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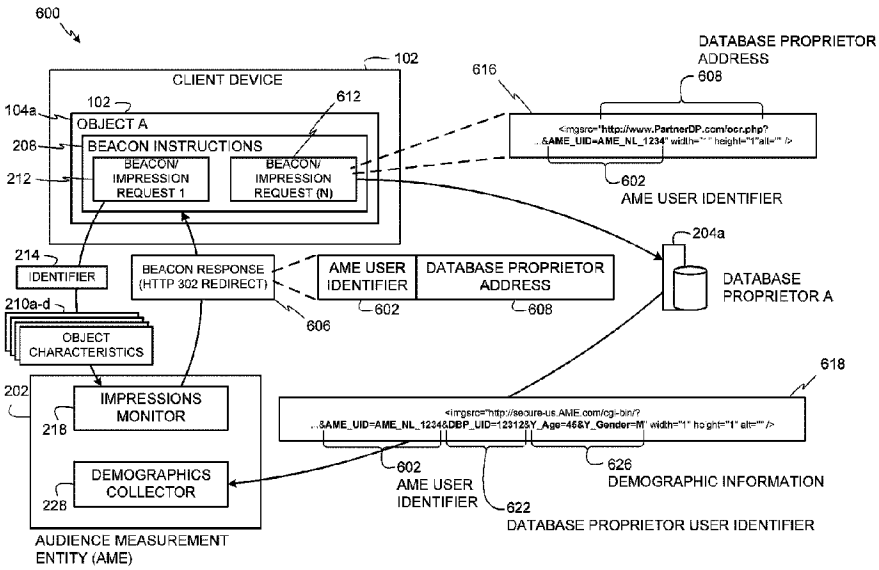
(54) Titre : PROCEDES ET APPAREIL POUR MESURER UN CONTENU MULTIMEDIA A L'AIDE DE CARACTERISTIQUES D'OBJET MULTIMEDIA

(54) Title: METHODS AND APPARATUS TO MEASURE MEDIA USING MEDIA OBJECT CHARACTERISTICS



(57) Abrégé/Abstract:
Methods and apparatus to collect impressions using media object characteristics are disclosed. A disclosed example method involves, based on first instructions associated with a collector media object presented at a client device, collecting a first characteristic of the collector media object and collecting second characteristics corresponding to a plurality of second media objects that are presented at the client device concurrently with the collector media object. The example method also involves, based on second instructions associated with the collector media object, reporting multiple impressions corresponding to the collector media object and to the second media objects by sending the first and second characteristics and an identifier associated with the client device in a single communication to an audience measurement entity.

ABSTRACT

Methods and apparatus to collect impressions using media object characteristics are disclosed. A disclosed example method involves, based on first instructions associated with a collector media object presented at a client device, collecting a first characteristic of the collector media object and collecting second characteristics corresponding to a plurality of second media objects that are presented at the client device concurrently with the collector media object. The example method also involves, based on second instructions associated with the collector media object, reporting multiple impressions corresponding to the collector media object and to the second media objects by sending the first and second characteristics and an identifier associated with the client device in a single communication to an audience measurement entity.

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METHODS AND APPARATUS TO MEASURE MEDIA USING MEDIA OBJECT CHARACTERISTICS

FIELD OF THE DISCLOSURE

[0001] The present disclosure relates generally to monitoring media and, more particularly, to methods and apparatus to measure media using media object characteristics.

BACKGROUND

[0002] Traditionally, audience measurement entities determine audience engagement levels for media programming based on registered panel members. That is, an audience measurement entity enrolls people who consent to being monitored into a panel. The audience measurement entity then monitors those panel members to determine media programs (e.g., television programs or radio programs, movies, DVDs, etc.) exposed to those panel members. In this manner, the audience measurement entity can determine exposure metrics for different media based on the collected media measurement data.

[0003] Techniques for monitoring user access to Internet resources such as web pages, advertisements and/or other Internet-accessible media have evolved significantly over the years. Some known systems perform such monitoring primarily through server logs. In particular, entities serving media on the Internet can use known techniques to log the number of requests received for their media (e.g., content and/or advertisements) at their server.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] FIG. 1 depicts an example client device user interface that is presenting a plurality of media objects.

[0005] FIG. 2 depicts an example system that may be used to associate media impressions with user demographic information based on characteristics of the media objects of FIG. 1 and demographics information distributed across numerous database proprietors.

[0006] FIG. 3 illustrates an example manner of awarding causal credits to media objects identified as creating opportunities for presenting other media to users.

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[0007] FIG. 4 illustrates an example manner of awarding causal credits to media objects based on a hierarchical ranking system.

[0008] FIG. 5 is a communication flow diagram of an example manner in which an audience measurement entity (AME) can collect impressions and demographic information based on a client device reporting impressions to the AME and to distributed database proprietors.

[0009] FIG. 6 depicts a communication flow diagram of an example manner in which an AME can receive demographic information from database proprietors on a per-beacon reporting basis.

[0010] FIG. 7 depicts a communication flow diagram of an example manner in which an AME can receive demographic information from database proprietors based on keys or other identification information held by both the AME and the database proprietors.

[0011] FIG. 8 is a flow diagram representative of example machine readable instructions that may be executed by a client device of FIGS. 1 and 2 to report media object impressions to an AME and/or one or more database proprietors.

[0012] FIG. 9 is a flow diagram representative of example machine readable instructions that may be executed by an apparatus of FIG. 2 at an AME to log impressions for media objects.

[0013] FIG. 10 is a flow diagram representative of example machine readable instructions that may be executed by an apparatus of FIG. 2 at an AME to associate demographic information with impressions for media objects concurrently presented at a client device.

[0014] FIG. 11 is an example processor system that can be used to execute the example instructions of FIGS. 8-10 to implement example apparatus and systems disclosed herein.

[0015] FIG. 12 depicts an example web page interface displaying a media player to present sequential media objects including content and advertisements.

DETAILED DESCRIPTION

[0016] Techniques for monitoring user access to Internet-accessible media such as web pages, advertisements, content and/or other media has evolved significantly over the years. At one point in the past, such monitoring was done primarily through server logs. In particular, entities serving media on the Internet would log the number

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of requests received for their media at their server. Basing Internet usage research on server logs is problematic for several reasons. For example, server logs can be tampered with either directly or via zombie programs which repeatedly request media from the server to increase the server log counts. Secondly, media is sometimes retrieved once, cached locally and then repeatedly viewed from the local cache without involving the server in the repeat viewings. Server logs cannot track these views of cached media. Thus, server logs are susceptible to both over-counting and under-counting errors.

[0017] The inventions disclosed in Blumenau, US Patent 6,108,637, fundamentally changed the way Internet monitoring is performed and overcame the limitations of the server side log monitoring techniques described above. For example, Blumenau disclosed a technique wherein Internet media to be tracked is tagged with beacon instructions. In particular, monitoring instructions are associated with the HTML of the media to be tracked. When a client requests the media, both the media and the beacon instructions are downloaded to the client. The beacon instructions are, thus, executed whenever the media is accessed, be it from a server or from a cache.

[0018] The beacon instructions cause monitoring data reflecting information about the access to the media to be sent from the client that downloaded the media to a monitoring entity. Typically, the monitoring entity is an audience measurement entity (AME) that did not provide the media to the client and who is a trusted (e.g., neutral) third party for providing accurate usage statistics (e.g., The Nielsen Company, LLC). Advantageously, because the beaconing instructions are associated with the media and executed by the client browser whenever the media is accessed, the monitoring information is provided to the AME irrespective of whether the client is a panelist of the AME.

[0019] Audience measurement entities and/or other businesses often desire to link demographics to the monitoring information. To address this issue, the AME establishes a panel of users who have agreed to provide their demographic information and to have their Internet browsing activities monitored. When an individual joins the panel, they provide detailed information concerning their identity and demographics (e.g., gender, age, ethnicity, income, home location, occupation, etc.) to the AME. The audience measurement entity sets a cookie on the panelist computer that enables the audience measurement entity to identify the panelist

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whenever the panelist accesses tagged media and, thus, sends monitoring information to the audience measurement entity.

[0020] Since most of the clients providing monitoring information from the tagged media are not panelists and, thus, are unknown to the audience measurement entity, it is necessary to use statistical methods to impute demographic information based on the data collected for panelists to the larger population of users providing data for the tagged media. However, panel sizes of audience measurement entities remain small compared to the general population of users. Thus, a problem is presented as to how to increase panel sizes while ensuring the demographics data of the panel is accurate.

[0021] There are many database proprietors operating on the Internet. These database proprietors provide services to large numbers of subscribers. In exchange for the provision of the service, the subscribers register with the proprietor. As part of this registration, the subscribers provide detailed demographic information. Examples of such database proprietors include social network providers, email providers, etc. such as Facebook, Myspace, Twitter, Yahoo!, Google, etc. These database proprietors set cookies on the computers of their subscribers to enable the database proprietor to recognize the user when they visit their website.

[0022] The protocols of the Internet make cookies inaccessible outside of the domain (e.g., Internet domain, domain name, etc.) on which they were set. Thus, a cookie set in the amazon.com domain is accessible to servers in the amazon.com domain, but not to servers outside that domain. Therefore, although an audience measurement entity might find it advantageous to access the cookies set by the database proprietors, they are unable to do so.

[0023] Another drawback of prior beaconing processes is that each beacon request corresponds to a single piece of tagged media rendered or presented via a client computer (e.g., via a web browser, an application, etc.). As such, impression information is often not collected about other media co-located on a web page or simultaneously presented by a web browser. Such prior beaconing processes provide a limited understanding of Internet-accessible media to which users are exposed. For example, a beacon request of prior beaconing processes may indicate a host web page address and a media identifier of one media item presented on that host web page. However, this provides no information about what other media was presented on the host web page. Thus, no correlations or causal relationships

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between different media on a web page can be measured with such prior beaconing processes. For example, a user may visit a social network web page that serves as a portal to access movie trailers. The portal may also display a tagged banner advertisement in addition to the movie trailers. While the tagged banner advertisement may cause a client computer to send a beacon request that includes an advertisement identifier for the tagged banner advertisement and the URL for the host web page URL, the beacon request will not convey any information about the concurrently displayed movie trailer. As such, the host web page will get full credit for causing the impression of the tagged banner advertisement, but the displayed movie trailer will get no credit as being a cause for drawing a user's attention that facilitated displaying the tagged banner advertisement. Examples disclosed herein extend the data collection process so that beacon requests convey information to the AME about numerous media objects concurrently presented on a client device.

[0024] Examples disclosed herein enable an AME to leverage information or characteristics about numerous media objects concurrently displayed at a client device so that the AME can simultaneously log impressions for the numerous media objects concurrently presented at the client device. Examples disclosed herein also enable determining causal relationships between the numerous presented media objects. Examples disclosed herein also enable an AME to leverage existing databases of database proprietors to collect more extensive Internet usage and demographic data by extending the beaconing process to encompass participating database proprietors and by using such database proprietors as interim data collectors.

[0025] Examples disclosed herein involve tagging media objects (e.g., advertisements, product images (e.g., for e-commerce, online purchasing, etc.), television programming, news stories, etc.), that are delivered via the Internet, by embedding instructions (e.g., collector instructions and beacon instructions) into the media objects. Collector instructions and beacon instructions are executed by client devices when the client devices reproduce the received media objects for display or playback. When a client device executes the collector instructions and beacon instructions, the collector instructions and beacon instructions cause the client device to collect characteristics of presented media objects and send the collected characteristics in a beacon request to a collection facility. The collector instructions collect media object characteristics (e.g., embedded identifiers, embedded codes,

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embedded information, signatures, etc.) from media objects so that the collection facility can identify the media objects and related information based on the characteristics. In some examples, media object characteristics provide information such as program title, serving domain, host website address (uniform resource locator (URL)), media owner, ad campaign identifier, product name, product manufacturer, etc. In this manner, beacon requests and media object parameters enable the collection facility to log impressions for corresponding media objects as those media objects are presented at client devices.

[0026] Examples disclosed herein facilitate using a single communication from a client device to communicate multiple impressions to a collection facility about multiple media objects presented concurrently at a client device. When multiple media objects are rendered on a display of a client device or otherwise presented by the client device, one of the media objects is designated as a master or collector media object that includes collector instructions and beacon instructions (e.g., a master tag that includes such instructions). The collector media object operates to collect media object characteristics from all of the other media objects being concurrently presented at the client device. In this manner, instead of all of the concurrently presented media objects sending corresponding beacon requests to the collection facility, the collector media object sends a single beacon request with all of the collected media object information from all of the other presented media objects. This significantly reduces the amount of network bandwidth and communication resources required by the client device to report on the concurrently presented media objects to the collection facility. In addition, this enables determining relationships (e.g., causal relationships) between the different media objects.

[0027] The reporting of media object parameters for multiple simultaneously displayed media objects enables crediting multiple entities with causation of ad/media impressions. For example, if a media clip (a media object) of the television show "Breaking Bad" is accessed by a user as embedded media via a socialnetwork.com web page, and the web page also simultaneously displays numerous tagged ads (media objects), a master tag in one of the media objects collects media object parameters of the "Breaking Bad" clip and of the displayed ads. The master tag then sends a beacon request with all the collected media object parameters to the collection facility. The collected parameters for all of the media objects enable logging impressions for the displayed ads and awarding causal credit to both the

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"Breaking Bad" clip and the socialnetwork.com web page to indicate that both the "Breaking Bad" clip and the socialnetwork.com web page drew the user's attention to enable the displayed ads to be served on the same web page.

[0028] Examples disclosed herein may be implemented by an audience measurement entity (e.g., any entity interested in measuring or tracking audience exposures to advertisements, content, and/or any other media) in cooperation with any number of database proprietors such as online web services providers. Such database proprietors/online web services providers may be social network sites (e.g., Facebook, Twitter, MySpace, etc.), multi-service sites (e.g., Yahoo!, Google, Experian, Axiom, Catalina, etc.), online retailer sites (e.g., Amazon.com, Buy.com, etc.), and/or any other web service(s) site that maintains user registration records.

[0029] To increase the likelihood that measured viewership is accurately attributed to the correct demographics, examples disclosed herein use demographic information located in the audience measurement entity's records as well as demographic information located at one or more database proprietors that maintain records or profiles of users having accounts therewith. In this manner, examples disclosed herein may be used to supplement demographic information maintained by a ratings entity (e.g., an AME such as The Nielsen Company of Schaumburg, Illinois, United States of America, that collects media exposure measurements and/or demographics) with demographic information from one or more different database proprietors.

[0030] Examples disclosed herein enable a client device to send a single beacon request to an AME to report multiple media objects presented at the client device. In this manner, by using a single beacon request to report multiple media objects, the AME can log a significant number of impressions for media objects presented on a client device while receiving relatively few communications from a client device notifying of the presented media objects. In addition, examples disclosed herein enable logging relationships between the different media objects. As used herein, an impression is defined to be an event in which a home or individual is exposed to the corresponding media (e.g., content and/or advertisement). Thus, an impression represents a home or an individual having been exposed to media (e.g., an advertisement, content, a group of advertisements and/or a collection of content). In Internet advertising, a quantity of impressions or impression count is the total number of times media (e.g., an advertisement or advertisement campaign) has been accessed by a web population (e.g., the number of times the media is accessed as

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decreased by, for example, pop-up blockers and/or increased by, for example, retrieval from local cache memory). As used herein, a demographic impression is defined to be an impression that is associated with a characteristic (e.g., a demographic characteristic) of the person exposed to the media.

[0031] FIG. 1 depicts an example client device 102 that is configured to present a plurality of media objects 104a-d via a user interface. The client device 102 of the illustrated example may be any device capable of accessing media over a network. For example, the client device 102 may be a computer, a tablet, a mobile device, a smart television, or any other Internet-capable device or appliance. Examples disclosed herein may be used to collect impression information for any type of media including content and/or advertisements. Media objects, such as the media objects 104a-d, may include web pages, streaming video, streaming audio, internet protocol television (IPTV) content, movies, television programming and/or other programming, and such media objects are generally referred to herein as content. In some examples, the media objects 104a-d include user-generated media that is, for example, uploaded to media upload sites such as YouTube and subsequently downloaded and/or streamed by many client devices for playback. Media objects, such as the media objects 104a-d, may also include advertisements. Advertisements are typically distributed with content. Traditionally, content is provided at little or no cost to the audience because it is subsidized by advertisers that pay to have their advertisements distributed with the content. As used herein, "media" refers collectively and/or individually to content and/or advertisement(s).

[0032] In the illustrated example of FIG. 1, the media objects A 104a and D 104d are advertisements, the media object B 104b is a host web page, and the media object C 104c is a video. In other examples, the media objects 104a-d may be used to present any other media. For example, the media object B 104b could be a website, a portal, a web app, etc. in which the media object A 104a is an informational panel that displays facts or other information (e.g., statistics about a sports team or athlete, information or reviews about a movie or television program, etc.) about a video presented in the media object C 104c (e.g., a sports video, a movie, a television program, a news program, etc.). Examples disclosed herein may be used to collect impression information about multiple media objects (e.g., media objects A, B, C, and D) concurrently presented at client devices so that the impression information can be used to determine relationships between different media concurrently presented to

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users via client devices. Such relationships may be causal relationships indicating that an impression to a particular media object, such as an advertisement, may be a result of a person visiting a particular website (e.g., identified by a corresponding URL) or viewing a particular streaming television channel (e.g., identified by a channel number or network name) to access a particular television program or other media. In this manner, causal credits can be awarded to the visited website or streaming television channel and to the accessed television program or media (e.g., content) as drawing the user's attention to create an opportunity for presenting other media (e.g., an advertisement media object).

[0033] In the illustrated example, the media objects 104a-d are provided to the client device 102 by one or more media provider(s) 106. In the illustrated example, the media provider(s) 106 may be media providers (e.g., content providers), media publishers, and/or advertisers that distribute the media objects 104a-c via the Internet to users that access websites and/or online television services (e.g., web-based TV, Internet protocol TV (IPTV), etc.). The media objects 104a-c may additionally or alternatively be distributed through broadcast television services to traditional non-Internet based (e.g., RF, terrestrial or satellite based) television sets that are monitored for viewership using the techniques disclosed herein and/or other techniques.

[0034] Although a single client device 102 is shown in the illustrated example of FIG. 1, examples disclosed herein are useable to collect impression information from multiple client devices concurrently in use by a user. For example, the client device 102 may be a tablet device that operates as a second screen to view supplemental media (e.g., advertisements, character/actor biographies, behind the scene footage, director commentaries, etc.) when a user is also watching related, primary media (e.g., a television show, a movie, etc.) via a primary screen such as a television. Examples disclosed herein facilitate collecting impression information from both the primary and secondary screens and analyzing the impression information in connection with demographic information of the same user of both the primary and secondary screens. For example, the primary and secondary screen devices may both store a same identifier that can be used to identify the user and/or demographic information associated with those devices. As such, impressions can be logged for both of those devices based on the same identifier to correlate the same demographic information with all of the impressions logged in connection with that identifier.

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Alternatively, the primary and secondary screens may have different, respective identifiers that are both used to identify the same user and/or demographic information associated with the primary and secondary devices. As such, impressions can be logged for both of the devices based on the respective identifiers to correlate the same demographic information with all of the impressions logged in connection with the primary and secondary devices.

[0035] In the illustrated example of FIG. 1, the media objects 104a, 104c, and 104d are embedded media objects embedded in the media object B 104b (e.g., a container media object). The media objects 104a, 104c, and 104d of the illustrated example are juxtaposed media objects. Examples disclosed herein may also be used in connection with sequential media objects as shown in the illustrated example of FIG. 12. For example, sequential media objects are objects that are presented in a sequential manner (e.g., in seriatim). For example, FIG. 12 shows a timeline 1200 and a web page media object 1202 showing sequential media objects at different times t_0 1204, t_1 1206 and t_2 1208 along the timeline 1200. In the illustrated example of FIG. 12, the web page media object 1202 displays a media player media object 1212 that presents a content media object 1214 at time t_0 1204, a first advertisement (ADVERTISEMENT_A) media object 1216 at time t_1 1206, and a second advertisement (ADVERTISEMENT_B) media object 1218 at time t_2 1208. In the illustrated example, the content 1214, the first advertisement 1216, and the second advertisement 1218 are presented sequentially in that they do not appear concurrently in the media player media object 1212 at the same time. In addition, the media player media object 1212 of the illustrated example is a container object in which the content 1214, the first advertisement 1216, and the second advertisement 1218 are embedded media objects in the media player media object 1212. In some examples, a video (e.g., a movie, a television program, a sporting event stream or video, a news program, etc.) displayed in the media player media object 1212 is the container object, and the advertisements 1216 and 1218 are embedded media objects in the video container object. Examples disclosed herein may be used to monitor and measure sequential media objects such as the content 1214, the first advertisement 1216, and the second advertisement 1218, juxtaposed media objects such as the media objects 104a, 104c, and 104d of FIG. 1, and embedded media objects such as the media objects 104a, 104c, and 104d of FIG. 1 embedded in the media object 104b, and such as the content 1214, the first advertisement 1216, and

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the second advertisement 1218 of FIG. 12 embedded in the media player media object 1212.

[0036] FIG. 2 depicts an example system 200 in which an AME 202 may associate media impressions with user demographic information based on characteristics of the media objects 104a-d of FIG. 1 and distributed demographics information located across numerous database proprietors 204. "Distributed demographics information" is used herein to refer to demographics information obtained from at least two sources, at least one of which is a database proprietor 204 such as an online web services provider. In examples disclosed herein, database proprietors 204 maintain user account records corresponding to users registered for Internet-based services provided by the database proprietors. Demographic information may include, for example, gender, age, ethnicity, income, home location, education level, occupation, etc.

[0037] In the illustrated example, to facilitate sending impression information about numerous ones of the media objects 104a-d from the client device 102 to the AME 202, at least one of the media objects 104a-d is configured as a collector object, and others of the media objects 104a-d are configured as passive objects. In the illustrated example, collector object is a media object that operates to collect media object characteristics from all of the other media objects being concurrently presented at the client device 102. In the illustrated example, a passive object is a media object having characteristics that are collected by a collector object for sending to an AME during an impression reporting process. In the illustrated example, the media object A 104a is a collector object, and the media objects 104b-d are passive objects. The media object A 104a of the illustrated example includes collector instructions 206 and beacon instructions 208. In the illustrated example, the instructions 206 and 208 form a master tag. A master tag in the illustrated example is embedded in a media object so that the media object can operate as a collector object. For example, in FIG. 2 a master tag having the instructions 206 and 208 is provided to the media object A 104a so that the media object A 104a can operate as a collector object. In addition, all of the media objects 104a-d of the illustrated example include object characteristics 210a-d. As the collector object, the media object A 104a collects object characteristics from itself and from the other media objects 104b-d to send the collected object characteristics to the AME 202. To accomplish this process, the collector instructions 206, when executed, cause the client device 102 to collect the

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object characteristics 210a-d from the media objects 104a-d. In addition, the beacon instructions 208, when executed, cause the client device 102 to send the object characteristics 210a-d in a beacon request 212 to the AME 202.

[0038] In some examples, a media object called by a user is a master object (e.g., the media object A 104a) and media objects called by the master object are designated as subordinate objects (e.g., the media objects 104b-d). In some examples, subordinate objects can become master objects relative to other media objects. For example, a media object called by another media object is a subordinate object relative to the media object that called it. As such, a subordinate object (e.g., a first-level subordinate object) may become a master object relative to another subordinate object (e.g., a second-level subordinate object).

[0039] As discussed above in connection with FIG. 1, the media objects 104a, 104c, and 104d are juxtaposed media objects relative to one another and are embedded objects in the media object 104b. Examples disclosed herein may also be used in connection with sequential media objects such as the content media object 1214, the advertisement (ADVERTISEMENT_A) media object 1216, and the advertisement (ADVERTISEMENT_B) media object 1218 of FIG. 12. In the illustrated example of FIG. 12, to facilitate collecting media object characteristics corresponding to the content media object 1214, the advertisement (ADVERTISEMENT_A) media object 1216, and the advertisement (ADVERTISEMENT_B) media object 1218, the media player media object 1212 is provided with a master tag 1222 having collector and beacon instructions (e.g., similar or identical to the collector instructions 206 and beacon instructions 208 of FIG. 2). In addition, the content media object 1214 is provided with object characteristics 1226, the advertisement (ADVERTISEMENT_A) media object 1216 is provided with object characteristics 1228, and the advertisement (ADVERTISEMENT_B) media object 1218 is provided with object characteristics 1230. In the illustrated example, the media player media object 1212 remains presented as a container object (e.g., remains instantiated and/or displayed) at times 1204, 1206, and 1208 as shown in FIG.12 while the embedded sequential media objects 1214, 1216, and 1218 are sequentially presented in the media player media object 1212. Since the media player media object 1212 remains presented, collector instructions in the master tag 1222 of the media player media object 1212 collect the object characteristics 1226 when the content media object 1214 is presented at time t_0 1204, collect the object characteristics 1228 when the advertisement

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(ADVERTISEMENT_A) media object 1216 is presented at time t_1 1206, and collect the object characteristics 1230 when the advertisement (ADVERTISEMENT_B) media object 1218 is presented at time t_2 1208. The beacon instructions of the master tag 1222 can then send the collected object characteristics 1226, 1228, and 1230 to the AME 202.

[0040] In some examples, the master tag 1222 is provided in the content media object 1214, and the content media object 1214 is the container object that remains instantiated or loaded (e.g., in the background) when the advertisement media objects 1216 and 1218 are presented. In such examples, collector instructions in the master tag 1222 of the content media object 1214 collect the object characteristics 1226 when the content media object 1214 is presented at time t_0 1204, collect the object characteristics 1228 when the advertisement (ADVERTISEMENT_A) media object 1216 is presented at time t_1 1206, and collect the object characteristics 1230 when the advertisement (ADVERTISEMENT_B) media object 1218 is presented at time t_2 1208. Beacon instructions in the master tag 1222 of the content media object 1214 then send the collected object characteristics 1226, 1228, and 1230 to the AME 202.

[0041] In the illustrated example, the collector instructions 206 and the beacon instructions 208 are computer executable instructions (e.g., Java, javascript, or any other computer language or script) embedded in the media object A 104a by the creator of the media object A 104a and/or another entity (e.g., a subsequent media distributor or publisher such as the media provider(s) 206 of FIG. 1). In some examples, instead of embedding the collector instructions 206 and the beacon instructions 208 in the media object A 104a, one or more hyperlink(s) is instead provided in the media object A 104a to direct a web browser to download or retrieve the collector instructions 206 and the beacon instructions 208 from one or more specified servers. This enables, for example, the AME 202 to change the instructions without involving the media provider of the media object A 104a. In some examples, the instructions 206 and 208 are executed by a web browser that is presenting the media objects 104a-d. In other examples, the instructions are executed by an application (or an “app” on a mobile device) that is presenting the media objects 104a-d. In yet other examples, the instructions are executed as independent programs. For example, a smart television may execute the instructions as separate programs. In the illustrated example, the media object A 104a is referred to as being

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tagged with a master tag that includes the collector instructions and the beacon instructions 208.

[0042] The object characteristics 210a-d may be information embedded in the media objects 104a-d. In some examples, instead of embedding the object characteristics 210a-d in the media objects 104a-d, one or more hyperlink(s) are instead provided in the media objects 104a-d to direct a web browser to download or retrieve the object characteristics 210a-d from one or more specified servers. This enables, for example, the AME 202 to change the object characteristics 210a-d without involving the media provider of the media objects 104a-d. In some examples, the embedded information may be one or more of identification codes (e.g., metadata) that identify associated media, campaign identifiers (IDs) that identify associated ad campaigns, a creative type ID (e.g., identifying Flash-based media or ads, banner ads, rich type ads, etc.), a source ID (e.g., identifying the media publisher), and a placement ID (e.g., identifying the physical placement of the media on a screen). In some examples, the object characteristics 210a-d are derived from visual and/or audible characteristics of the media objects 104a-d. For example, the collector instructions 206 may be configured to cause the client device 102 to generate video, image, or audio signatures from portions of the media objects 104a-d. For example, the collector instructions 206 may cause the client device 102 to perform a screen capture or a screen scan to collect an image or images representative of the media objects 104a-d and generate signatures corresponding to the media objects 104a-d based on the image(s). Additionally or alternatively, the collector instructions 206 may cause the client device 102 to intercept and/or capture audio of the media object(s) 104a-d and generate one or more signatures corresponding to the media object(s) 104a-d based on the audio. In this manner, the AME 202 can use a collected signature from one of the media objects 104a-d to identify the one of the media objects 104a-d based on a matching reference signature stored at the AME 202. In some examples, the collector instructions 206 may cause the client device 102 to perform optical character recognition (e.g., text recognition) or logo recognition based on screen capture images and use recognized text and/or logos associated with the media objects 104a-d as part of the object characteristics 210a-d.

[0043] After collecting the object characteristics 210a-d based on the collector instructions 206, execution of the beacon instructions 208 causes the client device

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102 to send a beacon request 212 to a server (e.g., an Internet protocol (IP) address or URL) of the AME 202 specified in the beacon instructions 208. In the illustrated example, the beacon instructions 208 cause the client device 102 to locate an identifier 214 and the object characteristics 210a-d in the beacon request 212. The beacon request 212 of the illustrated example is an impression request that causes the AME 202 to log impressions for the media objects 104a-d. In the illustrated example, an impression request is a reporting to the AME 202 of an occurrence of a media object being presented at the client device 102. The beacon/impression request 212 may be implemented as a hypertext transfer protocol (HTTP) request. However, whereas a transmitted HTTP request identifies a webpage or other resource to be downloaded, the beacon/impression request 212 includes audience measurement information (e.g., the object characteristics 210a-d and the identifier 214) as its payload. The server to which the beacon/impression request 212 is directed is programmed to log the audience measurement information of the beacon/impression request 212 as an impression (e.g., a media impression such as advertisement and/or content impressions depending on the nature of the media objects for which object characteristics are communicated in the beacon/impression request 212).

[0044] The identifier 214 of the illustrated example may be any identifier useful to associate demographic information with the user or users of the client device 102. In some examples, the identifier 214 may be a device identifier (e.g., an international mobile equipment identity (IMEI), a mobile equipment identifier (MEID), a media access control (MAC) address, etc.), a web browser unique identifier (e.g., a cookie), a user identifier (e.g., a user name, a login ID, etc.), an Adobe Flash® client identifier, identification information stored in an HTML5 datastore, or any other identifier that the AME 202 and/or database proprietors 204 store in association with demographic information about users of client devices. In this manner, when the AME 202 receives the identifier 214 in the beacon/impression request 212, the AME 202 can obtain demographic information corresponding to a user of the client device 102 based on the identifier 214 that the AME 202 receives in the beacon/impression request 212 from the client device 102. In some examples, the identifier 212 may be encrypted (e.g., hashed) at the client device 102 so that only an intended final recipient of the identifier 212 can decrypt the hashed identifier 212. For example, if the identifier 212 is a cookie that is set in the client device 102 by the AME 202, the identifier 212 can

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be hashed so that only the AME 202 can decrypt the identifier 212. If the identifier 212 is an IMEI number, the client device 102 can hash the identifier 212 so that only a wireless carrier (e.g., one of the database proprietors 204) can decrypt the hashed identifier 212 to recover the IMEI for use in accessing demographic information corresponding to the user of the client device 102. By hashing the identifier 214, an intermediate party receiving the beacon request cannot directly identify a user of the client device 102. For example, if the intended final recipient of the identifier 214 is one of the database proprietors 204, the AME 202 cannot recover identifier information when the identifier 214 is hashed by the client device 102 for decrypting only by the intended database proprietor 204.

[0045] The AME 202 of the illustrated example is provided with an example apparatus 216 to receive beacon requests (e.g., the beacon/impression request 212) and to log impressions and/or demographic impressions for different media objects (e.g., the media objects 104a-d) based on information (e.g., the identifier 214 and the object characteristics 210a-d) in the beacon requests. The example apparatus 216 is provided with an example impressions monitor 218, an example creditor 220, an example panelist profile retriever 222, an example panel database 224, an example demographics corrector 226, an example demographics collector 228, an example attributor 230, and an example report generator 232. The example impressions monitor 218, the example creditor 220, the example panelist profile retriever 222, the example panel database 224, the example demographics corrector 226, the example demographics collector 228, the example attributor 230, and the example report generator 232 may be configured as one or more apparatus in the AME 202.

[0046] The impressions monitor 218 of the illustrated example is provided to log impressions of media (e.g., impressions of the media objects 104a-d) based on received beacon/impression requests (e.g., the beacon/impression request 212). The creditor 220 of the illustrated example is provided to award causal credits to particular media objects (e.g., ones of the media objects 104a-d) that are responsible for drawing users' attention to create opportunities for presenting other media objects (e.g., others of the media objects 104a-d). For example, if media object B 104b of FIGS. 1 and 2 represents a web page and media object C 104c of FIGS. 1 and 2 represents a movie trailer video accessed by a user via the web page, the creditor 220 can award causal credits to the web page represented by media object B 104b and to the movie trailer video represented by media object C 104c because a user's

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attention was drawn to the web page based on the user's interest in accessing the movie trailer video. Both of the particular web page and the particular movie trailer video in which the user was interested drew the user's attention creating an opportunity to present other media (e.g., advertisements) represented by the media object A 104a and the media object D 104d. As such, the impressions logged by the impression monitor 218 can be further processed by the creditor 220 to determine which media objects should be awarded causal credits for drawing the attention of people resulting in the creation of opportunities to present advertisements or other media which may be supplemental or related to the people's interests.

[0047] While the above example is related to a media delivery context in which the media object C 104c is a movie trailer video, examples disclosed herein may be similarly used in other types of Internet media scenarios. For example, the media objects 104a-d of FIGS. 1 and 2 may be presented on an e-commerce web site (e.g., an online shopping site such as Amazon.com, ebay.com, or other online retailers), and the AME 202 may be interested in identifying retail products for sale that create opportunities to present supplemental/related media and/or advertisements. In such example scenarios, the media object B 104b of FIGS. 1 and 2 represents an online retailer web page, and the media object C 104c of FIGS. 1 and 2 represents a video about a product that a user is interested in purchasing from the online retailer. In such examples, both of the particular online retailer web page and the particular product in which the user was interested drew the user's attention creating an opportunity to present other media (e.g., advertisements) represented by the media object A 104a and the media object D 104d. In such examples, the creditor 220 awards causal credit to the media object B 104b and the media object C 104c for creating the presentation opportunity for other media (e.g., advertisements or other media) represented by the media object A 104a and the media object D 104d.

[0048] In examples associated with television delivery services, the client device 102 may be a smart television tuned to a particular channel represented by the media object B 104b. In such examples, a user is drawn to the particular channel to watch a television program represented by the media object C 104c. As such, the creditor 220 of the illustrated example of FIG. 2 awards causal credits to the tuned-to channel and the television program for creating the presentation opportunity for media (e.g., advertisements or other media) represented by the media object A 104a and the media object D 104d. Accordingly, examples disclosed herein can be used to award

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causal credit to media in the area of internet-based media delivery services, to award causal credit to products in the area of product-based e-commerce, and to award causal credit to media delivery networks or channels and television programs in the area of internet-based streaming media services and internet protocol television (IPTV) services. Examples disclosed herein may also be used in other types of media delivery and e-commerce areas in which people access information of interest that results in creating opportunities for concurrently presenting other media.

[0049] FIG. 3 illustrates an example manner of awarding causal credits to media objects identified as creating opportunities for presenting other media to users. The example technique shown in FIG. 3 can be used to award causal credits as discussed above. In the illustrated example of FIG. 3, the creditor 220 awards causal credits 302 and 304 to the media object B 104b and to the media object C 104c. In the illustrated example, the causal credit 302 awarded to the media object B 104b references media identifiers that identify the media object A 104a, the media object C 104c, and the media object D 104d which were presented as a result of the opportunity created by the media object B 104b. In the illustrated example, the causal credit 304 references media identifiers that identify the media object A 104a, the media object B 104b, and the media object D 104d which were presented as a result of the opportunity created by the media object C 104c. Thus, in the illustrated example of FIG. 3, the creditor 220 awards causal credits 302 and 304 to the media objects 104b and 104c for creating the opportunity to present each other and the media objects 104a and 104d.

[0050] In some examples, the creditor 220 is configured to award causal credits based on hierarchical rankings of media objects. That is, the creditor 220 of the illustrated example may award causal credits to higher-ranked media objects for causing opportunities to present lower-ranked media objects. FIG. 4 illustrates an example manner of awarding subordinate causal credits to media objects based on a hierarchical ranking system. The illustrated example of FIG. 4 shows a hierarchical rankings structure 400 in which the media object C 104c is ranked higher than the media objects 104a and 104d, and the media object B 104b is ranked higher than the media objects 104a, 104c, and 104d. In such an example, the creditor 220 awards the media object B 104b with a causal credit 402 corresponding to the opportunity created to present the media objects 104a, 104c, and 104d which are subordinate in hierarchy relative to the media object B 104b. In addition, the creditor 220 awards the

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media object C 104c with a causal credit 404 corresponding to the opportunity created to present the media objects 104a and 104d which are subordinate in hierarchy relative to the media object C 104c. Unlike the causal credit 304 of FIG. 3 which credits the media object C 104c for creating an opportunity to present the media object B 104b in addition to the media objects 104a and 104d, the creditor 220 of the illustrated example of FIG. 4 does not award the media object C 104c with causal credit corresponding to the opportunity to present the media object B 104b because the media object C 104c has a lower priority ranking in the example hierarchical rankings structure 400. In addition, the creditor 220 does not award the media objects 104a and 104d with causal credits corresponding to the opportunity to present the media objects 104b and 104c because the media objects 104a and 104d have lower priority rankings in the illustrated hierarchical rankings structure 400. Also, because the media objects 104a and 104d are ranked at the same level (e.g., rank level 3) in the hierarchical rankings structure 400, the creditor 220 does not award the media objects 104a and 104d with any causal credit related to the presentation of each other. That is, the creditor 220 of the illustrated example is configured to award subordinate causal credits to media objects for impressions of subordinate media objects but not to award subordinate causal credits to media objects for impressions of higher-ranked or equally-ranked media objects.

[0051] In the illustrated example, the media object B 104b is a higher-ranked object relative to subordinate media objects A 104a, B 104c, and D 104d. In some examples, the higher-ranked object is also a master object. The creditor 220 of the illustrated example determines which of the media objects 104a-d is the higher-ranked object to be credited with the causal credit 302 based on a higher-ranked object identifier. For example, when the creditor 220 identifies a higher-ranked object identifier in the media object B 104b, the creditor 220 determines that the the media object B 104b is the higher-ranked object to be awarded the causal credit 302 for creating the opportunity to present the subordinate media objects 104a, 104c, 104d.

[0052] Media objects can be higher-ranked objects based on different events or criteria. In some examples, media (e.g., a movie, a television program, a sporting event stream or video, a news stream or video, etc.) requested by a user is designated a higher-ranked object, and other juxtaposed, embedded, or sequentially presented media objects (e.g., advertisements or media) are subordinate media objects relative to the higher-ranked object. In some examples, a media object called

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by another media object is a subordinate object relative to the media object that called it. For example, a main video object (e.g., a movie, a television program, a news video, a sports video, etc.) requested by a user may call an advertisement object. As such, a subordinate object (e.g., a first-level subordinate object) may become a higher-ranked object relative to another subordinate object (e.g., a second-level subordinate object). In some examples, higher-ranked objects or master objects track which objects are caller objects (e.g., higher-ranked objects) and which objects are called objects (e.g., subordinate objects called by a higher-ranked object) so that the creditor 220 can identify higher-ranked objects and subordinate objects to determine which media objects should be awarded causal credits.

[0053] Hierarchical priority rankings of media objects may be specified by the AME 202 (FIG. 2), the media publisher(s) 106 (FIG. 1), and/or any other entity that defines how impressions for media objects are analyzed relative to one another. In some examples, the priority rankings may be provided in the media objects as part of the media objects' object characteristics 210a-d. In other examples, hierarchical rankings may be provided to the AME 202 as a process separate from beacon requests. For example, the AME 202 may receive a listing of hierarchical rankings for all media objects that participate in beaconing, and the AME 202 may subsequently use the listing of hierarchical rankings each time the AME 202 logs impressions based on received beacon requests. In some examples, the media objects 104a-d are provided with hyperlinks that cause the client device 102 to request and retrieve the priority rankings from one or more specified servers (e.g., one or more servers of the media publisher(s) 106, the AME 202, and/or any other entity that specifies, stores and/or serves the priority rankings) when the media objects 104a-d are accessed. In this manner, the media publisher(s) 106, the AME 202, and/or any other entity that specifies the priority rankings can change the priority rankings without needing to change or update the media objects 104a-d.

[0054] Returning to FIG. 2, the panelist profile retriever 222 of the illustrated example is provided to retrieve demographic information corresponding to panelists from the panel database 224 when the identifier 214 of the beacon/impression request 212 corresponds to a panel member of the AME 202. In the illustrated example, the AME 202 stores panelists' demographic information in the panel database 224. To generate and maintain a panel of audience members, the AME 202 enrolls people that consent to being monitored into the panel. During enrollment,

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the AME 202 receives demographic information from the enrolling people so that subsequent correlations may be made between logged media impressions and panelists corresponding to different demographic segments. In some examples, the panel database 224 also stores purchase behavior, product-affinity information, and/or other consumer behavior and/or interests associated with panel members. The AME 202 may collect such information directly from the panel members and/or may collect the information over time by observing online behaviors of the panel members. In this manner, when the AME 202 logs impressions corresponding to panel members, the AME 202 can correlate such impressions with demographics, purchase behavior, product-affinity information and/or any other consumer behavior and/or interests stored in the panel database 224. To enable the panelist profile retriever 222 to retrieve demographic information for different users identified in beacon requests (e.g., the beacon/impression request 212), the panel database 224 stores reference identifiers of panel members in association with corresponding demographic information of those panel members.

[0055] The demographics collector 228 of the illustrated example of FIG. 2 is provided to obtain demographic information from one or more of the database proprietors 204. Different techniques for obtaining such demographic information from the database proprietors 204 are described below in connection with FIGS. 5-7. In examples disclosed herein, the database proprietors 204 are entities that operate based on user registration models. As used herein, a user registration model is a model in which users subscribe to services of those entities by creating an account and providing demographic-related information about themselves. In some examples, the demographic information stored at and provided by the database proprietors 204 may include purchase behavior, product-affinity information, and/or other consumer behavior and/or interests associated with registered users of the database proprietors 204. The database proprietors 204 may collect such information directly from the registered users and/or may collect the information over time by observing online behaviors of the registered users.

[0056] Sharing of demographic information associated with registered users of the database proprietors 204 enables the AME 202 to extend or supplement its panel data in the panel database 224 with substantially reliable demographic information from external sources (e.g., the database proprietors 204), thus extending the coverage, accuracy, and/or completeness of demographics-based audience

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measurements collected by the AME 202. Such access to the database proprietors 204 also enables the AME 202 to monitor persons who would not otherwise have joined a panel of the AME 202. Any entity having a database identifying demographics of a set of individuals may cooperate with the AME 202. Such entities, referred to herein as "database proprietors," may include entities such as Facebook, Google, Yahoo!, MSN, Twitter, Apple iTunes, Experian, etc.

[0057] The demographics corrector 226 of the illustrated example is provided to analyze demographic information received from the database proprietors 204 relative to panelist demographic information stored in the panel database 224 for corresponding media impressions to correct or adjust the demographic information from the database proprietors 204. In examples disclosed herein, panelist demographic information stored in the panel database 224 is reliable, high-quality data that is trusted for its accuracy which results from the methodologies used by the AME 202 to recruit panelists and collect their demographic information. For example, the AME 202 may conduct personal or telephonic interviews of panelists to confirm the accuracy of collected demographic data. In addition, the AME 202 may employ agents to review the demographic information in the panel database 224 for possible inaccuracies or missing information and to follow up with panel members to correct the demographic information. In addition, the AME 202 may incentivize panel members to provide demographic information by giving the panel members monetary rewards or other forms of compensation in exchange for truthful, complete, and accurate demographic information. As such, the demographics corrector 226 may correct demographic information received from database proprietors 204 based on accurate panelist demographic information. For example, for media impressions logged for a particular media object (e.g., one of the media objects 104a-d), the demographics corrector 226 receives panelist demographic information from the panel database 224 of panelists known to have been exposed to the particular media object. The demographics corrector 226 also receives demographic information from the database proprietors 204. In some examples, the database proprietors 204 provide aggregate demographic information. Aggregate demographic information includes demographic information of numerous users that is combined to show different demographic segments for groups of people exposed to a particular media object (e.g., percentages of users that are female or male, percentages of users across different age range buckets, etc.). The demographic information collected by

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database proprietors 204 can sometimes be less accurate than panelist demographics due to lack of truthfulness, forgetfulness, misunderstandings, etc. during registration processes when people register for services of the database proprietors 204. As such, the example demographics corrector 226 is provided to apply adjustments or corrections to demographics information received from the database proprietors 204 based on panelist demographic information stored in the panel database 224. For example, if the panelist demographic information from the panel database 224 shows that a high percentage of panel members exposed to particular media correspond to an age range bucket of 35-40 years of age, and the demographic information from the database proprietors 204 shows significant outliers in age range buckets of 18-21 years of age and 75+ years of age, the demographics corrector 226 can adjust the outlier demographics information to better align with the more prominent age range bucket observed from the panel database 224.

[0058] In the illustrated example, the attributor 230 is provided to attribute demographic information to media objects (e.g., the media objects 104a-d). Some examples disclosed herein enable attributing the same demographics of a user to multiple media objects concurrently presented on a client device. For example, in the illustrated example of FIG. 2, the client device 102 concurrently presents the media objects 104a-d, and the beacon instructions 208 in the media object A 104a cause the client device 102 to send the object characteristics 210a-d and the identifier 214 in the beacon/impression request 212 to the AME 202. Based on the information in the beacon request 214, the attributor 230 can determine that a same user corresponding to the identifier 214 was exposed to all of the media objects 104a-d. As such, the attributor 230 of the illustrated example receives demographic information corresponding to the user (e.g., corresponding to the identifier 214) from the demographics corrector 226 and imputes (or associates) the demographic information to the logged impressions for all of the media objects 104a-d represented by the object characteristics 210a-d in the beacon/impression request 212. In this manner, the attributor 230 can associate the same demographic information with multiple impressions logged from a single beacon/impression request 212, which advantageously reduces the number of communications (e.g., beacon requests) needed from the client device 102 to log impressions and corresponding demographic information for numerous media objects presented on the client device 102.

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[0059] In the illustrated example, the report generator 232 is provided to generate demographic-based impression reports showing statistics of different demographic segments of logged impressions for different media objects (e.g., the media objects 104a-d). In the illustrated example, the AME 202 may sell and/or provide such demographic-based impression reports to advertisers, product manufacturers, service providers, media producers, media distributors, media networks, and/or any other entity interested in creating, producing, and/or distributing media, and/or any other entity interested in buying and/or selling advertisement space. Such demographic-based impression reports can assist entities in deciding where to spend money on creating, producing, and/or distributing media and/or where to spend advertising money to reach particular demographic segments.

[0060] While an example manner of implementing the example apparatus 216 is illustrated in FIG. 2, one or more of the elements, processes and/or devices illustrated in FIG. 2 may be combined, divided, re-arranged, omitted, eliminated and/or implemented in any other way. Further, the example impressions monitor 218, the example creditor 220, the example panelist profile retriever 222, the example panel database 224, the example demographics corrector 226, the example demographics collector 228, the example attributor 230, and the example report generator 232 and/or, more generally, the example apparatus 216 of FIG. 2 may be implemented by hardware, software, firmware and/or any combination of hardware, software and/or firmware. Thus, for example, any of the example impressions monitor 218, the example creditor 220, the example panelist profile retriever 222, the example panel database 224, the example demographics corrector 226, the example demographics collector 228, the example attributor 230, and the example report generator 232 and/or, more generally, the example apparatus 216 could be implemented by one or more analog or digital circuit(s), logic circuits, programmable processor(s), application specific integrated circuit(s) (ASIC(s)), programmable logic device(s) (PLD(s)) and/or field programmable logic device(s) (FPLD(s)). When reading any of the apparatus or system claims of this patent to cover a purely software and/or firmware implementation, at least one of the example impressions monitor 218, the example creditor 220, the example panelist profile retriever 222, the example panel database 224, the example demographics corrector 226, the example demographics collector 228, the example attributor 230, and/or the example report generator 232 is/are hereby expressly defined to include a tangible computer readable storage device or

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storage disk such as a memory, a digital versatile disk (DVD), a compact disk (CD), a Blu-ray disk, etc. storing the software and/or firmware. Further still, the example apparatus 216 of FIG. 2 may include one or more elements, processes and/or devices in addition to, or instead of, those illustrated in FIG. 2, and/or may include more than one of any or all of the illustrated elements, processes and devices.

[0061] FIG. 5 is a communication flow diagram 500 of an example manner in which the AME 202 of FIG. 2 can collect impressions and demographic information based on a client device reporting impressions to the AME 202 and to the distributed database proprietors 204 of FIG. 2. The example communication flow diagram 500 shows an example manner in which the example apparatus 216 of FIG. 2 logs impressions reported by a client device (e.g., client device 102). The example chain of events shown in FIG. 5 occurs when a client device 102 accesses tagged media (e.g., one or more of the tagged media objects 104a-d of FIGS. 1 and 2). Thus, the events of FIG. 5 begin when a client sends an HTTP request to a server (e.g., one or more of the media providers 106 of FIG. 1) for media, which, in this example, is tagged to forward an impression request (e.g., the beacon/impression request 212) to the AME 202. In the illustrated example of FIG. 5, the client device 102 receives the requested media object A 104a from a media provider (e.g., one of the media providers 106 of FIG. 1). In some examples, the client device 102 requests a webpage containing media of interest (e.g., www.weather.com) and the requested webpage contains the media of interest and links to ads that are downloaded and rendered within the webpage. The ads may come from different servers than the originally requested media of interest.

[0062] In the illustrated example, the media object A 104a is tagged with the beacon instructions 208 (and with the collector instructions 206 of FIG. 2 which are not shown in FIG. 5). The beacon instructions 208 cause the client device 102 to send the beacon/impression request 212 to the impression monitor 218 when the client device 102 accesses the media object A 104a. In the illustrated example, the client device 102 sends the beacon/impression request 212 using an HTTP request addressed to the URL of the impression monitor 218 at, for example, a first internet domain. The beacon/impression request 212 of the illustrated example includes the media object characteristics 210a-d for all of the media objects 104a-d of FIGS. 1 and 2. In the illustrated example, the collector instructions 206 cause the client device 102 to collect the media object characteristics 210a-d from the media objects 104a-d.

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The collector instructions 206 may be provided in the media object A 104a when the media object A 104a is served to the client device 102 or the client device 102 may send a beacon request prior to the beacon/impression request 212 to request the collector instructions 206 from a server. In any case, by reporting the media object characteristics 210a-d, examples disclosed herein can be used to report multiple impressions for multiple media objects (e.g., the media objects 104a-d) presented at a client device using a single beacon request (e.g., the beacon/impression request 212) that includes information (e.g., the media object characteristics 210a-d) about all of the presented media objects. Such an example manner of reporting multiple impressions in a single beacon request reduces the amount of required bandwidth and processing resources of a client device, a receiving server (e.g., the impression monitor 218), and a network. In addition, the beacon/impression request 212 of the illustrated example includes the identifier 214 as shown in FIG. 2. In other examples, the identifier 214 may not be passed until the client device 102 receives a request sent by a server of the AME 202 in response to, for example, the impression monitor 218 receiving the beacon/impression request 212.

[0063] In response to receiving the beacon/impression request 212, the impression monitor 218 logs impressions for all of the media objects 104a-d by recording the media object characteristics 210a-d contained in the beacon/impression request 212. In some examples, the impression monitor 218 logs the impressions by recording media identification information that is determined based on the media object characteristics 210a-d. For example, if the media object characteristics 210a-d include codes and/or signatures that the collector instructions 206 (FIG. 2) collected from the media objects 104a-d, the impressions monitor 218 can look up identification information corresponding to the media objects 104a-d based on the codes and/or signatures using any suitable technique known in the art.

[0064] In some examples, the impressions monitor 218 logs impressions regardless of whether the client device 102 sends an identifier 214 to the impression monitor 218. However, if the client device 102 sends an identifier 214, and the identifier 214 matches a user ID of a panelist member (e.g., a panelist corresponding to a profile stored in the panel database 224 of FIG. 2), the logged impressions for the media objects 104a-d will correspond to a panelist of the AME 202. If the identifier 214 does not correspond to a panelist of the AME 202, the impression monitor 218 will still benefit from logging the impressions for the media objects 104a-d even

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though it will not have a user ID record (and, thus, corresponding demographics) for the impressions logged based on the beacon/impression request 212.

[0065] In the illustrated example of FIG. 5, to compare or supplement panelist demographics (e.g., for accuracy or completeness) of the AME 202 with demographics from one or more of the database proprietors 204 (FIG. 2), the impression monitor 218 returns a beacon response message 504 (e.g., a first beacon response) to the client device 102 including an HTTP "302 Found" re-direct message and a URL of a participating database proprietor 204 at, for example, a second internet domain. In the illustrated example, the HTTP "302 Found" re-direct message in the beacon response 504 instructs the client device 102 to send a second beacon request 508 to a database proprietor A 204a. In other examples, instead of using an HTTP "302 Found" re-direct message, redirects may instead be implemented using, for example, an iframe source instruction (e.g., <iframe src = " ">) or any other instruction that can instruct a client device to send a subsequent beacon request (e.g., the second beacon request 508) to a participating database proprietor 204. In the illustrated example, the impression monitor 218 determines the database proprietor 204a specified in the beacon response 504 using a rule and/or any other suitable type of selection criteria or process. In some examples, the impression monitor 218 determines a particular database proprietor to which to redirect a beacon request based on, for example, empirical data indicative of which database proprietor is most likely to have demographic data for a user corresponding to the identifier 214. In some examples, the beacon instructions 208 include a predefined URL of one or more database proprietors 204 to which the client device 102 should send follow up beacon requests 508. In other examples, the same database proprietor is always identified in the first redirect message (e.g., the beacon response 504) and that database proprietor always redirects the client device 102 via a beacon response 512 to a same second database proprietor 204b when the first database proprietor 204a cannot identify the identifier 214 (FIG. 2) as corresponding to one of its registered users (and, thus, does not have demographic information corresponding to the identifier 214) and/or does not log impressions for the media objects 104a-d.

[0066] In some examples, prior to sending the beacon response 504 to the client device 102, the impression monitor 218 replaces site IDs (e.g., URLs) of the media provider(s) 106 (FIG. 1) that served the media objects 104a-d with modified site IDs (e.g., substitute site IDs) which are discernable only by the impression monitor 218 as

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corresponding to the media provider(s) 106. In some examples, the impression monitor 218 may also replace the host website ID (e.g., www.acme.com) with a modified host site ID (e.g., a substitute host site ID) which is discernable only by the impression monitor system 218 as corresponding to the host website. In this way, the source(s) of the media objects 104a-d and/or the host website are obscured from participating database proprietors 104a-d. In some examples, the impression monitor 218 also replaces the media object characteristics 210a-d with modified media characteristics or modified media identifiers corresponding to the media object characteristics 210a-d. In some examples, the impression monitor 218 does not send site IDs, host site IDS, the media object characteristics 210a-d or modified versions in the beacon response 504.

[0067] In the illustrated example, the impression monitor 218 maintains a modified ID mapping table 514 that maps original site IDs with modified (or substitute) site IDs and/or maps modified media characteristics or identifiers to the media object characteristics 210-d to obfuscate or hide such information from database proprietors. Also in the illustrated example, the impression monitor 218 encrypts all of the information received in the beacon/impression request 212 and the modified information to prevent any intercepting parties from decoding the information. The impression monitor 218 of the illustrated example sends the encrypted information in the beacon response 504 to the client device 102. In the illustrated example, the impression monitor 218 uses an encryption that can be decrypted by the selected partner site specified in the HTTP "302 Found" re-direct message.

Periodically or aperiodically, the impression data collected by the database proprietors 204 is provided to the demographics collector 228 of the AME 202 as batch data. As discussed above, some user IDs (e.g., the identifier 214 of FIG. 2) may not match panel members of the AME 202, but may match registered users of one or more database proprietors 204. During a data collecting and merging process to combine demographic and impression data from the AME 202 and the participating database proprietors 204, user IDs of some impressions logged by one or more database proprietors 204 may match user IDs of impressions logged by the impression monitor 218, while others will not match. In some examples, the AME 202 may use the demographics-based impressions from matching user ID logs provided by database proprietors 204 to assess and/or improve the accuracy of its own demographic data stored in the panel database 224 of FIG. 2, if necessary. For the

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demographics-based impressions associated with non-matching user ID logs, the AME 202 may use the impressions (e.g., advertisement impressions, content impressions, and/or any other media impressions) to derive demographics-based online ratings even though such impressions are not associated with panelists of the AME 202.

[0068] Additional examples that may be used to implement the beacon instruction processes of FIG. 5 are disclosed in Mainak et al., US patent no. 8,370,489. In addition, other examples that may be used to implement such beacon instructions are disclosed in Blumenau, U.S. Patent 6,108,637.

[0069] FIG. 6 depicts a communication flow diagram 600 of an example manner in which the AME 202 can receive demographic information from database proprietors 204 on a per-beacon reporting basis. The communication flow diagram 600 of the illustrated example involves generating an AME-to-database proprietor user ID mapping based on a re-direct from the AME 202 to a partner database proprietor 204. In the illustrated example of FIG. 6, the media object A 104a is tagged with the beacon instructions 208 (and the collector instructions 206 of FIG. 2 which are not shown in FIG. 6).

[0070] In the illustrated example of FIG. 6, when the impressions monitor 218 receives the beacon/impression request 212 from the client device 102, the impression monitor 218 determines whether the beacon/impression request 212 includes an AME user identifier (e.g., the identifier 214 of FIG. 2) that can be used by the AME 202 to identify the client device 102. In some examples, the AME user identifier is an AME cookie that is set by the AME 202 in the AME internet domain. If the beacon/impression request 212 does not include an AME user identifier, the impression monitor 218 creates an AME user identifier for the client device 102. If the beacon/impression request 212 does include an AME user identifier, the impression monitor 218 determines whether the AME user identifier is associated with (e.g., mapped to) a database proprietor user identifier for a database proprietor 204. If there is a database proprietor user identifier, the example impression monitor 218 stores an impression in association with the AME user identifier corresponding to the client device 102. The impression monitor 218 may or may not respond to the beacon/impression request 212. In the illustrated example, the impression monitor 218 responds to the beacon/impression request 212 with something not intended to affect display of the media objects 104a-d (e.g., with a transparent 1x1 pixel image or

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other requested media such as a placeholder). In some examples, the beacon/impression request 212 does not elicit a response.

[0071] In the illustrated example of FIG. 6, the example impression monitor 218 sends a re-direct message (e.g., an HTTP "302 Found" re-direct message) to the client device 102 in a beacon response 606 in response to the beacon/impression request 212. If the impression monitor 218 of the illustrated example created an AME user identifier (e.g., the identifier 214 of FIG. 2) for the client device 102, or if there is no database proprietor user identifier for the client device 102 associated with (e.g., mapped to) an existing AME user identifier, the example impression monitor 218 adds an AME user identifier 602 to a URL parameter of the beacon response 606. The example impression monitor 218 also adds to the URL parameter of the beacon response 606 an internet address 608 of a database proprietor 204a or multiple addresses of multiple database proprietors 204. For example, the impression monitor 218 may select one or more of multiple database proprietors (e.g., from a list of cooperating partner database proprietors) based on, for example, the expected demographics of users to which media is served by the media provider(s) 106. In some examples, the impression monitor 218 selects a default database proprietor 204 and one or more backup database proprietors 204. For example, the default and backup database proprietors 204 may be used by the client device 102 to send re-directed beacon requests 612 to multiple database proprietors 204 in seriatum until one of the database proprietors 204 confirms that it recognizes the client device 102 as corresponding to one of its registered users.

[0072] The example client device 102 receives the beacon response 606 and sends a beacon request 612 to the database proprietor 204a based on (e.g., using) the internet address 608. In the illustrated example, the client device 102 sends the beacon request 612 to the internet address 608 of the database proprietor A 204a, and includes the AME user identifier 602 (e.g., an AME_UID_value) in a parameter of a URL 616 that includes the internet address 608. In the illustrated example, the client device 102 may have a database proprietor user identifier (not shown) created and managed by the database proprietor 204a to identify the client device 102 and/or a registered user associated with the client device 102. If the client device 102 has a database proprietor user identifier for the domain of the database proprietor 204a, the example client device 102 also provides the database proprietor user identifier with the beacon request 612. In some examples, the beacon instructions 208 may cause

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the client device 102 to also locate other information in the beacon request 612 such as media ID, media type ID, ad campaign ID, placement ID, and/or any other information related to the media object A 104a.

[0073] When the database proprietor A 204a of the illustrated example receives the beacon request 612, the database proprietor A 204a determines whether an AME user ID 602 is provided by the client device 102 in the beacon request 612. If the beacon request 612 includes the AME user ID 602, the example database proprietor 204a maps the AME user ID 602 to a database proprietor user ID 622 (e.g., a DBP_UID). In the illustrated example, the database proprietor A 204a locates the mapped AME user ID 602 and database proprietor user ID 622 (e.g., stores an association between the AME user identifier 602 and the database proprietor user ID 622) as a parameter in a URL 618 that includes the internet address of the AME 202. The database proprietor A 204a sends a message using the URL 618 to the example demographics collector 228 that indicates the mapping between the AME user identifier 602 and the database proprietor user identifier 622. Thus, in the illustrated example, the message transmitted using the URL 618 provides, as a parameter of the URL 618, the mapping between the AME user identifier 602 and the database proprietor user identifier 622 for the impression(s) logged by the impressions monitor 218 based on the beacon/impression request 212.

In the illustrated example of FIG. 6, the URL 618 also includes, as parameters of the URL 618, demographic information 626 associated with the client device 102 (e.g., demographic information for a user of the client device 102) that is known to the database proprietor A 204a. The demographic information 626 includes age (Y_Age=45) and gender (Y_Gender=M). However, any other type of demographic information may alternatively or additionally be provided in the URL 618. In some examples, the URL 618 further includes a timestamp of the user identifier mapping. In some other examples, the impressions monitor 218 and/or the demographics collector 228 stores the timestamps derived from HTTP messages transmitted and received during the mapping process. In some examples, the AME user identifier 602 is unique such that the timestamps are not necessary for matching the AME user identifier 602 and/or the database proprietor user identifier 622 to impressions data.

[0074] In the illustrated example, the demographics collector 228 stores the mapping between the AME user identifier 602 and the database proprietor identifier 622, and stores the demographic information 626 in connection with the mapped

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identifiers. For subsequent beacon requests received from the client device 102 for the same AME user identifier 602, the example impressions monitor 218 logs a corresponding impression and does not need to re-direct the user device 102 thereby reducing traffic to the database proprietor 204a.

[0075] Additional examples that may be used to collect demographic impressions based on providing demographic information and/or mapping AME-to-database proprietor user identifiers in URL parameters are disclosed in Seth et al., US application no. 13/915,381, filed on June 11, 2013.

[0076] In the illustrated example, based on receiving the demographic information 626 in the URL 618 in connection with the AME user identifier 602, the AME 202 can associate the demographic information 626 with the media impressions for all of the media objects 104a-d (FIGS. 1 and 2) that the impressions monitor 218 logged based on the beacon/impression request 212. Thus, by using the collector instructions 206 and the beacon instructions 208 in the media object A 104a shown in FIG. 2 to cause the client device 102 to report impressions for all of the media objects 104a-d in a single beacon/impression request 212, the AME 202 can log numerous impressions with corresponding demographic information received from the database proprietor 204a based on a single beacon request (e.g., the beacon/impression request 212) that reports the numerous impressions. In this manner, bandwidth and processing resources needed from the client device 102, networks, and servers are not significantly increased while increasing the number of impressions that are collected.

[0077] FIG. 7 depicts a communication flow diagram 700 of an example manner in which the AME 202 can receive demographic information from the database proprietors 204 based on shared keys or other identification information shared between the AME 202 and the database proprietors 204. In the illustrated example of FIG. 7, the beacon instructions 208 of the media object A 104a cause the client device 102 to send a shared key 702 in the beacon/impression request 212. The shared key 702 of the illustrated example may implement the identifier 214 of FIG. 2. In addition, the beacon/impression request 212 also includes the media object characteristics 210a-d for all of the media objects 104a-d of FIGS. 1 and 2. In this manner, the single beacon/impression request 212 can be used to report multiple impressions for multiple media objects.

[0078] When the impression monitor 218 receives the beacon/impression request 212, the impression monitor 218 logs multiple impressions corresponding to the

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numerous media objects 104a-d. In addition, the impression monitor 218 sends a demographic information request 704 to one or more of the database proprietors 204. In the illustrated example, the demographic information request 704 includes the shared key 702. The shared key 702 of the illustrated example is an identifier that uniquely identifies the client device 102 to the AME 202 and one or more of the database proprietors 204. For example, the one or more database proprietors 204 that recognize the shared key 702 as uniquely identifying the client device 102 can store the shared key 702 in association with user registration accounts corresponding to the user or users of the client device 102. Similarly, the AME 202 can also store the shared key 702 in the panel database 224 of FIG. 2 in association with one or more panel member records of user(s) corresponding to the client device 102. In this manner, when the impression monitor 218 and the one or more database proprietors 204 receive the shared key 702, the AME 202 and the database proprietor(s) 204 can retrieve demographic information corresponding to the client device 102 based on the shared key.

[0079] In the illustrated example, the impression monitor 218 includes encrypted media object ID(s) 708 in the demographic information request 704. The encrypted media object ID(s) 708 of the illustrated example are media identifiers that correspond to the media objects 204a-d of FIGS. 1 and 2. For example, the impression monitor 218 can generate the encrypted media object ID(s) 708 based on media object IDs retrieved from the media object characteristics 210a-d in the beacon/impression request 212 and/or based on media object IDs determined by the impression monitor 218 (e.g., via a look up table or media reference database) based on media characteristics obtained from the media object characteristics 210a-d. In any case, to obscure the identities of the media objects 104a-d from intercepting parties and/or from the database proprietors 204, the impression monitor 218 of the illustrated example, encrypts the media object ID(s) corresponding to the media objects 104a-d to generate the encrypted media object ID(s) 708. In some examples, the database proprietors 204 are provided with information (e.g., encryption keys) to decrypt the encrypted media object ID(s) 708. In other examples, the database proprietors 204 do not decrypt the encrypted media object ID(s) 708. In yet other examples, the impressions monitor 218 does not encrypt media object ID(s) and instead sends media object ID(s) in the demographic information request 704 without obscuring the media object ID(s).

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[0080] In the illustrated example, the database proprietor(s) 204 retrieve demographic information 712 corresponding to the shared key 702 and associate the demographic information 712 with the encrypted media object ID(s) 708 (or unencrypted media object ID(s)). The database proprietor(s) 204 then send a demographic information response 714 to the demographics collector 228 at the AME 202 including the associated demographic information 712 and the encrypted media object ID(s) 708. In this manner, the AME 202 can associate the demographic information 712 with impressions logged by the impressions monitor 218 for corresponding ones of the media objects 104a-d based on the demographic information 712 associated with corresponding ones of the encrypted media object ID(s) 708. In the illustrated example, the database proprietor(s) 204 include the shared key 702 in the demographic information response 714 in association with the demographic information 712 and the encrypted media object ID(s) 708. In other examples, the shared key 702 is omitted from the demographic information response 714. For example, the database proprietor(s) 204 may want to return anonymous demographics so that the AME 202 can associate demographic information to media impressions, but cannot determine which demographics correspond to which client devices. In this manner, the database proprietor(s) 204 can obscure connections between client devices and particular demographics while still providing the AME 202 the ability to accurately associate demographic information with corresponding media impressions based on the demographic information 712 being associated with corresponding encrypted media object ID(s) 708.

[0081] Using the example processes illustrated in FIGS. 5-7, impressions (e.g., advertisement impressions, content impressions, and/or any other types of media impressions) can be mapped to corresponding demographics when multiple impressions for numerous media objects (e.g., the media object 104a-d of FIGS. 1 and 2) are reported in a single beacon request (e.g., the beacon/impression request 212 of FIGS. 2 and 5-7). In addition, the example process of FIGS. 5-7 enable mapping impressions to demographics even when beacon requests are received from client devices that are not associated with panel members of the AME 202. That is, during an impression collection or merging process, the AME 202 can collect distributed impressions logged by (1) the impression monitor 218 and (2) any participating database proprietor 204. As a result, the collected data covers a larger population with richer demographic information than has previously been possible. In

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addition, by receiving multiple impressions in a single beacon request, demographic information can be associated with significantly more media impressions without significantly increasing the bandwidth requirements or processing resource requirements of client devices, networks, and/or servers. Consequently, generating accurate, consistent, and meaningful online ratings is possible by pooling the resources of the distributed databases as described above. The example processes of FIGS. 5-7 generate online ratings based on a large number of combined demographic databases distributed among unrelated parties (e.g., Nielsen, Facebook, Google, Yahoo!, etc.). The end result appears as if users attributable to the logged impressions were part of a large virtual panel formed of registered users of the audience measurement entity because the selection of the participating partner sites can be tracked as if they were members of a panel maintained by the AME 202. This is accomplished without violating the privacy protocols and policies of the Internet.

[0082] Although the examples of FIG. 5-7 show direct communications between the AME 202 and the database proprietors 204, in other examples, an intermediary server (e.g., a third party) may be used to broker communications and process data exchanged between the AME 202 and the database proprietors 204. For example, intermediary third-party servers may merge and/or adjust demographic information provided by the AME 202 and the database proprietors 204. The intermediary third-party servers can then provide the merged and/or adjusted demographic information to the AME 202 and to the database proprietors 204 in such a manner that the AME 202 and the database proprietors 204 can attribute the demographic information to corresponding logged impressions.

[0083] Flowcharts representative of example machine readable instructions for implementing the client device 102 of FIGS. 1, 2, and 5-7 and/or the example apparatus 216 of FIG. 2 are shown in FIGS. 8-10. In this example, the machine readable instructions comprise programs for execution by a processor such as the processor 1112 shown in the example processor platform 1100 discussed below in connection with FIG. 11. The programs may be embodied in software stored on a tangible computer readable storage medium such as a CD-ROM, a floppy disk, a hard drive, a digital versatile disk (DVD), a Blu-ray disk, or a memory associated with the processor 1112, but the entirety of the programs and/or parts thereof could alternatively be executed by a device other than the processor 1112 and/or embodied in firmware or dedicated hardware. Further, although the example programs are

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described with reference to the flowcharts illustrated in FIGS. 8-10, many other methods of implementing the example client device 102 and/or the example apparatus 216 may alternatively be used. For example, the order of execution of the blocks may be changed, and/or some of the blocks described may be changed, eliminated, or combined.

[0084] As mentioned above, the example processes of FIGS. 8-10 may be implemented using coded instructions (e.g., computer and/or machine readable instructions) stored on a tangible computer readable storage medium such as a hard disk drive, a flash memory, a read-only memory (ROM), a compact disk (CD), a digital versatile disk (DVD), a cache, a random-access memory (RAM) and/or any other storage device or storage disk in which information is stored for any duration (e.g., for extended time periods, permanently, for brief instances, for temporarily buffering, and/or for caching of the information). As used herein, the term tangible computer readable storage medium is expressly defined to include any type of computer readable storage device and/or storage disk and to exclude propagating signals. As used herein, "tangible computer readable storage medium" and "tangible machine readable storage medium" are used interchangeably. Additionally or alternatively, the example processes of FIGS. 8-10 may be implemented using coded instructions (e.g., computer and/or machine readable instructions) stored on a non-transitory computer and/or machine readable medium such as a hard disk drive, a flash memory, a read-only memory, a compact disk, a digital versatile disk, a cache, a random-access memory and/or any other storage device or storage disk in which information is stored for any duration (e.g., for extended time periods, permanently, for brief instances, for temporarily buffering, and/or for caching of the information). As used herein, the term non-transitory computer readable medium is expressly defined to include any type of computer readable device or disc and to exclude propagating signals. As used herein, when the phrase "at least" is used as the transition term in a preamble of a claim, it is open-ended in the same manner as the term "comprising" is open ended.

[0085] FIG. 8 is a flow diagram representative of example machine readable instructions that may be executed by the client device 102 of FIGS. 1, 2, and 5-7 to report media object impressions to the AME 202 (FIGS. 2 and 5-7) and/or one or more database proprietors 204 (FIGS. 2 and 5-7). Initially, the client device 102 receives numerous media objects (e.g., the media objects 104a-d of FIGS. 1 and 2) (block 802). The client device 102 presents the media objects 104a-d (block 804).

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For example, the client device 102 may present the media objects 104a-d via a display interface and/or an audio interface. The client device 102 determines which of the media objects 104a-d is a collector media object (block 806). In the illustrated example, the client device 102 determines that the media object A 104a is a collector media object as shown in FIG. 2. For example, the client device 102 may identify the media object A 104a as the collector media object by detecting the collector instructions 206 (FIG. 2) embedded in the media object A 104a. Additionally or alternatively, the media object A 104a may notify the client device 102 that it is the collector media object.

[0086] The client device 102 executes the collector instructions 206 to collect media object characteristics (e.g., the media object characteristics 210a-d of FIG. 2) from media objects presented by the client device 102 (block 808). In the illustrated example, the collector instructions 206 cause the client device 102 to collect media object characteristics from the collector media object A 104a and the passive media objects 104b-d shown in FIG. 2. The client device 102 locates the media object characteristics 210a-d and an identifier (e.g., the identifier 214 of FIGS. 2, 5, and 6 and/or the shared key 702 of FIG. 7) in a beacon request (e.g., the beacon/impression request 212 of FIGS. 2 and 5-7) (block 810). The client device 102 sends the beacon/impression request 212 to the AME 202 (block 812). For example, the client device 102 sends the beacon/impression request 212 based on the beacon instructions 208 (FIG. 2) to the impression monitor 218 of the AME 202 as shown in FIGS. 2 and 5-7.

[0087] The client device 102 determines whether to send any beacon request(s) to any database proprietor(s) (e.g., the database proprietor(s) 204 of FIGS. 2 and 5-7) (block 814). For example, the beacon instructions 208 may include URLs of one or more database proprietor(s) 204 to which the client device 102 is to send beacon requests (e.g., the beacon request(s) 508 of FIG. 5 and/or the beacon request(s) 612 of FIG. 6). Additionally or alternatively, the client device 102 may receive one or more beacon response(s) (e.g., the beacon response 504 of FIG. 5 and/or the beacon response 606 of FIG. 6) from the impressions monitor 218, and send one or more beacon request(s) to one or more database proprietor(s) 204 based on one or more URL(s) located in the beacon response(s).

[0088] If the client device 102 determines at block 814 that it should not send one or more beacon request(s) to one or more database proprietor(s) 204, the example

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process of FIG. 8 ends. Otherwise, if the client device 102 determines at block 814 that it should send one or more beacon request(s) to one or more database proprietor(s) 204, the client device 102 determines which one or more database proprietor(s) 204 are target recipients of the one or more beacon request(s) (block 816). For example, the target database proprietor(s) 204 can be indicated in the beacon instructions 208 and/or in a beacon response from the impression monitor 218. The client device 102 generates the one or more beacon request(s) (e.g., the beacon request(s) 508 of FIG. 5 and/or the beacon request(s) 612 of FIG. 6) (block 818). For example, the client device 102 can generate the beacon request(s) intended for the one or more database proprietor(s) as discussed above in connection with FIG. 5 and/or FIG. 6. The client device 102 sends the beacon request(s) to the one or more target database proprietor(s) 204 (block 820). The example process of FIG. 8 then ends.

[0089] FIG. 9 is a flow diagram representative of example machine readable instructions that may be executed by the apparatus 216 (FIG. 2) at the AME 202 to log impressions for media objects (e.g., the media objects 104a-d of FIGS. 1 and 2). Initially, the impression monitor 218 (FIGS. 2 and 5-7) receives the beacon/impression request 212 (FIGS. 2 and 5-7) from the client device 102 (FIGS. 2 and 5-7) (block 902). The impression monitor 218 identifies the media objects 104a-d based on the media object characteristics 210a-d located in the beacon/impression request 212 (block 904). For example, the media object characteristics 210a-d may include media IDs that identify the media objects 104a-d. Alternatively, the media object characteristics 210a-d may include other characteristics (e.g., signatures, codes, identifiers, publisher URL's, etc.) that the impression monitor 218 may use to look up corresponding media IDs (e.g., using a reference media look-up database) to identify the media objects 104a-d. The impression monitor 218 logs impressions for the media objects 104a-d (block 906).

[0090] The creditor 220 (FIG. 2) determines a media object hierarchy for the media objects 104a-d (block 908). For example, the media object hierarchy may be implemented as disclosed above in connection with FIG. 4. The creditor 220 awards one or more causal credit(s) based on one or more of the media objects 104a-d based on the media object hierarchy (block 910). For example, the creditor 220 can award one or more causal credits based on the identified media object hierarchy to ones of the media objects 104a-d that contributed to creating the opportunity for

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presenting others of the media objects 104a-d as disclosed above in connection with FIG. 4. The example process of FIG. 9 then ends.

[0091] FIG. 10 is a flow diagram representative of example machine readable instructions that may be executed by the apparatus 216 (FIG. 2) at the AME 202 to associate demographic information with media object impressions. Initially, the panelist profile retriever 222 (FIG. 2) determines whether the client device 102 (FIGS. 1, 2, and 5-7) is recognized as being associated with a panel member (block 1002). For example, the panelist profile retriever 222 may determine whether the identifier 214 of FIGS. 2, 5, and 6 (and/or the shared key 702 of FIG. 7) received in the beacon/impression request 212 is stored in the panel database 224 in association with a panel member record. If the client device 102 is associated with a panel member, the panelist profile retriever 222 retrieves demographic information associated with the panel member from the panel database 224 (block 1004). For example, the panelist profile retriever 222 retrieves the demographic information based on the identifier 214 and/or the shared key 702.

[0092] After retrieving demographic information from the panel database 224 at block 1004 or if the panelist profile retriever 222 determines at block 1002 that the client device 102 is not associated with a panel member, the demographic collector 228 receives demographic information from one or more of the database proprietor(s) 204 (FIGS. 2 and 5-7) (block 1006). For example, the demographic collector 228 may receive the demographic information from the database proprietor(s) 204 using any suitable technique including any process described above in connection with FIGS. 5-7.

[0093] The demographic corrector 226 (FIG. 2) determines whether it should adjust any of the demographic information from the panel database 224 and/or the demographic information from the database proprietor(s) 204 (block 1008). For example, the demographic corrector 226 may be configured to analyze the demographic information from the panel database 224 relative to the demographic information from the database proprietor(s) 204 and to adjust any of the demographic information that is missing and/or inaccurate. In some examples in which the demographic corrector 226 is not provided and/or the demographic corrector 226 is disabled, the apparatus 216 does not adjust demographic information. If the demographic corrector 226 determines that it should not adjust demographic information, control advances to block 1012. Otherwise, if the demographic corrector

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226 determines that it should adjust demographic information (block 1008), the demographic corrector 226 adjusts the demographic information (block 1010). For example, the demographic corrector 226 may adjust the demographic information from the panel database 224 by using demographic information from the database proprietor(s) 204 to fill-in missing data and/or correct inaccurate data. Additionally or alternatively, the demographic corrector 226 may adjust the demographic information from the database proprietor(s) 204 based on the demographic information from the panel database 224 to fill-in missing data and/or correct inaccurate data.

[0094] The attributor 230 (FIG. 2) associates the demographic information with an impression of a corresponding collector media object (e.g., the collector media object A 104a shown in FIG. 2) (block 1012). In addition, the attributor 230 determines one or more passive media object(s) that were reported in connection with the collector media object A 104a via the same beacon/impression request 212 (block 1014). For example, the attributor 230 may use the impressions logged by the impression monitor 218 to determine that the passive media objects 104b-d were reported in the same beacon/impression request 212 that reported the collector media object A 104a. The attributor 230 associates demographic information with one or more impression(s) of the corresponding passive media object(s) 104b-d (block 1016). In this manner, the attributor 230 can attribute the same demographics information retrieved for the collector media object A 104a to the passive media objects 104b-d that were reported in the same beacon/impression request 212. This technique is useful to accurately associate demographic information with multiple media object impressions logged based on a single beacon request from a client device. As such, a client device need not use more resources to send multiple beacon requests to the AME 202 to report impressions for multiple media objects. The example process of FIG. 10 then ends.

[0095] FIG. 11 is a block diagram of an example processor platform 1100 that is capable of executing example instructions of FIGS. 8-10 to implement the client device 102 of FIGS. 1, 2, and 5-7 and/or the apparatus 216 of FIG. 2. The processor platform 1100 can be, for example, a server, a personal computer, a mobile device (e.g., a cell phone, a smart phone, a tablet such as an iPad™ tablet), a personal digital assistant (PDA), an Internet appliance, a digital versatile disk (DVD) player, a compact disk (CD) player, a digital video recorder, a Blu-ray player, a gaming

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console, a personal video recorder, a set top box, or any other type of computing device.

[0096] The processor platform 1100 of the illustrated example includes a processor 1112. The processor 1112 of the illustrated example is hardware. For example, the processor 1112 can be implemented by one or more integrated circuits, logic circuits, microprocessors or controllers from any desired family or manufacturer.

[0097] The processor 1112 of the illustrated example includes a local memory 1113 (e.g., a cache). The processor 1112 of the illustrated example is in communication with a main memory including a volatile memory 1114 and a non-volatile memory 1116 via a bus 1118. The volatile memory 1114 may be implemented by Synchronous Dynamic Random Access Memory (SDRAM), Dynamic Random Access Memory (DRAM), RAMBUS Dynamic Random Access Memory (RDRAM) and/or any other type of random access memory device. The non-volatile memory 1116 may be implemented by flash memory and/or any other desired type of memory device. Access to the main memory 1114, 1116 is controlled by a memory controller.

[0098] The processor platform 1100 of the illustrated example also includes an interface circuit 1120. The interface circuit 1120 may be implemented by any type of interface standard, such as an Ethernet interface, a universal serial bus (USB), and/or a PCI express interface.

[0099] In the illustrated example, one or more input devices 1122 are connected to the interface circuit 1120. The input device(s) 1122 permit a user to enter data and commands into the processor 1112. The input device(s) can be implemented by, for example, an audio sensor, a microphone, a camera (still or video), a keyboard, a button, a mouse, a touchscreen, a track-pad, a trackball, isopoint and/or a voice recognition system.

[00100] One or more output devices 1124 are also connected to the interface circuit 1120 of the illustrated example. The output devices 1124 can be implemented, for example, by display devices (e.g., a light emitting diode (LED), an organic light emitting diode (OLED), a liquid crystal display, a cathode ray tube display (CRT), a touchscreen, a tactile output device, a light emitting diode (LED), a printer and/or speakers). The interface circuit 1120 of the illustrated example, thus, typically includes a graphics driver card.

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[00101] The interface circuit 1120 of the illustrated example also includes a communication device such as a transmitter, a receiver, a transceiver, a modem and/or network interface card to facilitate exchange of data with external machines (e.g., computing devices of any kind) via a network 1126 (e.g., an Ethernet connection, a digital subscriber line (DSL), a telephone line, coaxial cable, a cellular telephone system, etc.).

[00102] The processor platform 1100 of the illustrated example also includes one or more mass storage devices 1128 for storing software and/or data. Examples of such mass storage devices 1128 include floppy disk drives, hard drive disks, CD drives, Blu-ray disk drives, RAID systems, and DVD drives.

[00103] Coded instructions 1132 of the illustrated example represent the example machine readable instructions represented by the flow diagrams of FIGS. 8-10. The example coded instructions 1132 may be stored in the mass storage device 1128, in the volatile memory 1114, in the non-volatile memory 1116, and/or on a removable tangible computer readable storage medium such as a CD or DVD.

[00104] From the foregoing, it will be appreciated that examples have been disclosed to facilitate using a single communication from a client device to communicate multiple impressions to a collection facility about multiple media objects presented/displayed concurrently at the client device. When multiple media objects are presented by the client device, one of the media objects operates as a collector media object. The collector media object collects media object parameters from all of the other media objects being concurrently presented at the client device. In this manner, instead of all of the concurrently presented media objects sending corresponding beacon requests to a collection facility, the collector media object sends a single beacon request with all of the collected media object information from all of the other presented media objects. This significantly reduces the amount of network bandwidth and communication resources required by the client device to report on the concurrently presented media objects to the collection facility. In addition, this enables determining relationships (e.g., causal relationships) between the different media objects.

[00105] Although certain methods, apparatus, systems, and articles of manufacture have been disclosed herein, the scope of coverage of this patent is not limited thereto. To the contrary, this patent covers all methods, apparatus, systems, and

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articles of manufacture fairly falling within the scope of the claims either literally or under the doctrine of equivalents.

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What is claimed is:

1. An apparatus comprising:

means for collecting, invoked by a first instruction in a collector media object presented in a webpage at a client device, to collect a first characteristic of the collector media object presented at the client device, and to collect second characteristics corresponding to a plurality of second media objects, the plurality of second media objects presented in the webpage at the client device concurrently with the collector media object; and

means for reporting, invoked by a second instruction associated with the collector media object, to report multiple impressions corresponding to the presentations of the collector media object and the second media objects at the client device, the reporting of the multiple impressions including sending the first and second characteristics and an identifier associated with the client device in a first network communication to a remote server.

2. The apparatus as defined in claim 1, wherein the reporting means is further to send a second network communication to a database proprietor to request demographics information associated with the client device.

3. The apparatus as defined in claim 2, wherein the reporting means is to send the second network communication to the database proprietor based on a rule located in the collector media object.

4. The apparatus as defined in claim 2, wherein the reporting means is to send the second network communication to the database proprietor based on an

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address of the database proprietor located in a redirect request received at the client device.

5. The apparatus as defined in claim 2, wherein the identifier is a first cookie corresponding to the remote server, and the reporting means is to send a third network communication by sending a second cookie corresponding to the database proprietor in the second network communication.

6. The apparatus as defined in claim 2, wherein the database proprietor is a social network service.

7. The apparatus as defined in claim 1, wherein the first characteristic is first metadata encoded in the collector media object, and the second characteristics are at least one of second metadata encoded in the second media objects or signatures generated based on the second media objects.

8. The apparatus as defined in claim 1, wherein the second characteristics are signatures of the second media objects, and the collecting means is to collect the signatures by performing a screen capture, and generating the signatures based on corresponding images of the second media objects.

9. The apparatus as defined in claim 1, wherein the reporting means is further to send a uniform resource locator of a host website of the collector media object and the second media objects to the remote server.

10. The apparatus as defined in claim 1, wherein each of the collector media object and the second media objects include at least one of an advertisement, video, or audio.

11. An apparatus comprising:

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means for monitoring impressions to receive a communication including: (a) a first characteristic corresponding to a collector media object embedded in a webpage presented at a client device, and (b) a second characteristic corresponding to a second media object embedded in the webpage presented at the client device, collection and transmission of the first characteristic and the second characteristic in the communication are to be invoked by the collector media object; and

means for associating demographic information from a database proprietor with the first and second characteristics based on the first and second characteristics being received in the same communication from the client device.

12. The apparatus as defined in claim 11, wherein the client device is at least one of a computer, a television, a tablet, or a mobile telephone.

13. The apparatus as defined in claim 11, wherein the collector media object and the second media object include at least one of an advertisement, video, or audio.

14. The apparatus as defined in claim 11, further including means for collecting to receive, from the database proprietor, demographic information corresponding to the client device as part of a parameter in a hypertext transfer protocol request.

15. The apparatus as defined in claim 11, wherein the impressions monitoring means is to receive a first identifier in the communication from the client device, the first identifier corresponding to an audience measurement entity, and to send the client device a redirect request instructing the client device to send the database proprietor a second communication including a second identifier corresponding to the database proprietor.

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16. The apparatus as defined in claim 15, wherein the first identifier is a first cookie corresponding to the audience measurement entity at a first internet domain, and the second identifier is a second cookie corresponding to the database proprietor at a second internet domain.

17. The apparatus as defined in claim 11, wherein the impressions monitoring means is to log impressions for media corresponding to the collector media object and the second media object, the associating of the demographic information with the first and second characteristics based on the first and second characteristics being received in the same communication includes associating the demographic information with the logged impressions.

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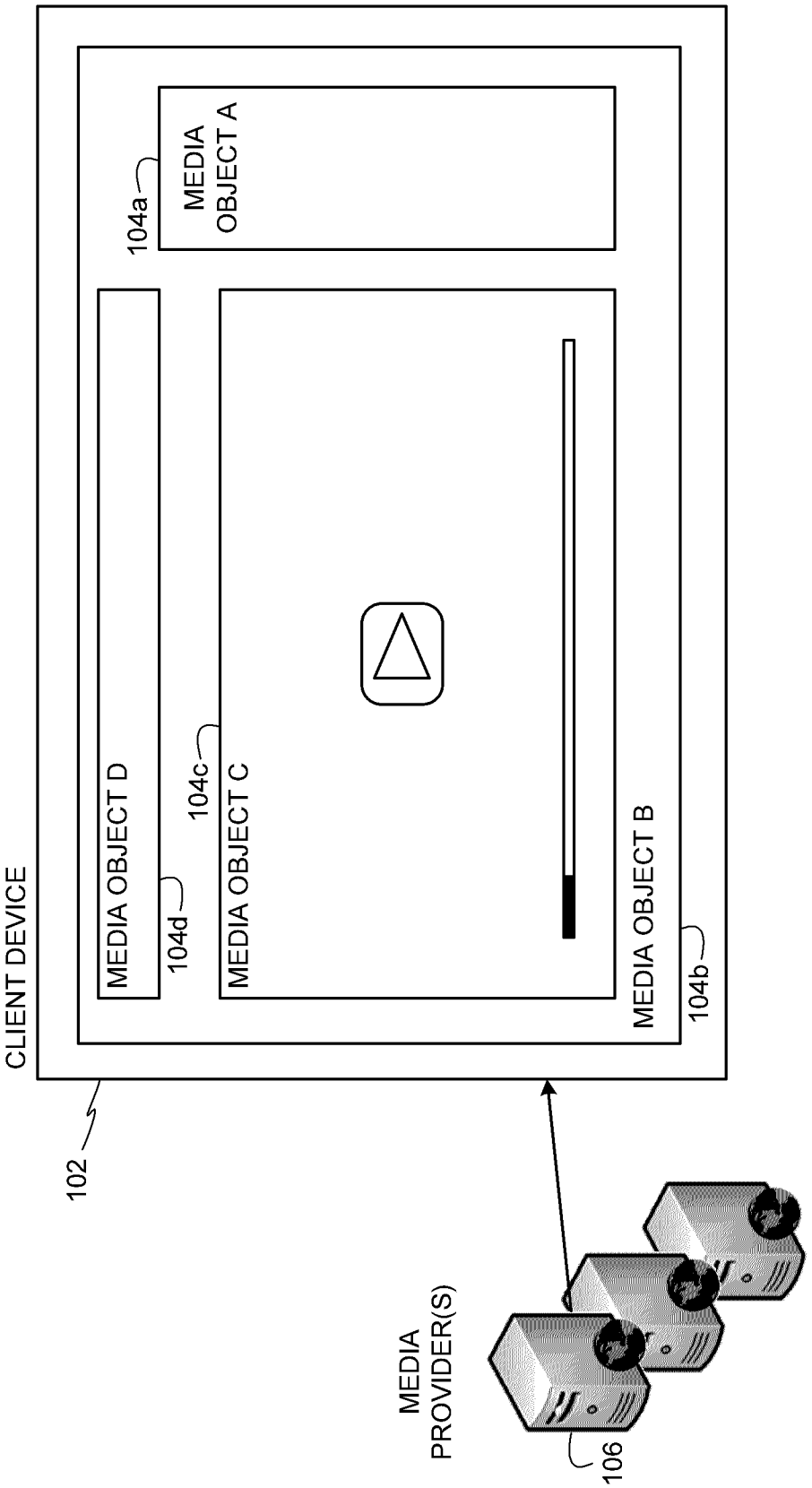

FIG. 1

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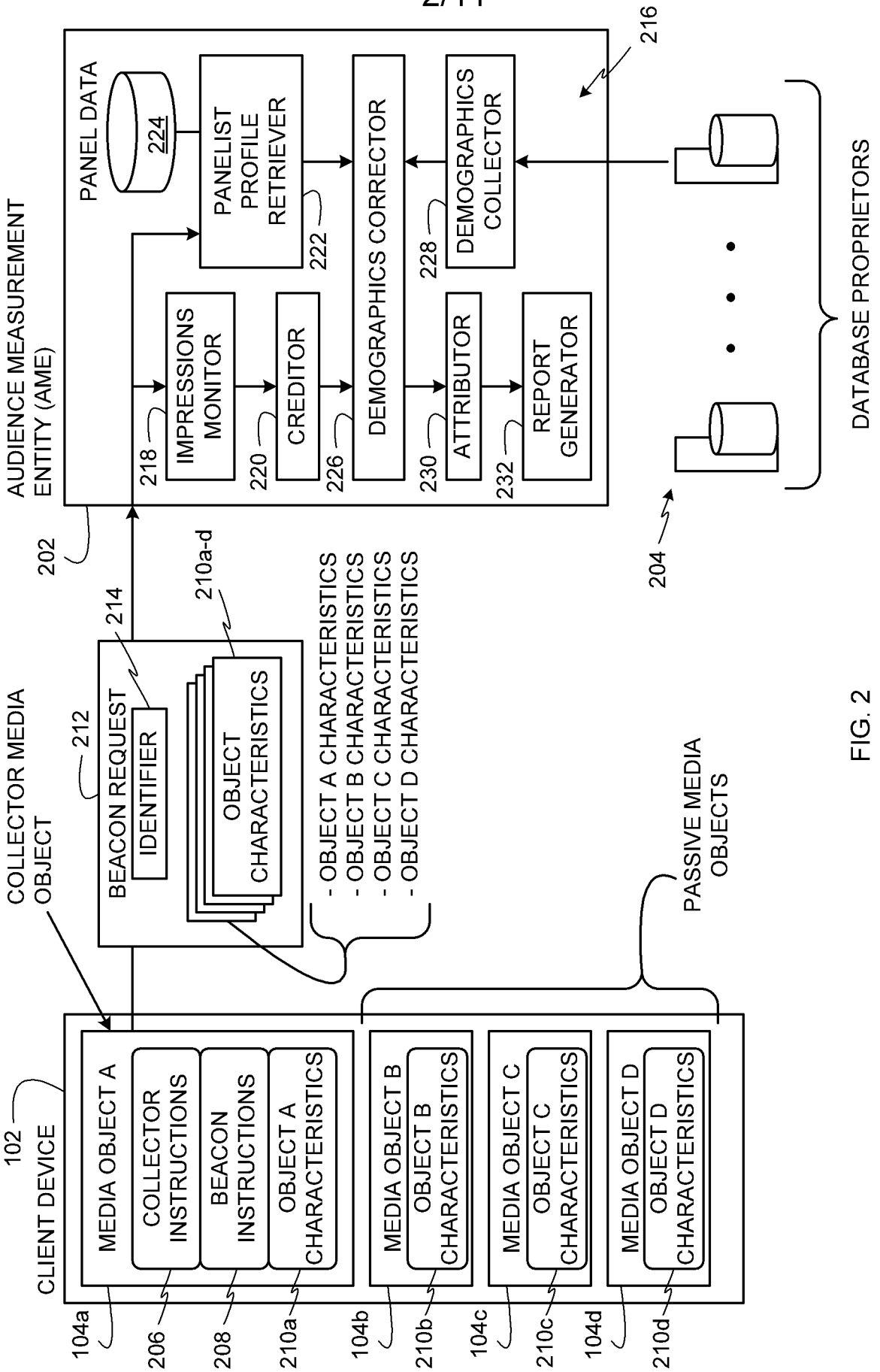

FIG. 2

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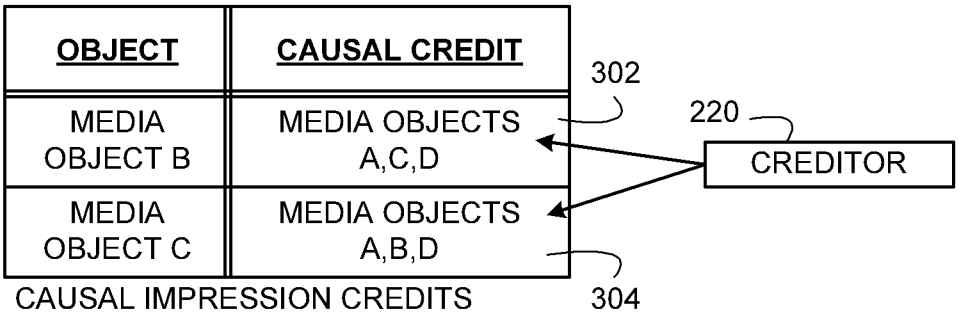

FIG. 3

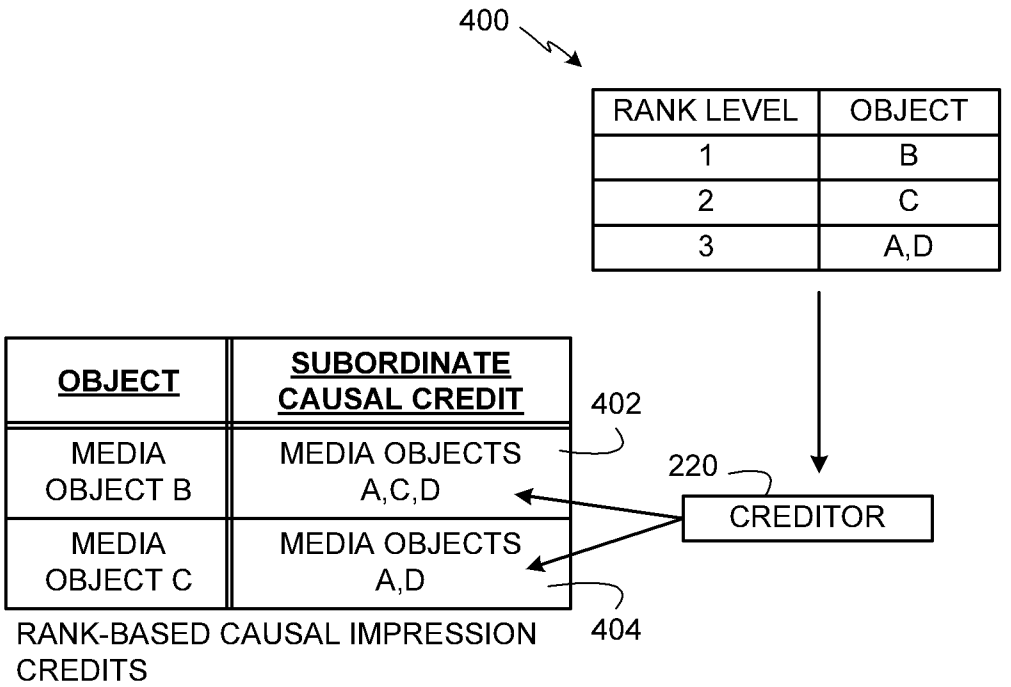

FIG. 4

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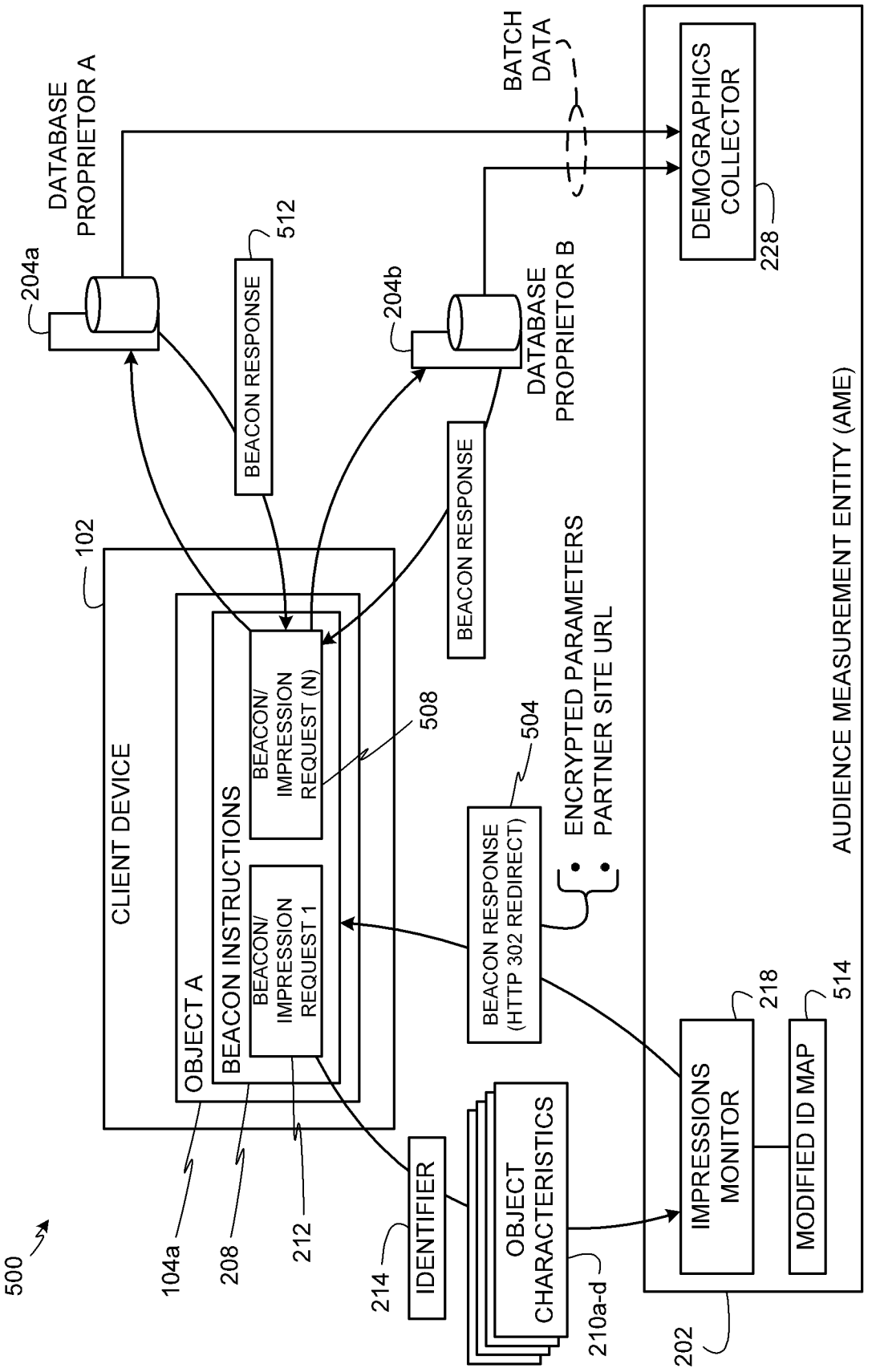

FIG. 5

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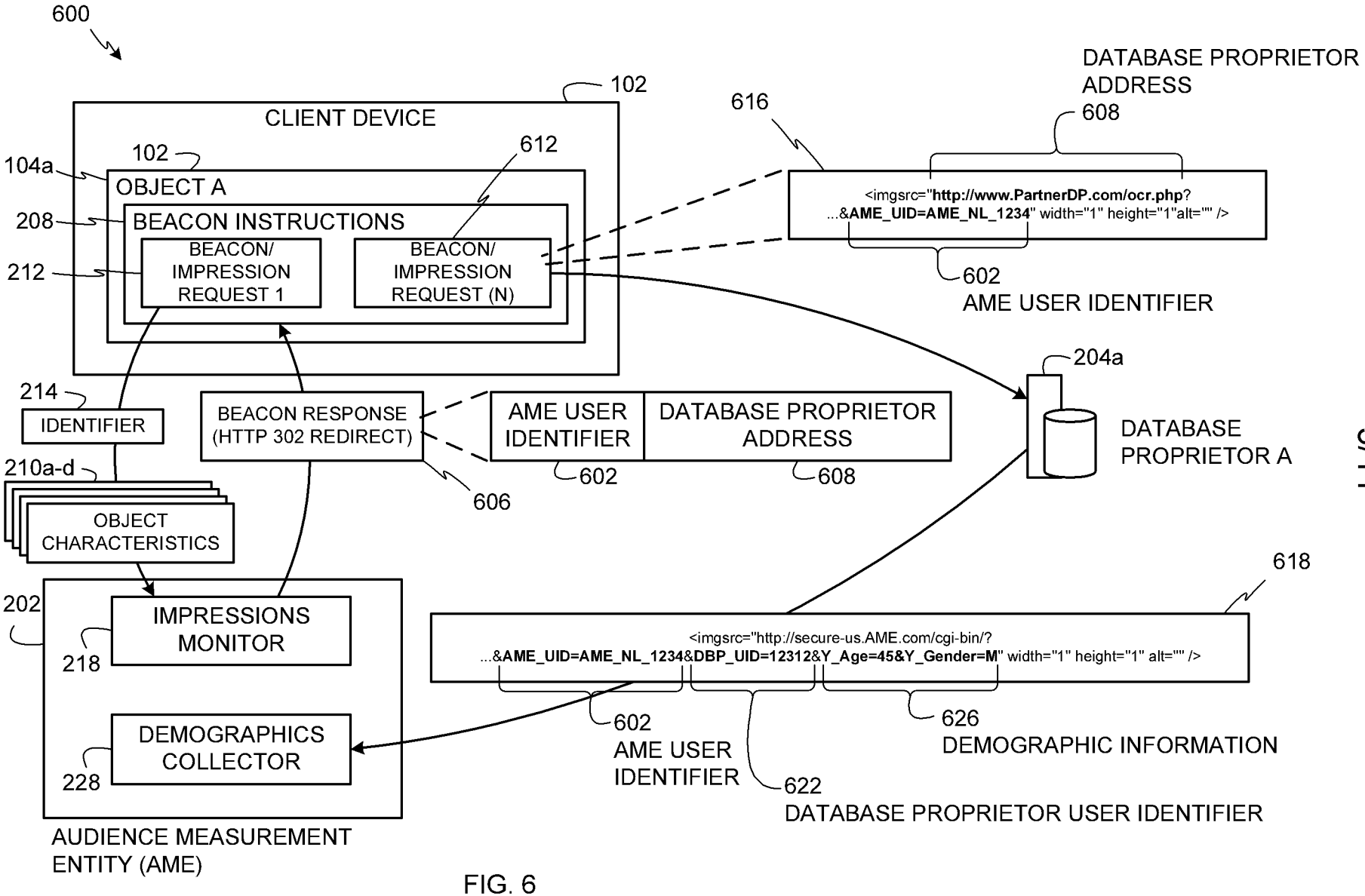

FIG. 6

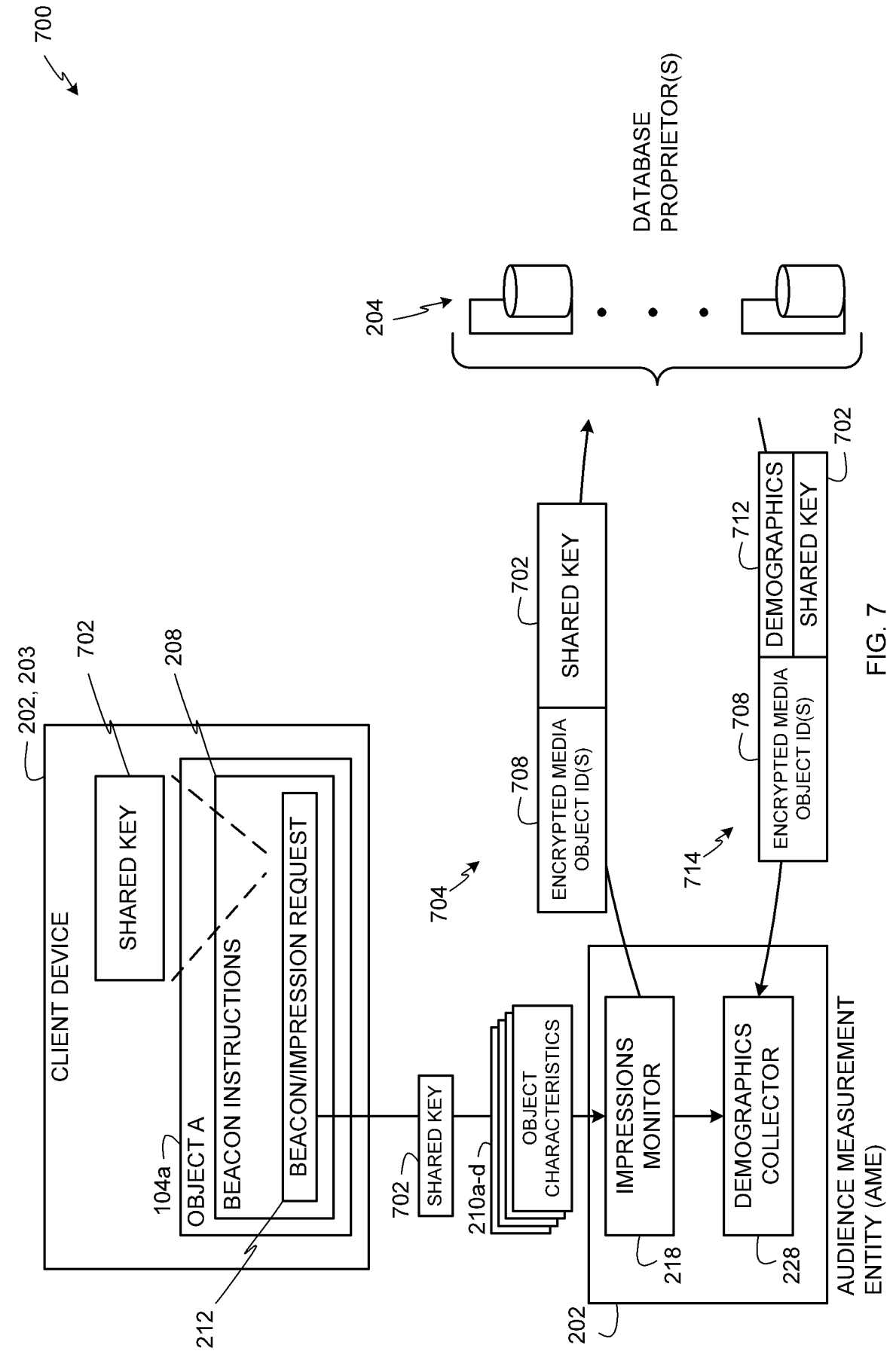

FIG. 7

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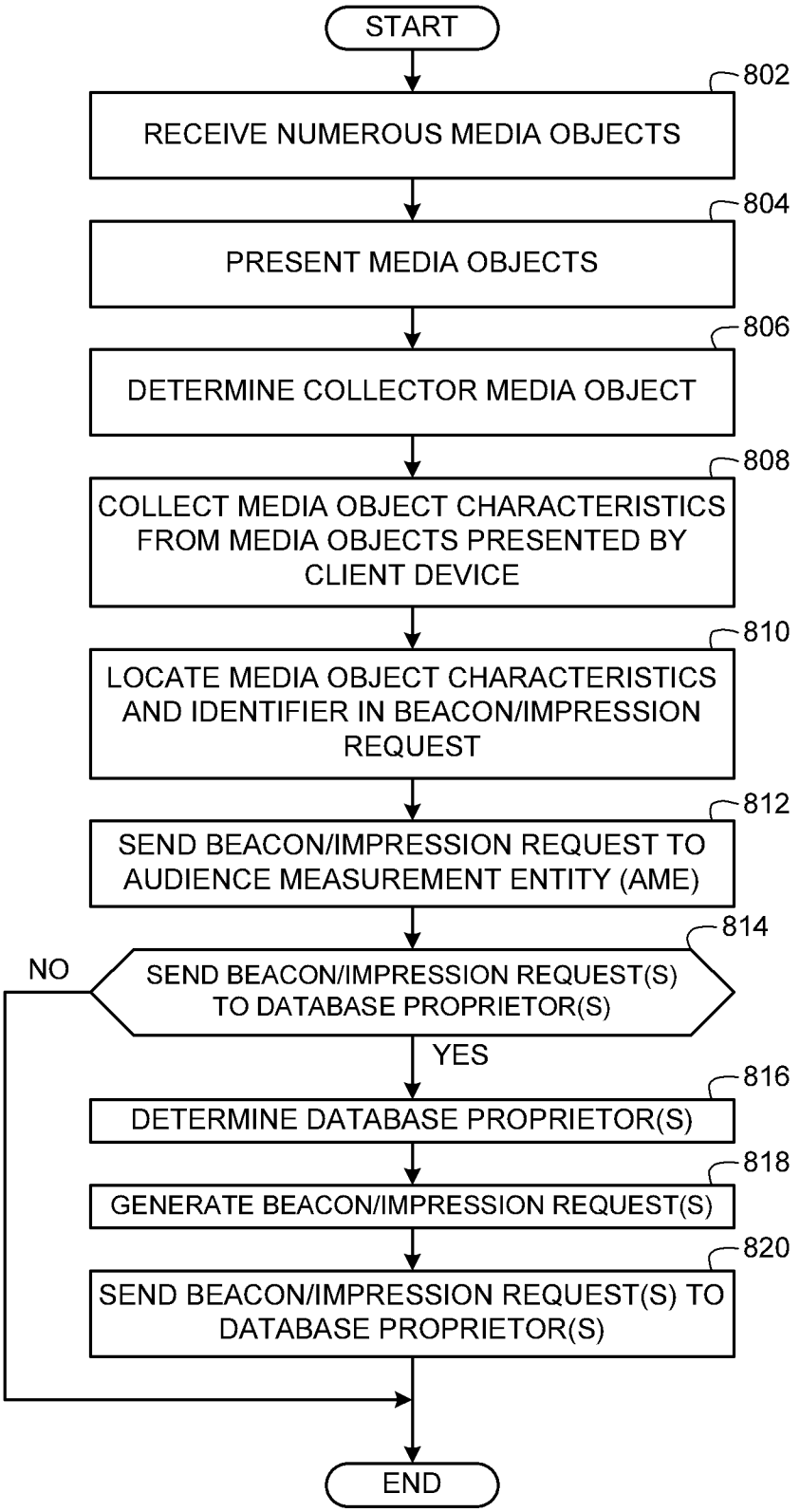

FIG. 8

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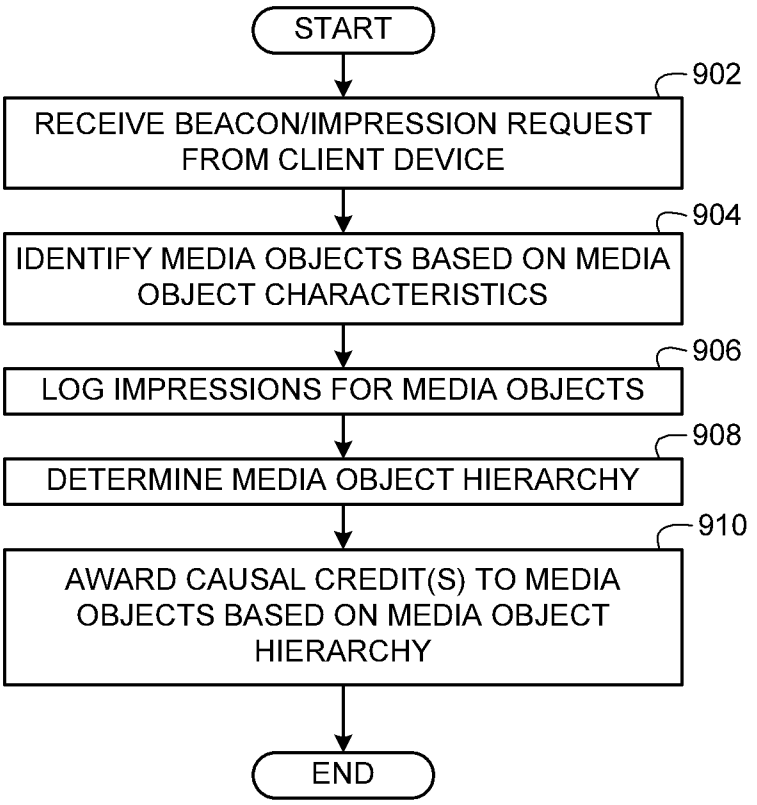

FIG. 9

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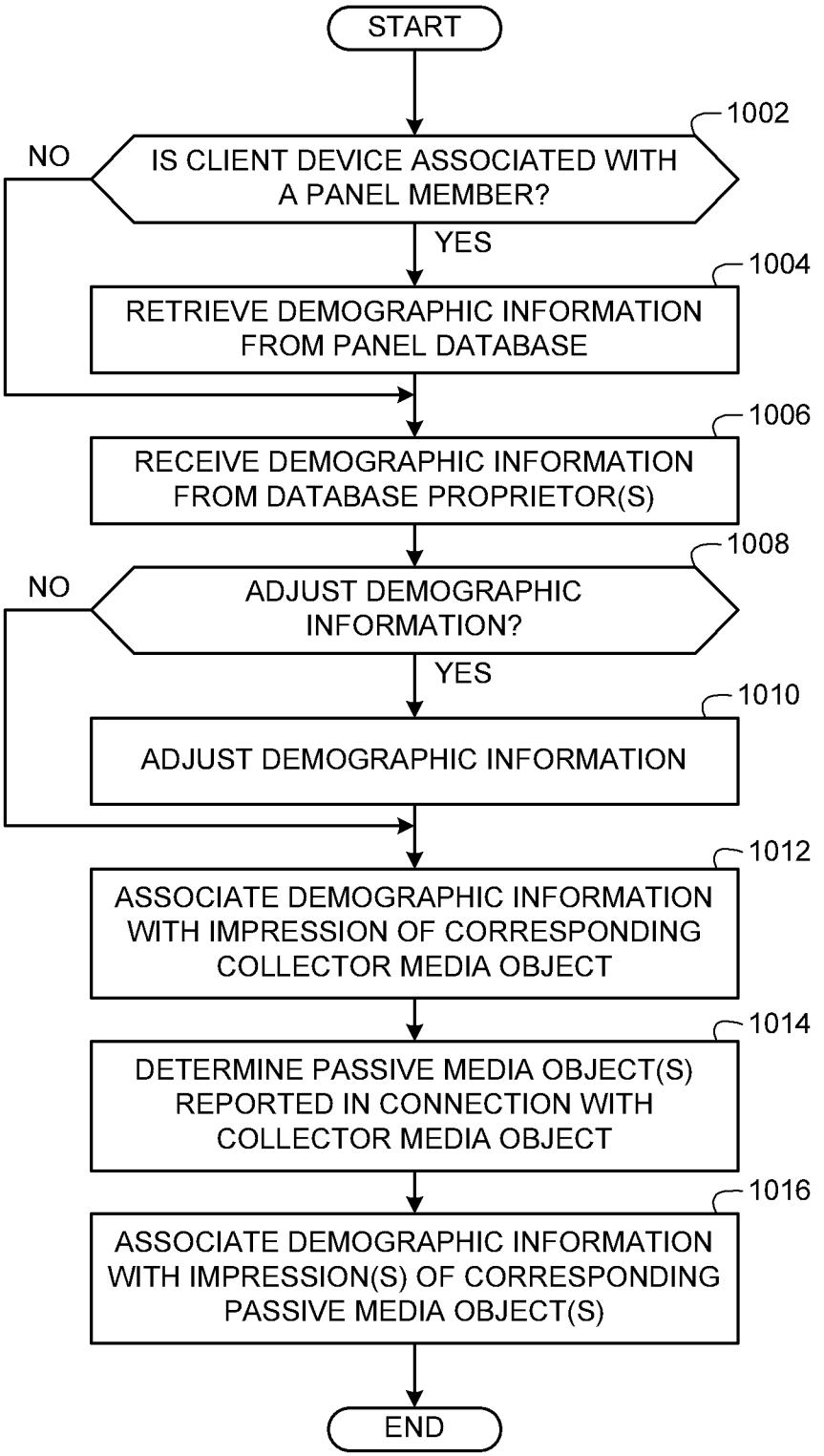

FIG. 10

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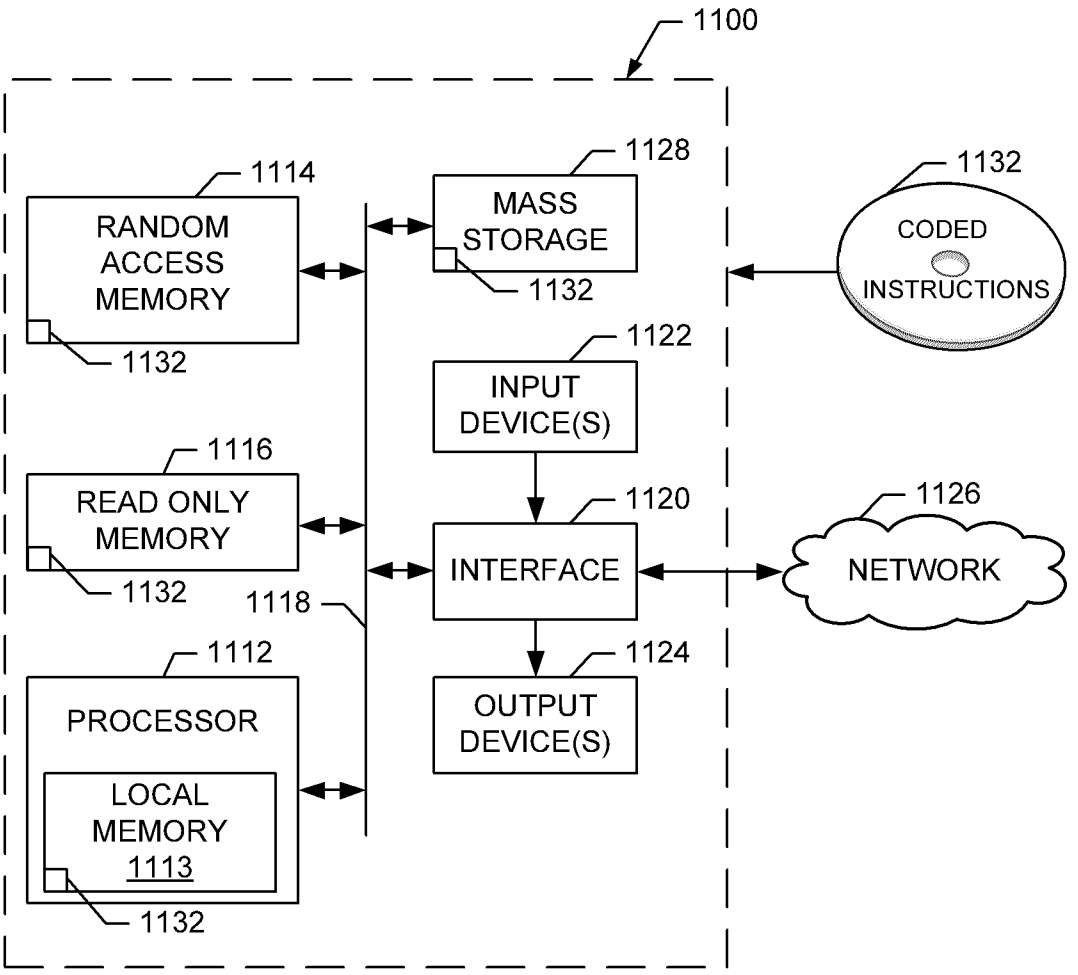

FIG. 11

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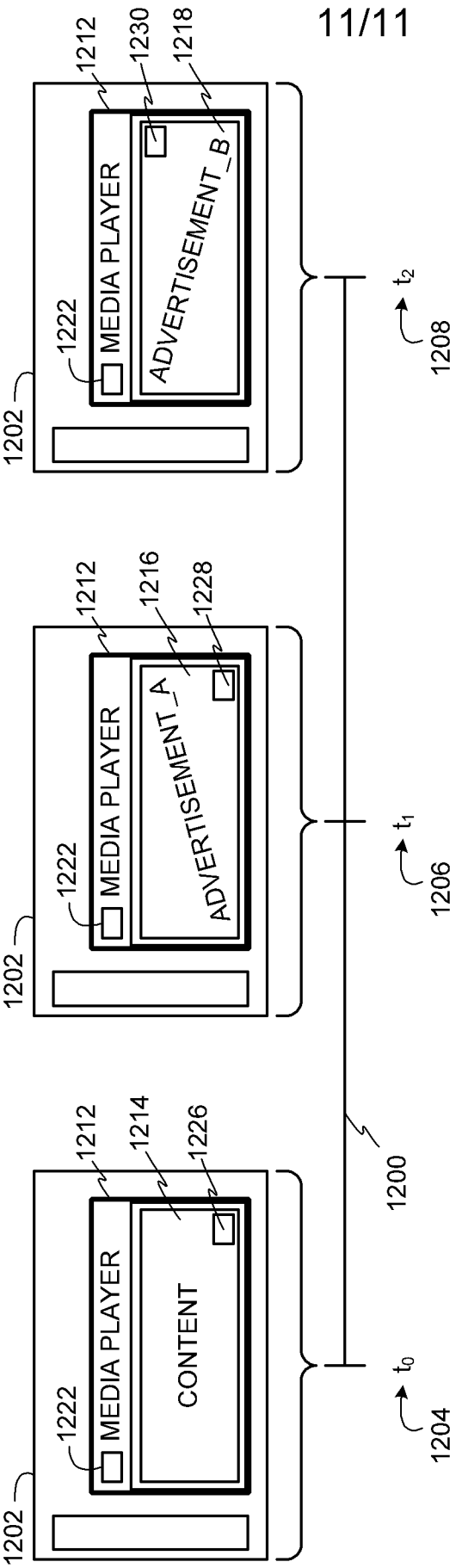
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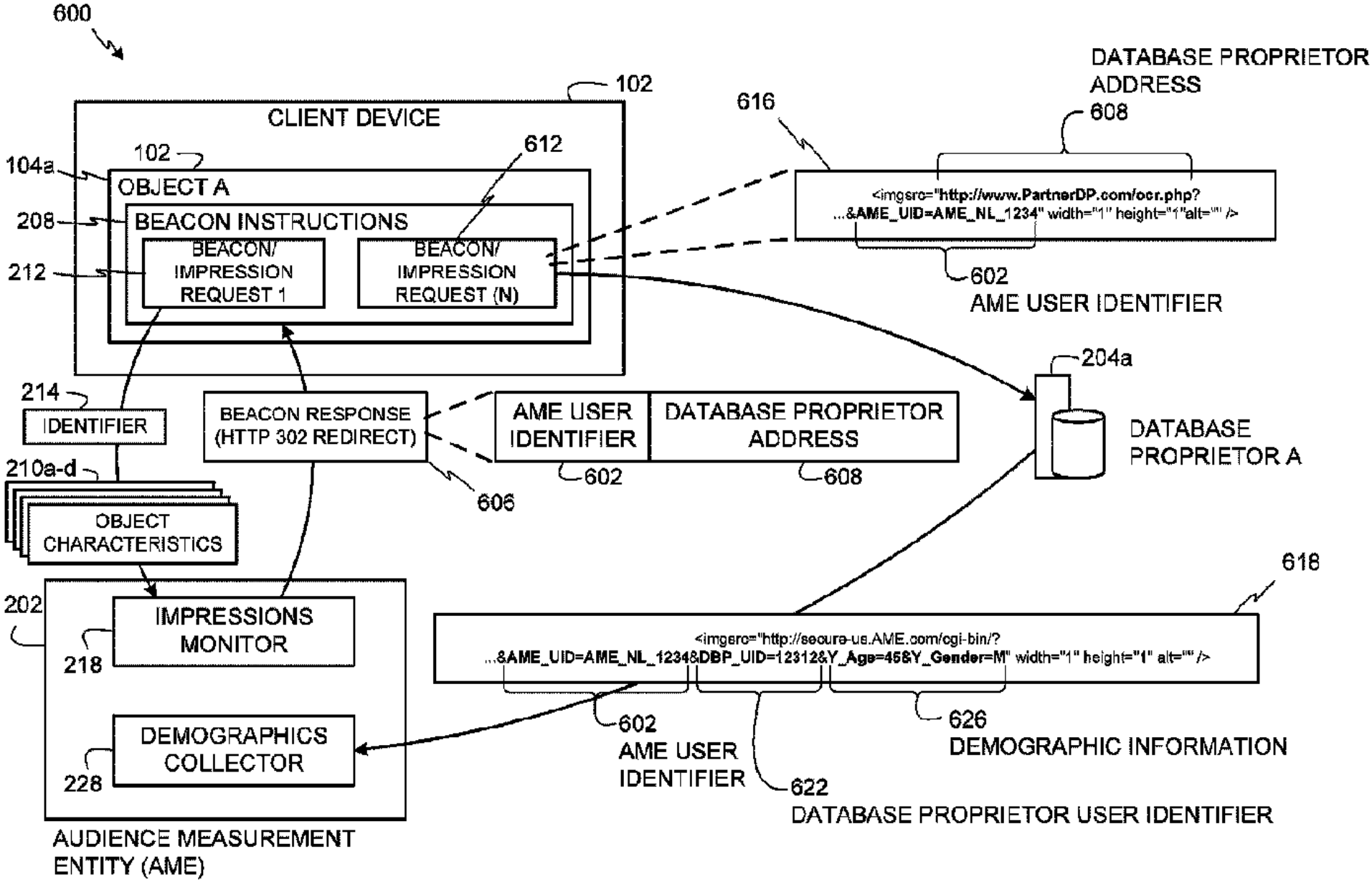
1218
1208
t_2

FIG. 12


600
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IDENTIFIER
BEACON RESPONSE (HTTP 302 REDIRECT)
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DATABASE PROPRIETOR ADDRESS
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608
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AUDIENCE MEASUREMENT ENTITY (AME)
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DEMOGRAPHIC INFORMATION