and the location of object of interest **233**. In some embodiments, both locations need not be identified. Furthermore, in some embodiments the specific location need not be identified, as long as a determination that object of interest **233** is located within a given proximity of second sponsor's reserved area **205**, or that registered application **231** is located within first sponsor's reserved area **207**.

Content delivery platform **212** can provide registered application information **217** to second sponsor **225** to allow second sponsor **225** to deliver second sponsor's content **214** to registered application **231**. The registered application information **217** can be an application identifier, a request identifier, a target location, a communications address, or other information that can be utilized by second sponsor **225**. In some embodiments, application information **217** need not be provided to second sponsor **225**, but instead can be processed internally by content delivery platform **212**, and a determination can be made for second sponsor's content **214** to be delivered directly to application **231** from content delivery platform **212**, or a third party (not illustrated).

Note that in the illustrated embodiment, despite the fact that registered application **231** is located within first sponsor's reserved area **207**, the information delivered to registered application **231** can be content related exclusively to second sponsor's reserved area **205**, in which object of interest **233** is located. This is because, in the illustrated embodiment, the target location is the location of object of interest **233**, rather than the location of a mobile device executing registered application **231**.

In some embodiments, information from the first sponsor can also be delivered to registered application **231**, because the locations of the device running registered application **231** and object of interest **233** are both considered target locations. Furthermore, in some embodiments content need not be delivered directly from second sponsor **225**, but instead can be provided by content delivery platform **212**, or a third party (not illustrated).

Referring next to FIG. **3**, a graph showing various geographic areas with reference to longitude and latitude is illustrated according to some embodiments of the present disclosure. The geographic areas in FIG. **3** are for illustration only and carry no particular significance with respect to their geometric shapes. Graph **300** includes a triangular area **320**, reserved for sponsor A; pentagonal area **371**, reserved for sponsor G; and octagonal area **330**, also reserved for sponsor G. In the illustrated example, sponsor G has two physical addresses: G**1** **327**, which lies within sponsor G's reserved octagonal area **330**, and G**2** **328** which, lies within sponsor A's reserved triangular area **320**. Furthermore, in the illustrated embodiment, sponsor A does not have a physical location within sponsor A's reserved triangular area **320**. These examples help illustrate that there is not necessarily a correlation between a sponsor's physical address and a reserved geographic area, although in some embodiments there may be such a correlation.

As illustrated by FIG. **3**, a single target location F **333** is located within sponsor G's reserved octagonal area **330**, and target location F **333** can be a mobile device running a registered application, or target location F **333** can represent a target location other than the location of a mobile device, as illustrated in FIG. **2**. In some embodiments, the mobile device with target location F **333** receives advertising exclusively from advertiser G.

As further illustrated by FIG. **3**, there are four target locations: target location A **321**, target location B **323**, target location C **325**, and target location G **392** within advertiser A's reserved triangular area **320**. Note also, however, that target location G **392** also lies within one of sponsor G's reserved geographic areas, pentagonal area **371**. Consider the following example in which target location A **321** and target location B **323** each are mobile devices executing a first application registered with a content delivery platform, such as content delivery platform **112**, of FIG. **1**. Further assume, for purposes of this example, that target location C **325** is a mobile device executing a second, different application, which is also registered with the content delivery platform. Because both the first and second applications are registered with the content delivery platform, each of the three devices, with target location A **321** target location B **323** and target location C **325** can receive advertisements or other content from within their respective applications. In this example, the content delivered to all three devices can be related exclusively to sponsor A, regardless of which registered application is being executed, because sponsor A has the only reserved interest in the portions of triangular area **320** occupied by mobile devices having target locations A **321** B **323** and C **325**.

In some embodiments, target location G **392** can be a mobile device running two or more registered applications, and can receive content related to sponsor A, because the mobile device lies within triangular area **320**. But, target location G **392** also lies within pentagonal area **371**, and the mobile device can therefore receive content associated with sponsor G. In some embodiments, content related to sponsor A can be delivered via one of the registered applications, while another registered application receives and displays content related to sponsor G. In other embodiments, one of sponsor A or sponsor G can have a superior interest to the other, and a preference can be given to that sponsor's content for delivery. For example, sponsor G may have a superior interest in pentagonal area **371**, which also forms part of triangular area **320**. In such a case, if content related to sponsor G is available for delivery to the application on the mobile device with target location G **392**, that content will be delivered in preference to content related to sponsor A. However, if there is no high priority content related to sponsor G to be delivered, content related to sponsor A may be provided in its stead. Various other priority and time sharing mechanisms and methods can be implemented according to the teachings set forth herein. Note that in some embodiments, multiple registered applications are not required to implement priority and time sharing mechanisms.

In some instances, a mobile device can have target locations, such as target location D **324** or target location E **356**, located outside of areas reserved by sponsors. In such a case, a check can be made to determine if either target location D **340** or target location E **356** are located within a given proximity of a sponsor-reserved area such as triangular area **320** or octagonal area **330**. So, for example, a check can be made to determine whether any reserved areas lie within a given radius of target location D **340**, defining a search area **341**, or within a given radius of target location E **356**, defining a search area **351**. In some embodiments, if no sponsor reserved area intersects an area within an initially small radius, further checks can be performed by incrementally increasing the radius. So, for example, after a first check finds no advertiser reserved areas within search areas **341** or **351**, the search areas can be increased to encompass areas **343** and **353**, respectively.

In the illustrated example, there is no reserved area intersecting search area **353**, but sponsor H **357** has a physical address within area **353**. In some embodiments, once it is determined that a registered sponsor has a physical address location within a search radius, but there are no sponsor reserved geographic areas in proximity to or encompassing a target location, an advertisement or other content can be delivered to a mobile device, such as the device with target location **356**.

Another situation arises when there are no sponsor reserved geographic areas intersecting a search area, but there are multiple sponsor physical locations within a given radius. Consider area **343**, which contains sponsor E's location **349**, and sponsor F's location **347**. Because neither sponsor E nor sponsor F has established a reserved area that intersects with search area **343**, a random choice can be made between these two sponsors to determine which sponsor's content to provide to the registered application on the device with target location D **340**. In other embodiments, preference may be given to one of sponsor E's location **349** and sponsor F's location **347** based on each physical locations' proximity to target location D **340**, based on a travel time between the device with target location D **340** and the sponsors' locations, or based on some other desired parameter. In further embodiments, if no sponsor's reserved geographic area intersects any portion of area **343**, no content is sent to mobile device D with target location **340**, despite the fact that location sponsor E's location **359**, and sponsor F's location **347** are both within the perimeter defining search area **343**.

In some embodiments, the search radius can continue to be expanded until a search area **345** intersects with a sponsor reserved geographic area. In the illustrated embodiment, search area **345** intersects sponsor A's reserved triangular area **320**. Note that sponsor G2's physical location **328** is also located within search area **345**. In some embodiments, content from either sponsor A or sponsor G can be selected using any of various processes, because target location D **340** is not located entirely within triangular area **320**. In some embodiments, however, because the expanded search area **345** encompasses even a portion of sponsor A's reserved triangular area **320**, content related to sponsor G will be excluded, and content related to sponsor A will be exclusively provided to mobile device with target location D **340**. In some embodiments, because target location D **340** is not located within sponsor A's reserved triangular area **320**, content related to sponsor A will be excluded, and content related to sponsor G will be exclusively provided to mobile device with target location D **340**.

Additional techniques accounting for the proximity of exclusively reserved advertising areas and sponsor's physical locations with respect to mobile device locations can be implemented according to the teaching set forth herein. For example, in some embodiments, sponsors may obtain an interest in all otherwise unreserved geographic areas. For example, a content delivery system can deliver content from a "default" sponsor, if it is determined that no other content is to be delivered to a mobile device.

Referring next to FIG. **4**, a method **400** for allowing sponsors to reserve particular geographic areas will be discussed according to embodiments of the present disclosure. Method **400** begins, as illustrated by block **401**. As illustrated by block **403**, a content delivery platform, for example content delivery platform **112** as illustrated in FIG. **1**, can receive a request for sponsor registration, which can also include receiving physical address location from the sponsor. As illustrated by block **405**, 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 perimeters established can be based on map features, such as streets, rivers, landmarks, or any of the other various map features. The perimeters can also be defined 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. Some embodiments allow for establishing perimeters defining areas based on a combination of the various types of constructs. So, for example, latitude, longitude and map features may be used to establish the reserved area, or a combination of coordinates and geometric constructs can be used in conjunction with other suitable boundary identifiers to establish an area that may be reserved specifically for content related to a particular advertiser or sponsor.

In some embodiments, the perimeters may be generated interactively, using sponsor established perimeter definitions, or other unique sponsor requests. Some embodiments employ pre-defined areas, or allow selection of areas based on predetermined factors, and present sponsors a choice from among previously established options.

As illustrated by block **407**, a sponsor's request for a selected area is received. As illustrated by block **409**, a check

is made to determine if the selected area, or a portion of the selected area, has already been reserved by another sponsor. If the area selected by the sponsor is already owned or is otherwise unavailable, method **400** may return to block **407**, and the sponsor can choose another area. In some embodiments, overlap of various sponsor areas may be allowed based on type of business, type of application used to deliver the content, or otherwise.

As illustrated by block **411**, if an area selected for exclusive or semi-exclusive content delivery is available, the selected geographic area can be reserved for the sponsor. And as illustrated by block **413**, the sponsor can be notified that an interest in the geographic area has been reserved for him.

A sponsor can provide content for delivery to mobile devices having target locations contained within its reserved area, as illustrated by block **415**. This content can include advertisements, still image content, animated content, video content, audio content, alphanumeric identifiers, or other content suitable for delivery to mobile devices via registered applications. As illustrated by block **417**, the content received from the sponsor can be stored for later delivery to registered applications running on mobile devices having target locations that exist within the sponsor's reserved area, which such target locations may include, but are not limited to, when the mobile device or target location physically enters or remains within the sponsor's reserved area for a desired length of time. In some embodiments, content can be delivered to a mobile device by the sponsor or another party in response to a notification that the mobile device or target location has entered or is contained within the sponsor's reserved area. Method **400** ends, as illustrated at block **419**.

Referring next to FIG. **5**, a method **500** of registering an application program for use in conjunction with a content delivery platform is illustrated according to various embodiments of the present disclosure. Method **500** begins as illustrated by block **501**. As illustrated by block **503**, an application can be registered on a content delivery platform in response to a request by a developer, for example developer **108** as illustrated in FIG. **1**. As illustrated by block **505**, a request for content can be received from a device running a registered application. In some embodiments, the same registered application may be executed on any of various mobile devices, including mobile telephones, personal digital assistants, laptops, and the like. Furthermore, multiple devices may execute copies of the same registered application, multiple different registered applications may be executed on a single mobile device, and multiple different registered applications may be executed on multiple devices.

As illustrated by block **507** 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. In some embodiments, the target location may be the location of the device. In some embodiments, the target location may be a location other than the location of the device, as illustrated in FIG. **2**. As illustrated by block **509**, if the target location is located within a sponsor's reserved area, content from the corresponding sponsor can be chosen for delivery to the mobile device. The content can be chosen based on a number of different parameters or combinations of parameters. In some embodiments, different sponsors may designate particular content to be provided on different days of the week or at different times of day. Some such embodiments allow a single geographic area to be shared by different advertisers or sponsors. For example, content associated with a first sponsor may be selected for delivery in a particular geographic area during the lunch hour, while content related to a second sponsor is selected for delivery in that same geographic area between the hours of midnight and 2 am.

In some embodiments, content from one sponsor can be selected for delivery in a particular geographic area in specific situations, even though a different sponsor has generally reserved that same geographic area. For example, content from a first sponsor can be delivered during a football game to mobile devices located in a geographic area normally reserved by a second sponsor, effectively trumping content related to the second sponsor that would otherwise be delivered. In some embodiments, additional criteria can be applied to determine which sponsors' content will be provided to mobile devices in a particular geographic area.

As illustrated by block **511**, selected content can be provided to an application for display on a mobile device. In at least one embodiment, different content from the same sponsor can be provided to the same device for display within different applications, or the same content from the same sponsor can be displayed for all mobile devices running all registered applications that have target locations within the delivery area for the content. For example, a first program run on a mobile device may display a first advertisement within that program while a second program running on the same device may display a second advertisement, which is different from the first advertisement. In some embodiments in which an interest in a particular geographic area is shared between multiple sponsors, a primary sponsor's content can be exclusively displayed via a first registered application running on a particular mobile device, while content from other sponsors can be displayed via a second and subsequent applications running on the same mobile device.

As illustrated by block **513**, if the target location is not within a sponsor's reserved area, a determination can be made regarding whether at least one sponsor's presence is within a first predetermined radius of the target location. In some embodiments, a determination is made regarding whether a sponsor's physical location is within a predetermined radius of the target location. In some embodiments, a determination is made regarding whether a sponsor's geographic area, or a portion of a sponsor's geographic area, is contained within a predetermined radius of the target location. If at least one sponsor's presence is within a predetermined radius of the target location, a sponsor is chosen from a random or pseudo-random process, as illustrated by block **519**. Content is then selected for delivery, as illustrated by block **509**. As illustrated by block **515**, if a sponsor's presence is not within a predetermined radius of the target location, the search radius can be increased. As illustrated by block **517**, a check can be made to determine whether any more increases should be made. In some embodiments, the search radius can continue to be increased incrementally, in a logarithmic manner, or otherwise, until at least a portion of a sponsor's reserved area intersects the search area defined by the search radius. In some embodiments, the search radius can be increased a predetermined number of times, or can be limited based on system resources, time constraints, or other desired parameters. The processes illustrated by blocks **513**, **515**, and **517** can be repeated until a positive indication is produced by the process at block **517**.

As illustrated by block **519**, content from a randomly or pseudo-randomly selected sponsor can be delivered to a mobile device if the target location is not within a desired proximity to a sponsor's reserved area. In some embodiments, rather than delivering content randomly, content selections can be made based on desired criteria. Content related to a sponsor that reserved all otherwise unallocated space can be delivered to a mobile device executing a registered applica-

tion. In some such embodiments, if any particular geographic areas have not yet been reserved, or if any device requesting content does not have a target location contained within a reserved geographic area, the default sponsor's content can be delivered to the mobile device. Method **500** ends as illustrated by block **521**.

Preferring next to FIG. **6**, a method of interaction between a mobile device and a content providing platform is illustrated according to various embodiments of the present disclosure. Method **600** begins as illustrated by block **601**. As illustrated by block **603** an application platform key can be provided to a developer in response to the developer registering an application for use on the application platform. The developer can, in turn, provide the key to mobile devices on which the registered application is installed. As illustrated by block **605**, when a mobile device requests content from the content providing platform, the mobile device can send the key along with its request. As illustrated by block **607**, the content providing platform can verify that the key matches a valid key stored in its database, or elsewhere, before providing content to the application.

In some embodiments, key verification can be performed by an entity other than the content providing platform. As illustrated by block **627**, if a verification check on the key fails, no content is provided to the requesting application, and the method **600** ends.

As illustrated by block **609**, if the key is validated a session can be initiated between the application on the mobile device, and the content delivery platform. As illustrated by block **611** in at least one embodiment, the application running on the mobile device sends the mobile device's location, or another target location, to the content delivery platform. However, in some embodiments the actual location is not sent by the device, but may be provided to the content delivery platform from another source. Furthermore, the content delivery platform, or a subsystem of a communications system employed by the content delivery platform, can determine the location of the mobile device based on raw, partially, or completely processed information received from the mobile device or from another source. 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 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.

As illustrated by block **613**, the content delivery platform records the request from the registered application in a request identifier in the platform database, or some other suitable storage location. The request identifier can be used in some embodiments to track further interaction with the registered application, or to deliver additional content to a requesting mobile device. Thus, in some embodiments, a mobile device or other target location that is only temporarily located within a particular sponsor's reserved geographic area may continue to receive information from that sponsor after the mobile device, or the target location, exits the sponsor's reserved area. In other embodiments, content related to a sponsor is discontinued in response to a mobile device exiting, or the target location losing focus within, the sponsor's reserved area.

As illustrated by block **615**, the content delivery platform can deliver the request identifier to the requesting application along with the requested content. As illustrated by block **617**, a user of the mobile device can interact with the provided content using any of various methods such as pressing a button, selecting a user selectable object on a graphical user interface, or otherwise. The application on the mobile device can send an indication of the interaction to the content delivery platform via the same communication channel used to send the request, or via a different communications channel.

As illustrated by block **619**, a registered application running on a mobile device can send an additional information request to the platform using the previously assigned request identifier. In some embodiments, using the previously assigned platform request identifier permits tracking of a series of interactions between a particular application and the content delivery platform. Furthermore, using the request identifier can allow individualized content to be delivered to different registered applications which may or may not be running on the same mobile device.

As illustrated by block **621**, a determination is made regarding whether a request identifier sent in conjunction with a request for further information is maintained in the platform database or other suitable storage. As illustrated by block **623**, if the request identifier is contained in the database or other storage area, the content delivery platform can update a request identifier record as being complete. And as illustrated by block **625**, the content delivery platform can deliver more content to the requesting application. As illustrated by block **627**, method **600** can proceed to end after delivering the additional content.

The methods and processes discussed previously, as well as other embodiments, may be implemented in a processing system executing a set of instructions stored in memory, or on a removable computer readable medium. An example of a system according to some embodiments is illustrated in FIG. **7**. Referring now to FIG. **7**, a high-level block diagram of a processing system is illustrated and discussed. Processing system **700** includes one or more central processing units, such as CPU A **705** and CPU B **707**, which may be conventional microprocessors interconnected with various other units via at least one system bus **710**. CPU A **705** and CPU B **707** may be separate cores of an individual, multi-core processor, or individual processors connected via a specialized bus **711**. In some embodiments, CPU A **705** or CPU B **707** may be a specialized processor, such as a graphics processor, other co-processor, or the like.

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); and input/output (I/O) adapter **725**, for connecting peripheral devices such as disk units **730**, optical drive **736**, or tape drive **737** to system bus **710**; a user interface adapter **740** for connecting keyboard **745**, mouse **750**, speaker **755**, microphone **760**, or other user interface devices to system bus **710**; communications adapter **765** for connecting processing system **700** to an information network such as the Internet or any of various local area networks, wide area networks, telephone networks, or the like; and display adapter **770** for connecting system bus **710** to a display device such as monitor **775**. Mouse **750** has a series of buttons **780**, **785** and may be used to control a cursor shown on monitor **775**.

It will be understood that processing system **700** may include other suitable data processing systems without departing from the scope of the present disclosure. For example, processing system **700** may include bulk storage and cache memories, which provide temporary storage of at

least some program code in order to reduce the number of times code must be retrieved from bulk storage during execution.

Various disclosed embodiments can be implemented in hardware, software, or a combination containing both hardware and software elements. In one or more embodiments, the invention is implemented in software, which includes but is not limited to firmware, resident software, microcode, etc. Some embodiments may be realized as a computer program product, and may be implemented as a computer-usable or computer-readable medium embodying program code for use by, or in connection with, a computer, a processor, or other suitable instruction execution system.

For the purposes of this description, a computer-usable or computer readable medium can be any apparatus that can contain, store, communicate, propagate, or transport the program for use by or in connection with the instruction execution system, apparatus, or device. By way of example, and not limitation, computer readable media may comprise any of various types of computer storage media, including volatile and non-volatile, removable and non-removable media implemented in any suitable method or technology for storage of information such as computer readable instructions, data structures, program modules, or other data. Computer storage media include, but are not limited to, RAM, ROM, EEPROM, flash memory or other memory technology, CD-ROM, digital versatile disks (DVD) or other optical storage, magnetic cassettes, magnetic tape, magnetic disk storage or other magnetic storage devices, or any other medium which can be used to store the desired information and which can be accessed by a computer. Data structures and transmission of data (including wireless transmission) particular to aspects of the disclosure are also encompassed within the scope of the disclosure.

Various embodiments have been described for delivering content related to a commercial media program. Other variations and modifications of the embodiments disclosed may be made based on the description provided, without departing from the scope of the invention as set forth in the following claims.

What is claimed is:

1. A method comprising:

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

establishing a plurality of perimeters defining a plurality of geographic areas;

reserving delivery of content from a plurality of sponsors to the plurality of registered application programs on the basis of both a geographic area and an application program type associated with each of the plurality of registered application programs;

receiving, from a sponsor, a request to obtain an interest in a selected one of the plurality of geographic areas;

providing the sponsor a response to the request;

storing a record of the interest in the selected one of the plurality of geographic areas;

receiving, from the sponsor, content to be delivered to registered application programs having target locations contained within the selected one of the plurality of geographic areas;

receiving, from a registered application program, a request for content to be used within the registered application program;

in response to receiving the request:

selecting content from at least one sponsor to be delivered to the registered application program, subject to the reserving; and

providing the content from the at least one sponsor to the registered application program.

2. The method of claim **1**, further comprising:

recording a request identifier associated with the request; and

providing the request identifier to the registered application program.

3. The method of claim **2**, further comprising:

receiving information related to user interaction with the provided content, the information including the request identifier; and

providing additional content to the registered application in response to the received information.

4. The method of claim **1**, further comprising:

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

in response to a negative determination, increasing the predetermined radial distance.

5. The method of claim **1**, further comprising:

reserving a specific one of the plurality of geographic areas for exclusive delivery of content associated with a particular one of the plurality of sponsors to registered application programs and having a target location contained within the specific one of the plurality of geographic areas.

6. A system comprising:

memory;

a communications interface operably coupled to the memory; and

at least one processor operably coupled to the memory and the communications interface, the processor configured to execute a program of instructions, the program of instructions comprising:

at least one instruction to register a plurality of application programs for use with a content delivery platform, wherein the plurality of registered application programs are each associated with at least one application program type;

at least one instruction to establish a plurality of perimeters defining a plurality of geographic areas;

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

at least one instruction to receive, from a sponsor, a request to obtain an interest in a selected one of the plurality of geographic areas;

at least one instruction to provide the sponsor a response to the request;

at least one instruction to store a record of the interest in the selected one of the plurality of geographic areas;

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

at least one instruction to receive a request from a registered application program for content to be used within the registered application program;

at least one instruction to select content associated with at least one of the plurality of sponsors, to be delivered to the registered application program of a specific type, in

accordance with a content delivery reservation associating the at least one sponsor with a geographic area and a registered application program type; and

at least one instruction to provide the selected content to the registered application program.

7. The system of claim **6**, wherein the program of instructions further comprises:

at least one instruction to record a request identifier associated with the request; and

at least one instruction to provide the request identifier to the registered application program.

8. The system of claim **7**, wherein the program of instructions further comprises:

at least one instruction to receive information related to user interaction with the provided content, the information including the request identifier; and

at least one instruction to provide additional content to the registered application in response to the received information.

9. The system of claim **6**, wherein the program of instructions further comprises:

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

at least one instruction to increase the predetermined radial distance in response to the at least one instruction to determine.

10. The system of claim **6**, wherein the program of instructions further comprises:

at least one instruction to reserve a specific one of the plurality of geographic areas for exclusive delivery of content associated with a particular one of the plurality of sponsors to registered application programs and having a target location contained within the specific one of the plurality of geographic areas.

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

at least one instruction to register a plurality of application programs for use with a content delivery platform, wherein the plurality of registered application programs are each associated with at least one application program type;

at least one instruction to establish a plurality of perimeters defining respective geographic areas;

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

at least one instruction to receive, from a sponsor, a request to obtain an interest in a selected one of the plurality of geographic areas;

at least one instruction to provide the sponsor a response to the request;

at least one instruction to store a record of the interest in the selected one of the plurality of geographic areas;

at least one instruction to receive, from the sponsor, content to be delivered to application programs having target locations contained within the selected one of the plurality of geographic areas;

at least one instruction to receive a request from a registered application program for content to be used within the registered application program;

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

at least one instruction to provide the selected content to the registered application program.

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

at least one instruction to record a request identifier associated with the request; and

at least one instruction to provide the request identifier to the registered application program.

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

at least one instruction to receive information related to user interaction with the provided content, the information including the request identifier; and

at least one instruction to provide additional content to the registered application in response to the received information.

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

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

at least one instruction to increase the predetermined radial distance in response to a negative determination.

15. The non-transitory computer readable medium of claim **11**, wherein the program of instructions further comprises:

at least one instruction to reserve a specific one of the plurality of geographic areas for exclusive delivery of content associated with a particular one of the plurality of sponsors to application programs and having a target location contained within the specific one of the plurality of geographic areas.

* * * * *