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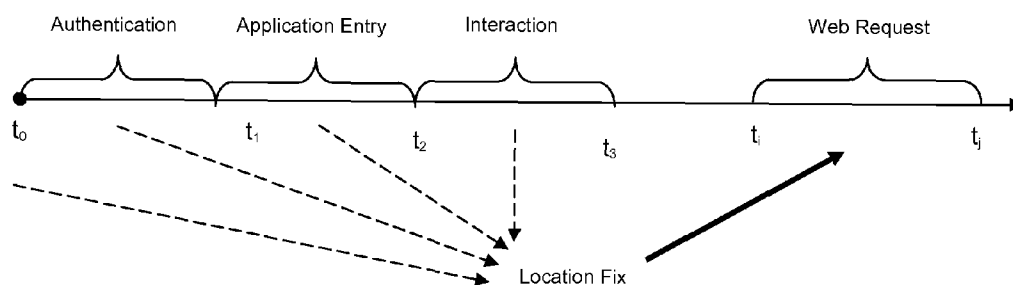
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(54) Title: LOCATION-SPECIFIC CONTENT COMMUNICATION SYSTEM



(57) Abstract: A system and method for location-specific content messaging enables location matching between users of internet access devices and content that is particularly relevant at or near a certain location. The location-specific content is communicated only to one or more internet protocol-enabled (IP) devices that are accessible by wired or wireless (or both) access devices located at or near said certain location. The location-specific content is provided to an access device that is wired or wireless, or both, of a user connected to one of the IP devices. The user automatically receives the location-specific content at the access device when at or near the certain location whether or not entering location information.



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LOCATION-SPECIFIC CONTENT COMMUNICATION SYSTEM

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PRIORITY

This application claims the benefit of priority under 35 USC §119 to United States provisional patent applications nos. 60/746,209 and 60/746,216, each filed May 2, 2006, and to United States patent application 11/743,120, filed May 1, 2007, all of which are incorporated by reference.

10

BACKGROUND

Web sites are typically located on servers whose geographical locations are mostly unrelated to where a user's internet access device is located. The 5,948,061 patent to Double Click, Inc. teaches to select advertising based on (1) address information or other information passed by the browser for the user, and (2) the [web] page being accessed by the user. Neither (1) nor (2) is equivalent to the geographical location of the internet protocol (IP) device of the user.

20

An IP device may be a wired or wireless (or both) access point device, a wired or wireless (or both) internet downlink termination point or is intermediate thereto, or a device through which a wired or wireless (or both) access device may connect to the internet, or a device that is a combination or two or more of these. The device may be either the "end of the line" like an IP TV or IP radio, or a "pass through" like a wireless access point, where the end of the line is the user's wired or wireless (or both) device (e.g. a laptop). That is, the device may end the IP communication or merely facilitates communication with another device.

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SUMMARY OF THE INVENTION

A method of providing location-specific content to a user includes generating location-specific content that is particularly relevant at or near a certain location.

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The location-specific content is communicated only to one or more internet protocol-enabled (IP) devices that are accessible by wired and/or wireless access devices located at or near said certain location. The location-specific content is provided to a wired and/or wireless access device of a user connected
5 to one of the IP devices. The user automatically receives the location-specific content at the wired and/or wireless access device when at or near the certain location whether or not entering location information.

The communicating may include retrieving the location-specific content as first
10 content, retrieving second content that is particularly relevant at or near a different location non-overlapping with the certain location, filtering the second content out, and sending the first content, and not the second content, to be provided to the wired and/or wireless access device of the user connected at the access point device.

15 The communicating may include sending non-location-specific content to an IP device to be provided to the wired and/or wireless access device of the user along with the location-specific content.

20 A system is also provided including a content server that generates and/or stores location-specific content that is particularly relevant at or near a certain location. One or more internet protocol-enabled (IP) devices are accessible by wired and/or wireless access devices located at or near the certain location and communicate with the content server. A wired and/or wireless access device of a
25 user connected to one of the IP devices is provided the location-specific content from the content server. The user automatically receives the location-specific content at the wired and/or wireless access device when at or near the certain location even without entering location information.

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The content server may generate and/or store the location-specific content as first content, and may further generate and/or store second content that is particularly relevant at or near a different location non-overlapping with the certain location. The system may include a location filter that filters the second
5 content out and so that the first content, and not the second content, is provided to the wired and/or wireless access device of the user connected at the access point device.

The same or a different content server may generate and/or store non-location-specific content to be provided to the wired and/or wireless access device of the
10 user along with the location-specific content.

For the method and/or the system, the location-specific content may include content provided by a geographically localized entity and/or may include a search
15 result.

The IP device may include a wired or wireless (or both) access point device, a wired or wireless (or both) downlink termination point or a device that terminates an internet downlink or is intermediate thereto, or combinations thereof.
20

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows a timeline which illustrates an embodiment.

25 Figure 2 schematically illustrates source and destination matching in accordance with certain embodiments.

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A user is exposed to specific content as a consequence of knowledge about the geographic location of the device. Advantageously, in accordance with a
5 preferred embodiment of the invention, the geographic location of the IP device can be determined with or without explicit input from the user of that device via a keyboard or otherwise.

SOURCE LOCATIONS

10 A "source" is represented by a record containing information about a location and includes amongst its attributes something about this location that needs to be communicated, which we call a message. An example is advertising for a particular product or service available at that location, such as at a given price,
15 and/or for a given time.

There are several categories of content that may be pushed to a given user's IP device:

- 20 a. centralized network hub related content (e.g., search box module, promo downloads, announcements)
- b. Local advertising from local advertisers based on location
- c. Advertising from manufacturers and other national brands based on user demographics
- d. Self-selected users of IP devices.
- 25 e. Web Portal ads filtered to be relevant to that location.

DESTINATION LOCATIONS

30 A "destination" is represented by a record containing information about a location and includes amongst its attributes something that allows the expression of that message at that location, being visual or audible (text, sound, image, link, or any

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digital message.) An IP device may be mapped to a destination based on a number of attributes; notably the geographic location “fix” of the user device. The more granular the destinations, the more specifically the system can target and match content.

5

More IP devices are now enabled with the ability to determine their geographic fix. However, there are still many devices that access the internet that are not location-enabled. These devices do not identify their objective position on the earth (for example using coordinates like latitude, longitude and perhaps
10 altitude). Further, even devices that are location-enabled (for example with technology like GPS) may restrict application access to this information.

15

There are many different ways to determine the location fix of a user and in many different steps in the internet access interaction. Once the fix of the user is
15 obtained, it can allow otherwise location-agnostic applications to be location-enabled. In one embodiment, a bricks-and-mortar retail company can now automatically publish the closest store to a user when the user accesses the company’s website. In another embodiment, an advertiser can now target highly localized content based on the location of the user.

20

When a device connects to the internet, it typically initiates a handshake protocol with the service provider to authenticate that the device/user has access
privileges to use the service. There are many scenarios where this protocol may exchange location relevant information (either implicitly or explicitly).

25

In the case of a cellular phone, connecting may involve identifying surrounding cell-towers by radio frequencies. The cell-towers have a semi-unique identifier and are fixed and in a known location. There are various methods by which to identify the location of the phone device based solely on the location of the cell-

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towers. If the phone contains a GPS chip, then the location of the user is even easier to determine as it makes use of satellite triangulation.

5 In the case of a laptop connecting to the internet by way of a wired or wireless (or both) access point, the user submits credentials to the service provider using the access point as a gateway. If the access point is in a known location, then the user can be within a certain small radius of that known location such that the location fix of the user can therefore be approximately derived. Alternatively, if there are multiple access points within the vicinity of the user (for example in a mesh network), then the network operating system software can do trilateration or triangulation of the signals to achieve an increased precision of the fix of the user.

15 Subsequent to authentication with the service provider, an application running on the device displays an entry screen. For example, if the user is accessing the internet using a browser, then the entry screen (or landing page) may be the portal of the service provider. This entry screen may also embed code to provide the fix of the user.

20 Once the user has access to the internet, the user may perform an interaction that determines their geographic location. For example, in a mapping application, they may wish to get driving directions and pin point their starting location.

25 Regardless of the technique used to determine the location fix of the user, it can be stored (either on the user device or on the internet) and subsequently used in internet interactions that do not otherwise have access to the location fix of the user.

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Referring now to the timeline illustrated at Figure 1, the location information may already be available at time t_0 if the device has technology that does not rely on the service provider and/or a connection to the internet. An example of such technology is GPS which relies instead on a clear line-of-sight to orbiting
5 satellites for a location fix. If a location fix at this point is available, then it is stored for later use. Either the location information is known before t_0 or it is determined then by a method as described above or otherwise as understood by those skilled in the art.

10 Between the times t_0 and t_1 , a user initiates a connection to the internet via a device. A handshake protocol with the service provider authenticates the user. Part of this protocol may involve the exchange of location specific information. For example, a Wi-Fi access point may provide identifying information to the authentication server about which access point the user is trying to connect to. If
15 the location coordinates of the access point are already known and are stored in a database, then a rough fix exists for the user and it is stored for later use.

Between the times t_1 and t_2 in Figure 1, the user is successfully authenticated by the service provider and a standard application entry screen is displayed via the
20 device to the user. For example, the user connects via a web browser and the service provider portal page is displayed. There may be embedded code that is location-aware in the entry screen. If such code exists and a location fix can be made, then it is stored for later use.

25 Between the times t_2 and t_3 in Figure 1, the user interacts with an application in such a way that the user provides information (explicitly or implicitly) about his or her geographic location. There may be embedded code that is able to consume the location information in the intermediate application. If a location fix can be made, then it is stored for later use.

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Between the times t_i and t_j in Figure 1, the user makes a generic request to the internet. The location fix was obtained in one of the earlier time periods, and is now used implicitly in this request to return location-specific content.

5

LOCATION AS REGION

The source and destination may be, but need not be, a precise location, as in a geographical point with a specific address. The source could be a geographically
10 larger location such as a city, state or country. Likewise, the destination could be a larger location like a hotzone, a city block or postal code.

In fact, a source or destination location can include geometries such as curved planar surfaces such as circles and ellipses, polygons (e.g., generally in the
15 “plane” of the surface of the Earth) or non-planar surfaces in three dimensions, or polyhedrons, and can be of any regular, irregular, selected or arbitrary size and/or shape.

CAMPAIGN PROGRAMMING

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The source and the destination are paired based on several types of criteria that can be used cumulatively. Each customer can create from one to a large number of campaigns. The system can manage the large number of customers’ campaigns, thereby creating a sparse matrix of pairings between customers,
25 campaigns, sources and destinations.

LOCATION MATCHING BASED ON OBJECTIVE GEOGRAPHIC CRITERIA

POINT-TO-POINT PROXIMITY

30

The first level of association between source and destination of a given content message is preferably geographical proximity according to an embodiment. The proximity (or relative distance) between the source and the destination is chosen

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to constrain the pairing only to destinations within a given radius around the source (or vice versa). To perform a proximity test, the source and destination locations can be represented with latitude and longitude coordinates, and a relative distance can be derived between the two points.

5

REGION OVERLAP

Referring now to Figure 2, the second level of association between source and destination is useful if one or both locations are large geographical regions. In this case, the pairing between source and destination may be based on whether there is overlap between a source location area and a destination location area. In the example of Figure 2, areas are indicated within circular perimeters. In the example of Figure 2, destinations D1 and D2 are within the area of source S2, destination D2 is also within the area of source S3 although D1 is not.

10

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Destination D3 is within the areas of sources S3 and S4. Destination D5 is within the areas of sources S3, S4 and S5. Destinations D4 and D6 are each within the area of source S5, while destination D4 is also within the area of source S3, although D6 is not. Destination D7 is not within the areas of any of the sources shown, and no destination is within the area of source S1, thus destination D7 will receive no content from the sources shown, and source S1 will send no content to the destinations shown.

20

GEOGRAPHICAL ATTRIBUTE FILTERING

The third level of geographical association between the source and the destination is the comparison of descriptors for both locations. When those descriptors match, then the destination is selected to pair with the source. These descriptors are attributes of the location record, and can be any semantic description of a physical area, such as country, state, city, neighborhood, building, marina, etc. For example, a source may be attached to a public service announcement message, generated by the entity "local government" that is

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intended for all citizens of a given city. The selection of the destinations may be based on the city in which these destinations are located.

LOCATION MATCHING BASED ON TIME

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In addition to being able to geographically target the display of the source location's message to destination locations, the system can cumulate or alternatively use time based criteria.

10

TIME USED TO MEASURE DURATION

A pair source/destination can be constrained by a start date/time and an end date/time. For example, source location 1 (associated with the message) may only be associated with destination location 2 (associated with the display of the message) from 6am to 10am from Monday to Friday. This would suit advertising for a coffee shop, for example, that is only open on weekdays and caters to professionals on their way to the office.

15

More specifically, a campaign can state that the pair only exists from 2 to 5pm on a given day, for example, when the source is advertising for tickets for a show or other event, that night only, at that source location.

20

TIME USED TO MEASURE FREQUENCY

A pair source/destination can be constrained by a number of "exposures" or "impressions" of the source to the destination. The frequency of display of the source's message at the destination can be configured both absolutely (no less or no more than n displays per hour) and relatively to other messages (twice as often as the next most displayed message)

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LOCATION MATCHING BASED ON SUBJECTIVE CRITERIA/CATEGORIES

Besides geographical criteria and time based criteria, a pair source/destination can be constrained by any attribute filter such as the category of location (e.g.: all destinations except coffee shops) or brand/franchiser of the location (e.g.: all locations except Starbucks), or product-location specific attributes (e.g.: only locations that have wifi-service and a Linksys branded router or a T1 network access). These attribute filters can be added to each other (e.g.: only coffee shops to the exclusion of Starbucks coffee shops)

CONTENT PUBLISHING

The result of the association between source location and destination location can be published through a variety of technical components, devices and formats.

PUBLISHING MEDIUM

The source message can be expressed at the destination location through text messaging, pre-recorded audio, web page showing on a user's desktop at home or at work, on a laptop connected through wired or wireless (or both) internet service (wi-fi/wimax), a PDA, cell phone or any device capable of playing sounds or displaying images, text, video or any other digital message.

PUBLISHING FORMAT

The source message can be played/displayed according to predetermined templates that define the appearance of the message at the destination, such as size, position, color, etc.

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REPORTING

“Exposures” or “impressions” of a message to a destination may be recorded. Interactions generated with the content of the message – such as clicking on a link – may be recorded. Reports may be provided by a user, by campaign, by source location and/or by destination location, by time period, by volume of transaction and/or by type.

VISUALIZATION

The activity of campaigns can be visualized on a geographical map. For example, from the perspective of a campaign manager, the map may show all coffee shops in San Francisco that displayed the advertising for the new Ford car test drive promoted at the nearest dealership to that coffee shop, and may show the number of impressions at each location represented on the map. From the perspective of the hotspot network operator who is displaying the content messages, it may show the number of campaigns active at each location, or the number of impressions in total or by campaign.

The selection of criteria to display in a map can be done via tabular data, as well as by interaction directly with the electronic map, for example, by selecting a succession of points to trace a polygon, ellipse or other 2-D shape, or a three dimensional shape, and show relevant locations and information pertaining to the campaign within the boundaries of the shape.

Another feature of the system is the visualization of data changes over a time period. The user can select location data to represent on the map at an initial time, then at intervals until an ending time, in order to create the effect of animation.

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While an exemplary drawings and specific embodiments of the present invention have been described and illustrated, it is to be understood that that the scope of the present invention is not to be limited to the particular embodiments discussed. Thus, the embodiments shall be regarded as illustrative rather than
5 restrictive, and it should be understood that variations may be made in those embodiments by workers skilled in the arts without departing from the scope of the present invention as set forth in the claims that follow and their structural and functional equivalents.

10 In addition, in methods that may be performed according to the claims below and/or preferred embodiments herein, the operations have been described in selected typographical sequences. However, the sequences have been selected and so ordered for typographical convenience and are not intended to imply any particular order for performing the operations, unless a particular ordering is
15 expressly provided or understood by those skilled in the art as being necessary.

What follows is a cite list of references that are hereby incorporated by reference into the detailed description of the preferred embodiments as disclosing elements or features alternative to the preferred embodiments: United States patents nos.
20 5,948,061, 6,795,700, 6,798,358, 6,799,032, 6,832,373, 6,845,400, 6,848,542, and 5,835,061, 5,969,678, 6,259,405, 6,326,918, 6,452,498, 6,697,018, 6,759,960, 7,009,556, and US patent applications no. 10/886,502, 60/913,444 and 60/913,451, and www.freefinet.com, www.wifinder.com, www.jiwire.com, www.1020systems.com, and www.wi-fiplanet.com

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What is claimed is:

1. A method of providing location-specific content to a user, comprising:

(a) generating location-specific content that is particularly relevant at or
5 near a certain location;

(b) communicating the location-specific content only to one or more
internet protocol-enabled (IP) devices that are accessible by wired or wireless
access devices, or both, located at or near said certain location; and

(c) providing said location-specific content to at least one of the access
10 devices of a user connected to one of said IP devices,

(d) wherein the user automatically receives said location-specific content
at said access device when at or near said certain location whether or not
entering location information.

15 2. The method of claim 1, wherein said location-specific content comprises
content provided by a geographically localized entity.

3. The method of claim 1, wherein said communicating comprises:

(i) retrieving said location-specific content as first content,

20 (ii) retrieving second content that is particularly relevant at or near a
different location non-overlapping with said certain location,

(iii) filtering said second content out, and

(iv) sending said first content, and not said second content, to be provided
to said access device of said user connected at said access point device.

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4. The method of claim 1, wherein said communicating further comprises
sending non-location-specific content to said one of said IP devices to be
provided to said access device of said user along with said location-specific
content.

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5. The method of claim 1, wherein said location specific content comprises a search result.

5 6. The method of claim 1, wherein said one of said IP devices comprises a wired or wireless access point device, or both, a wired or wireless downlink termination point, or both, or a device that terminates an internet downlink or is intermediate thereto, or combinations thereof.

10 7. A system that provides location-specific content to a user, comprising:
 (a) a content server that generates or stores, or both, location-specific content that is particularly relevant at or near a certain location;
 (b) one or more internet protocol-enabled (IP) devices that are accessible by wired or wireless access devices, or both, located at or near said certain
15 location and communicating with said content server; and
 (c) an access device that is wired or wireless, or both, of a user connected to one of said IP devices and being provided said location-specific content from said content server,
 (d) wherein the user automatically receives said location-specific content
20 at said access device when at or near said certain location even without entering location information.

8. The system of claim 7, wherein said location-specific content comprises content provided by a geographically localized entity.

25

9. The system of claim 7, wherein said content server generates or stores or both said location-specific content as first content, and further generates or stores, or both, second content that is particularly relevant at or near a different location non-overlapping with said certain location, and wherein said system

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further comprises a location filter that filters said second content out and so that said first content, and not said second content, is provided to said access device of said user connected at said access point device.

5 10. The system of claim 7, wherein the same or a different content server generates or stores or both non-location-specific content to be provided to said access device of said user along with said location-specific content.

10 11. The system of claim 7, wherein said location specific content comprises a search result.

15 12. The system of claim 7, wherein said one of said IP devices comprises a wired or wireless access point device, or both, a wired or wireless downlink termination point, or both, or a device that terminates an internet downlink or is intermediate thereto, or combinations thereof.

20 13. One or more processor readable storage devices having processor readable code embodied thereon, said processor readable code for programming one or more processors to perform a method of providing location-specific content to a user, the method comprising:

(a) generating location-specific content that is particularly relevant at or near a certain location;

25 (b) communicating the location-specific content only to one or more internet protocol-enabled (IP) devices that are accessible by wired or wireless access devices, or both, located at or near said certain location; and

(c) providing said location-specific content to an access device that is wired or wireless, or both, of a user connected to one of said IP devices,

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(d) wherein the user automatically receives said location-specific content at said access device when at or near said certain location even without entering location information.

5 14. The one or more storage devices of claim 13, wherein said location-specific content comprises content provided by a geographically localized entity.

15. The one or more storage devices of claim 13, wherein said communicating comprises:

10 (i) retrieving said location-specific content as first content,
(ii) retrieving second content that is particularly relevant at or near a different location non-overlapping with said certain location,
(iii) filtering said second content out, and
(iv) sending said first content, and not said second content, to be provided
15 to said access device of said user connected at said access point device.

16. The one or more storage devices of claim 13, wherein said communicating further comprises sending non-location-specific content to said one of said IP devices to be provided to said access device of said user along with said
20 location-specific content.

17. The one or more storage devices of claim 13, wherein said location specific content comprises a search result.

25 18. The one or more storage devices of claim 13, wherein said one of said IP devices comprises a wired or wireless access point device, or both, a wired or wireless downlink termination point, or both, or a device that terminates an internet downlink or is intermediate thereto, or combinations thereof.

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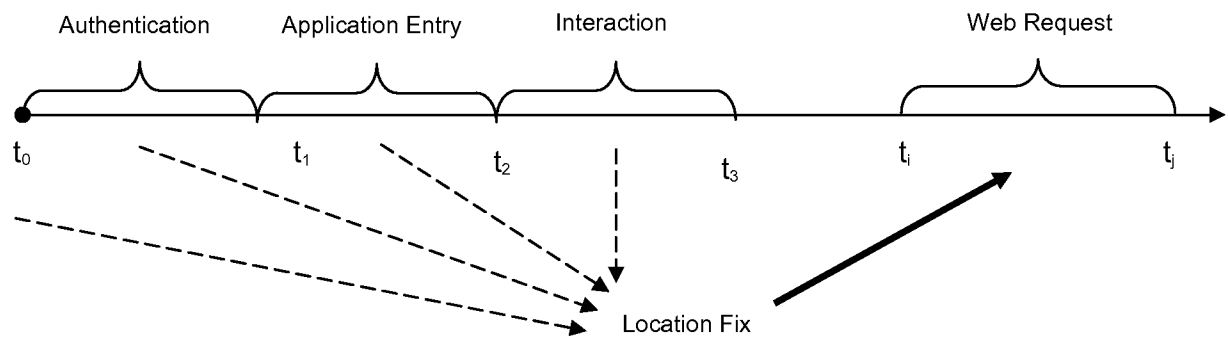


FIGURE 1

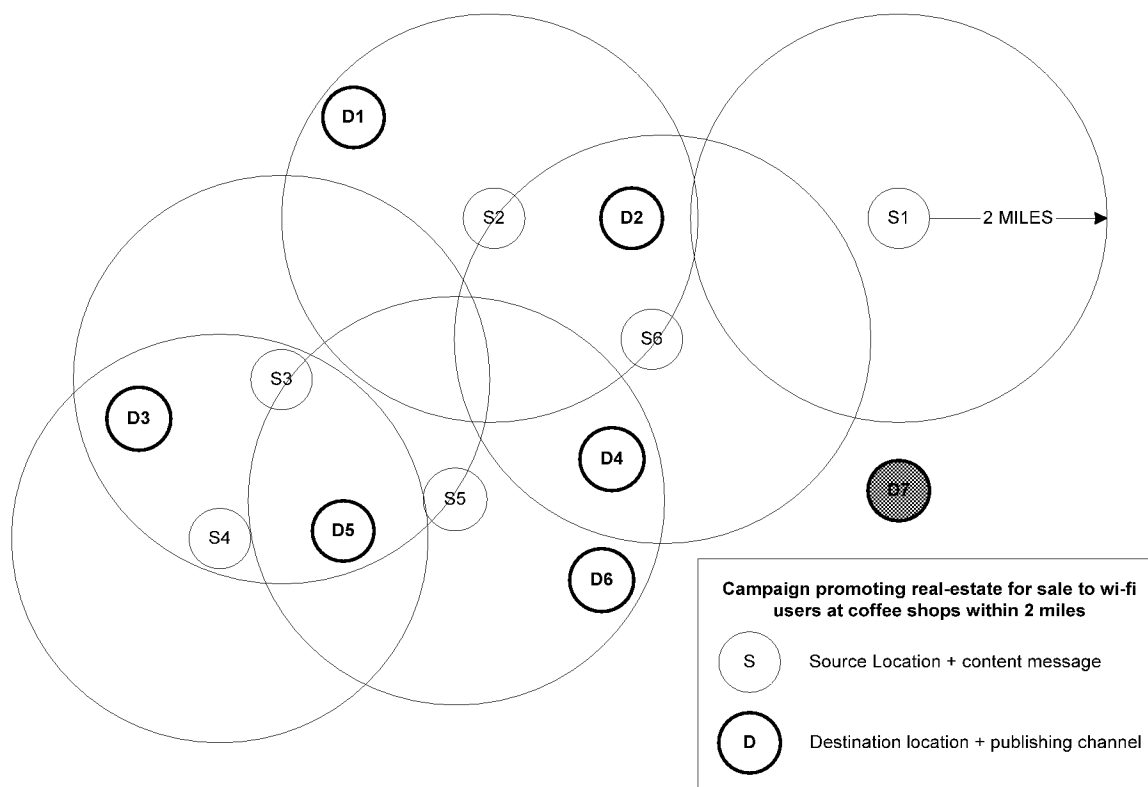


FIGURE 2