Abstract: Targeted advertisements with associated dynamic content for response and feedback embedded into the ad's header are delivered to mobile viewing devices (104). The mobile viewing device (104) records a user's response to advertisements and reports it back to an ad serving platform (101). The ad serving platform (101) generates user profiles (403) that incorporate the response data. Ads are further targeted to the user according to the user's profile data (403) to maximize the impact of the ads. The user can select the preferred format for providing advertisement feedback.
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End to End Response Enabling Collection and Use of Customer Viewing Preferences Statistics

CROSS REFERENCE TO RELATED APPLICATIONS

This patent application claims the benefit of U.S. patent application serial number 2/368,141, End-to-End Response Enabling Collection and Use of Customer Viewing Preference Statistics, filed February 9, 2009 and US provisional patent application serial number 61/065,258, End-to-End Response Enabling Collection and Use of Customer Viewing Preference Statistics, filed February 15, 2008, the entirety of each of which are incorporated herein by this reference thereto.

BACKGROUND OF THE INVENTION

Technical Field
The invention relates generally relates to advertisements delivered to mobile wireless viewing devices. More specifically, the invention relates to the delivery of targeted advertisements to mobile wireless video viewing devices with the capability for client specific responses including feedback to the advertisements.

Description of the Related Art
Advertisements, i.e., "ads," are typically distributed to mobile wireless video viewing devices, i.e., "mobile viewers," using multi-cast delivery. As a result, the same advertisement is received by multiple mobile viewers. Such delivery systems preclude sending targeted advertisements to each customer or group of customers.

Multi-cast systems also preclude customer responses to ads. The ability to record a user's response to an ad is helpful for measuring the ad's impact. Even
if user response was measurable, however, there is little value in measuring the
user's response to ads that are distributed uniformly to customers. In such
scenarios, the advertiser is already aware that the ads are not targeted, and
without being able to target the ads to individual users, user feedback is
irrelevant.

SUMMARY OF THE INVENTION

In one embodiment, the invention comprises a system and method for
distributing targeted advertisements to customers or groups of customers. A
mobile viewer downloads targeted advertisements that a micro-splicer inserts
into a content stream for viewing. The mobile device tracks the user response to
the advertisement and transmits the response to an ad serving platform. The ad
serving platform collects the responses from all user devices and uses the data
to generate targeted advertisements.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG.1A is a block diagram of an ad-serving platform and a mobile viewing device
according to one embodiment of the invention;

FIG. 1B is a more detailed block diagram of an ad-serving platform and a mobile
viewing device according to one embodiment of the invention;

FIG. 2 is a diagram that illustrates the various sources for transmitting user
responses to targeted advertisements according to one embodiment of the
invention;

FIG. 3 is a block diagram of a media player, a micro-splicer, and an ad caster
stored on a mobile viewer according to one embodiment of the invention;
FIG. 4 is an illustration of a reporting and profiling system that collects metadata from a mobile viewer to be transferred to the ad server for updating user profiles according to one embodiment of the invention; and

FIG. 5 is a flow diagram that illustrates the steps for distributing a targeted advertisement to a user and recording the response according to one embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

In one embodiment of the present invention, a method and/or an apparatus delivers targeted advertisements to mobile wireless video viewing devices with targeted advertisements and associated dynamic content for generating feedback. This end-to-end response consolidates viewers' responses to advertisements and reports them back to an ad serving platform. The feedback enables collection and use of customer responses to generating viewing preference statistics. The statistics are used to refine the advertisement generation process for maximum impact. In another embodiment of the present invention, a user interface allows users to specify a preferred interaction format for responding to advertisements.

In order to provide a real-time response capability to ads or other alternate content inserted into a video content stream, in one embodiment, the system records the dynamic aspects of a user's response, e.g., the user's location in addition to the static message content specified by the advertisement. In one embodiment, the dynamic content is specific and focused to each target group. Factors for target groups include, for example, location and preferred interest and response mode method, e.g. short message service (SMS), keyboard, email, call-back, etc.

By generating and focusing the dynamic and static content of an ad or alternate content to a target group, and providing the customer with a preferred interaction
mode, it is possible to improve the ad's impact on the user. This results in increased interaction in the form of response and feedback from the user to the ad. Such an end-to-end interaction in the form of feedback is of great value to any ad campaign enabling the optimization of the impact of current and future ad campaigns.

In a system that allows the generation and download of a specific set of focused advertisements or alternate content into a mobile device, it is possible to generate advertisements that contain dynamic content that is specific to the user and static content that is the message of the campaign. The downloaded ad or alternate content is inserted into predefined advertisement spots that are identified by addressable metadata information downloaded or contained in the viewing content stream. When the alternate content is rendered, it is shown with the two parts: the static part that is the message of the ad campaign and the dynamic content that is specific to a customer or group of targeted customers. The dynamic component includes local information content that supports the ad campaign and customer specific response mode to use for responding to the content of the ad.

Once the customer responds to the information presented, the response is transferred out through a wireless channel if available, or stored and transferred with some delay through any alternate channels available to the user. The response can be separated into two segments: one directly relating to the impact of the ad campaign and the other relating to the local added content. The collected information is used to provide statistics about the interest level and viewing impact of the message contained in the ad or alternate content.

Figure 1A is a block diagram that illustrates system hardware for running an ad serving platform 101 that interacts with a mobile viewer 104 according to one embodiment of the invention. The ad serving platform 101 is a computing platform that is configured to act as a server. The ad serving platform 101
communicates with mobile viewers 104 via a network 100. The network 100 can comprise any mechanism for the transmission of data, *e.g.*, cable, internet, web, wireless, 3G network, *etc.* The mobile viewing device 104 is a computing platform that is configured to act as a client device, *e.g.*, a personal digital assistant, a laptop, a digital media player, a cellular telephone, *etc.*

The ad serving platform 101 and mobile viewing devices 104 include a computer-readable memory 10, *e.g.*, random access memory, flash memory, read only memory, *etc.* communicatively coupled to a processor 20. The processor 20 executes computer-executable program code stored in memory 10. Other embodiments of a computer-readable memory 10 include, but are not limited to, an electronic, optical, magnetic, or other storage device capable of communicatively coupling to a processor, *e.g.*, CD-ROM, DVD, magnetic disk, *etc.*

The user is presented with a variety of formats for responding to an advertisement. Once the user selects a response format and responds, the information is transmitted preferably through a mobile data network. The methods used for responding by the user can be any one of: Click-to-Call, Click-to-Browse, Click-to-Jump page, Click-to-Message, Click-to-Mail, Click-to-Bookmark, Click-to-Share, Click-to-download, *etc.* Therefore, each time an ad is rendered on the mobile viewing device 104, the ad is displayed such that the user can reply using the pre-selected response format.

Figure 1B is a block diagram of a system for an ad-serving platform and a mobile viewing device according to one embodiment of the invention. The end-to-end system response system comprises an advertisement serving platform 101 that interacts with mobile viewing devices 104 via a network 100.

In one embodiment, the advertisement serving platform 101 comprises a call to action generator 103, a report manager 206, and a customer preference
metadata database 102. The customer preference metadata database 102 contains the client preference information including the preferred mode of response for each mobile viewing device 104. The call to action generator 103 uses the database 102 information to assign a suitable "call to action" framework to each user. A "call to action" framework includes the dynamic local content, i.e. the response mode needed for each user and user-specific information, e.g. location of the mobile viewing device 104. The call to action generator 103 embeds this information into the advertisement as a header for future extraction after the ad is downloaded by the mobile viewing device 104.

In one embodiment, the mobile viewing device 104 comprises a media player 105, a micro-splicer 106, an ad caster module 107, and a database containing response data 108. The ad caster 107 handles the transmission, scheduling, and management of the ad and a user's response to the ad. The ads are downloaded from the ad serving platform 101.

The media player 105 renders a content stream and targeted advertisements. A micro-splicer 106 inserts the advertisements into an available ad spot within the content stream. In one embodiment, the advertisements are downloaded ahead of the content stream and stored on the mobile device. In another embodiment, the advertisements are delivered along with the content stream and inserted into the content stream in real time.

Once the advertisement is rendered, the media player 105 activates the "call for action" frame based upon the ad's dynamic content. If a user responds to the advertisement, the media player 105 consolidates the response and reports it back to the ad serving platform 101 if data connectivity is available. If data connectivity is not available, the response data is stored in the memory and/or response database 108. In one embodiment, the database 108 is not static in nature, and the response data is not maintained once the mobile viewing device 104 transmits the response data to the ad serving platform 101.
Figure 2 illustrates the various sources for transmitting user responses to targeted advertisements to an ad serving platform 101 according to one embodiment of the invention. In the illustrated embodiment, the advertisement serving platform 101 receives data from three sources: directly from the viewing device 104 for a call for action, from non-mobile third-party operator sources 204, and mobile operator connected sources 205.

The ad serving platform 101 transmits a list of options to the mobile viewer 104 that allow the user to select a preference for displaying a user response interface. For example, the user can select to respond to advertisements with click-to-call, click-to-browse, click-to-jump page, click-to-message, click-to-mail, click-to-bookmark, click-to-share, and click-to-download. The customer preference is stored in the customer preference metadata database 102. If the user does not select a user preference, the ad serving platform 101 assigns a default format to the user.

The call-to-action framework 202 generates group/customer specific mechanisms for enabling user engagement to the advertisements. The mobile viewing device 104 downloads the components of the engagement chosen, depending upon client preference. The downloaded engagement format is displayed on screen as part of the dynamic response component for the user to interact with the advertisement during rendering.

Non-mobile operator third-party sources 204 can include, for example, a digital locker, which allows users to store their personal files on a remote server; email transferred using, for example, simple mail transfer protocol (SMTP); wireless communications transmitted, for example, via a wireless application protocol (WAP); and communications transmitted, for example, via a common short code (CSC) aggregator. Mobile operator connected sources 205 include, e.g. SMS and manufacturing message specification (MMS).
The ad serving platform 101 receives responses to the ads from these three sources. The report manager 206 compiles the ad responses, tracks the "call to action" component used, and generates reports that are used to update the user preferences based on the compiled information.

Figure 3 is block diagram 300 that illustrates the media player 105 and ad caster 107 components according to one embodiment of the invention. In one embodiment, the ad caster 107 comprises a call to action (CTA) manager 304, a transport manager 307, a scheduler 308, a report logger 309, and a downloading and housekeeping module 310.

The downloading and housekeeping module 310 manages the downloading of advertisements. The scheduler 308 manages the schedule for when a particular ad is inserted into the content stream as a function of ad spots in the content stream. The report logger 309 records ad-related activities. The transport manager 307 transmits the ad to the ad buffer 302.

The call to action manager 304 extracts instructions for displaying the information needed to record a user response to an ad, i.e., the call to action from advertisement headers, and transmits the instructions to the metadata detection module 303 located in the media player 105. The call to action manager 304 performs additional actions as desired based on the instructions. Once a user responds to an advertisement, the actions and responses are received by the call to action manager 304, which transmits the information to the advertisement serving platform 101 via available communication links.

In one embodiment, the media player 105 comprises a metadata detection module 303 that extracts program identification information from advertisement headers and scans cue tones in the content stream for metadata. Metadata includes an addressable spot guide, which contains instructions for inserting the
advertisement into an ad spot in the content stream. The metadata detection module 303 transmits this information to the micro-splicer 106.

Based on the information received from the metadata detection module 303, the micro-splicer 106 redirects the rendering from the content buffer 301 to the advertisement buffer 302 for the period of the advertisement spot. As a result, the media player 105 renders the advertisement at the correct advertisement spot in the content flow.

The metadata detection module 303 also tracks user responses to the inserted ad using a call to action (CTA) handler 305 and a status logger 306. The call to action handler 305 manages the user interactions with the advertisement and the response events recorded. The status logger 306 maintains records of advertisements inserted and interruptions made by a user with respect to advertisements.

Figure 4 shows collection and consolidation of data concerning user viewing, interacting, and responses to ads. This data can be used for maintaining and updating the customer preference metadata database 102. This data can also be used by the call to action generator 103 to generate the group/user specific mechanisms for user engagement to advertisements. In one embodiment, the ad caster 107 collects the user engagement data in real time. These are sent to the advertisement serving platform 101 where the information is used to update the existing user profile 404.

User profiles 404 typically include data collected from responses to ads, e.g. the location details 441 collected from movement, calls made 442, messaging usage 443, use of other applications 444, data network usage 445, etc. The statistics reports 405 include ad response reports 451, which, in turn provide proof-of-play for the video and ad. A call to action response report 452 contains information about when the call to action was activated, etc. A system event 453 report
contains information on any system events, e.g., turn off of the display terminal, etc., to enable the advertiser to analyze the total end-to-end response of the user to the advertisement.

Together, the collected user profiles 404 and statistics data 405 form the profile data of the end-to-end response as shown in 403. The data thus collected is sent to the advertisement flow report manager 206 to process and update the stored user preference metadata 102. This information is used by the call to action generator 103 of the advertisement serving platform 101 to optimize the dynamic content added to the advertisements. It is also used by the advertiser to develop optimized advertising methodologies for improved acceptance of the message included in the advertisement.

In one embodiment, the ad serving platform selects an advertisement from a group of advertisements for transmission to a mobile device based on the recorded user responses to previously viewed advertisements.

Figure 5 is a flow diagram that illustrates the steps for establishing a user interface for responding to an advertisement, insertion of advertisements into a content stream, recording the user response to the ad, and using the data to compile user profiles according to one embodiment of the invention. The ad serving platform 101 transmits 500 a list of user preferences to a user device for the user to select a preferred format. The ad serving platform 101 receives 505 the user preference and stores 510 the user preference in the customer preference metadata database 102. The call-to-action framework 202 generates 515 components for enabling the selected user response. The ad serving platform 101 transmits 620 the components to the appropriate mobile viewer 104.

The mobile viewer 104 downloads 525 the advertisement before it receives the content stream. The micro-splicer inserts 530 the ads into the content stream. The call to action handler 305 tracks 535 the user responses to the ads. The ad
caster 107 collects 540 the user response data and transmits 545 the user response data to the ad serving platform 101. The ad serving platform 101 consolidates 550 the user data and generates 555 user profiles.

5 The subject matter disclosed hereinabove may be embodied in software designed to execute on a specific hardware platform, firmware, hardware or any combination thereof.

As will be understood by those familiar with the art, the invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. Likewise, the particular naming and division of the members, features, attributes, and other aspects are not mandatory or significant, and the mechanisms that implement the invention or its features may have different names, divisions and/or formats. Accordingly, the disclosure of the invention is intended to be illustrative, but not limiting, of the scope of the invention, which is set forth in the following Claims.
CLAIMS

1. A system for generating targeted advertisements containing dynamic content and for receiving user responses to said targeted advertisements, said system comprising:
   an ad serving platform comprising:
   a call to action generator for assigning a call to action framework to each of a plurality of users, said call to action framework providing each user with a user selected mode for responding to said targeted advertisements and for embedding said call to action framework into a header associated with said targeted advertisements;
   a report manager for receiving responses from said plurality of users to said targeted advertisements and for incorporating said user response into corresponding user profiles; and
   a customer preference metadata database for storing said user profiles on a computer readable medium;
   an ad caster component for managing said call to action framework comprising:
   a call to action manager for extracting said call to action framework from said targeted advertisement, transmitting said call to action framework to a media player, receiving said user response to said targeted advertisement from said media player, and transmitting said user response to said ad serving platform; and
   a media player for displaying said targeted advertisement and said call to action framework, for receiving said user response to said targeted advertisement, and for transmitting said user response to said call to action manager.

2. The system of claim 1, wherein said call to action framework comprises one from a group consisting of a click-to-call, click-to-browse, click-to-jump, click-to-message, click-to-mail, click-to-bookmark, click-to-share, and click-to-download.
3. The system of claim 1, further comprising:
   a metadata detection module for extracting program identification information from a targeted advertisement to determine where to insert said targeted advertisement in a content stream, said metadata detection module transmitting instructions for inserting said targeted advertisement to a micro-splicer;
   said micro-splicer for inserting said targeted advertisement into said content stream by redirecting said media player to render from a content buffer to an ad buffer for a duration of said targeted advertisement and then switching back to rendering from said content buffer;
   said content buffer; and
   said ad buffer.

4. The system of claim 1, wherein said ad serving platform receives said responses from said plurality of users to said targeted advertisement from at least one of a viewing device, a mobile operator connected source, and a non-mobile operator connected source.

5. The system of claim 1, wherein said profile data comprises information from a mobile viewer that displays said targeted advertisement comprising at least one of an airtime usage, a message usage, an application usage, a data network usage, a proof-to-play, a call to action, and a system event.

6. The system of claim 5, wherein said profile data is used to generate targeted advertisements for said user.

7. A computer-implemented method for generating a targeted advertisement comprising dynamic content and static content, the method comprising the steps of:
transmitting a user-preference list of a plurality of formats for displaying a user interface for receiving a user response to a targeted advertisement;

responsive to a user selecting a format for displaying said preferred user interface, storing said format in a computer-readable storage medium as part of a user profile;

generating a call to action framework that comprises dynamic content that includes said user selected format and a location of said mobile viewing device;

generating static content comprising a targeted advertisement that includes an ad campaign message;

embedding said dynamic content into a header that is part of said targeted advertisement;

transmitting said targeted advertisement to said mobile viewing device;

receiving a user response to said targeted advertisement from said mobile viewing device; and

updating said user profile with said user response to said targeted advertisement.

8. The computer-implemented method of claim 7 further comprising the step of:

generating a user profile with information for said mobile viewing device selected from a group consisting of an airtime usage, a message usage, an application usage, and a data network usage.

9. The computer-implemented method of claim 7 further comprising the step of:

generating a statistic report with information comprising one from a group consisting of an ad report, a call to action report, and a system event.

10. The computer-implemented method of claim 7 further comprising the step of:

responsive to failure to receive a user-selected format for displaying said user interface, assigning a default format for displaying said user interface.

11. The computer-implemented method of claim 7, further comprising the step of:
selecting an advertisement from a plurality of advertisements that is targeted for a location that is the same as the location of said mobile device.

12. The computer-implemented method of claim 7, further comprising the step of:

selecting an advertisement from a plurality of advertisements that is most likely to result in a purchase of a product displayed in said advertisement based on said user response to previously viewed advertisements.

13. A computer-implemented method for inserting a targeted advertisement into a content stream and recording a user response to said targeted advertisement, the method comprising the steps of:

receiving with a mobile viewing device a list of a plurality of formats for displaying a user interface for recording a user response to said targeted advertisement;

transmitting a user-selected format for displaying said user interface;

receiving said targeted advertisement, said targeted advertisement comprising a call to action framework embedded in a header of said targeted advertisement;

extracting said call to action framework, said call to action framework comprising instructions for displaying said user interface for recording a user response to said targeted advertisement;

inserting said targeted advertisement into a content stream;

rendering said content stream and said targeted advertisement;

activating said user interface;

tracking a user response to said targeted advertisement; and

transmitting said user response to an ad serving platform.

14. The computer-implemented method of claim 13, further comprising the steps of:

downloading said targeted advertisement;
scheduling a time for inserting said targeted advertisement into said content stream; and
transmitting instructions for inserting said targeted advertisement into said content stream.

15. The computer-implemented method of claim 13, further comprising the steps of:
extracting from said targeted advertisement instructions for inserting said targeted advertisement into said content stream;
scanning said content stream for an addressable spot guide; and
inserting said targeted advertisement into said addressable spot guide in said content stream.

16. The computer-implemented method of claim 15, further comprising the steps of:
redirecting said media player to render from an ad buffer instead of a content buffer for a period of an advertisement spot; and
directing said media player to render from said content buffer once said targeted advertisement is rendered.

17. The computer-implemented method of claim 13, further comprising the step of:
 storing said user response in a computer-readable storage medium on said mobile device.

18. The computer-implemented method of claim 17, further comprising the step of:
 removing said user response from said computer-readable storage medium in response to transmitting said user response to said ad serving platform.
19. The computer-implemented method of claim 13, wherein said response to said targeted advertisement consists of information selected from a group of a location of said mobile device, any call made by said mobile device, a messaging usage, an application use, and a data network use.

20. The computer-implemented method of claim 13, further comprising the step of:
   recording all ad-related activities.
INTERNATIONAL SEARCH REPORT

A  CLASSIFICATION OF SUBJECT MATTER

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<thead>
<tr>
<th>IPC(8)</th>
<th>USPC</th>
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<td>H04N 7/10</td>
<td>725/32</td>
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According to International Patent Classification (IPC) or to both national classification and IPC

B  FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

USPC 725/32

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPC 705/14, 709/203, 219, 224, 227, 228, 230, 231, 725/34, 35, 707/100. 104 I

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Electronic Databases: Search pubWEST (PGPBUSPTUSOC,EPAB,JPAB), GoogleScholar

Search Terms Used: interactive/personalized end-to-end/dynamic/ad-insertion, micro-splicer targeted-campaigns/advertising mobile/cellular subscriber-data, miSpot unified/turnkey mobile advertising

C  DOCUMENTS CONSIDERED TO BE RELEVANT

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<th>Category</th>
<th>Citation</th>
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<td>US 2006/0074769 A1 (LOONEY et al) 06 April 2006 (06 04 2006) Entire document, especially para [0010], [0019], [0021], [0023], [0028], [0030], [0033], [0036], [0044]-[0045], [0050], [0052], [0055], [0059], [0071], [0071], [0075], [0094]</td>
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<td>US 2004/0103120 A1 (FICKLE et al) 27 May 2004 (27 05 2004) Entire document, especially para [0010], [0021], [0033], [0035], [0038], [0056]-[0057], [0060]</td>
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D  Further documents are listed in the continuation of Box C

* Special categories of cited documents
  - "A" document defining the general state of the art which is not considered to be of particular relevance
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