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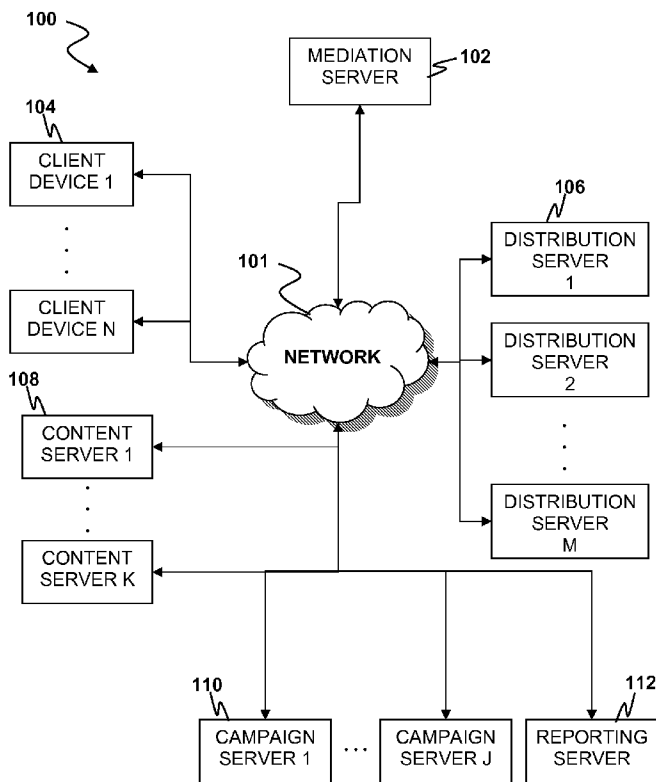
FIG. 1

(57) Abstract: A client device configured to interact with an interactive environment, a computer implemented method for obtaining auxiliary content in such a device, a mediation server, a computer implemented method for managing distribution of auxiliary content with such a server, an auxiliary content distribution method and an auxiliary content distribution system are disclosed.

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MEDIATION FOR AUXILIARY CONTENT IN AN INTERACTIVE ENVIRONMENT

CROSS-REFERENCE TO RELATED APPLICATION

This application claims the benefit of priority of commonly assigned U.S. Patent Application

5   11/759,143, filed June 6, 2007, the entire disclosures of which are incorporated herein by
reference.

This application is related to commonly assigned U.S. Patent Application 11/759,155, filed
June 6, 2007, the entire contents of which are incorporated herein by reference.

FIELD OF THE INVENTION

10 This invention is related to advertising and more particularly to distribution of advertising
content in an interactive environment.

BACKGROUND OF THE INVENTION

The growth of the Internet and the popularity of interactive entertainment such as video
games have led to opportunities for advertising within video games. At first, advertisements

15 were statically placed within video games. As video game consoles with internet
connectivity became available it became possible to update advertisements appearing within
video games. This led to many avenues for game console manufacturers and video game
companies to generate revenue from the sale of advertising space within video games to one
or more advertisers. Advertising content often varies based on the nature of the video game

20 title. In addition certain advertising spaces within the game may be more valuable than
others. Furthermore, advertising campaigns may change over time with certain
advertisements being phased out as others are phased in. It is therefore useful to have some
system for determining which advertisements are to be placed in particular spaces within
particular video games during particular periods of time.

25 Conventionally, a video game console may connect to a distribution server that determines
what advertisement to place in a particular advertising space within the game based on
considerations such as the game title and the time of day, month year, etc. Often the actual
advertising content is stored on a separate server known as a content server. In such a case,
the distribution server instructs the game console to contact a particular content server and to

30 request one or more content file or files containing the content for a particular advertising

space. The console can then directly contact the content server and request the designated file or files.

It is within this context that embodiments of the invention arise.

BRIEF DESCRIPTION OF THE DRAWINGS

5   The teachings of the present invention can be readily understood by considering the following detailed description in conjunction with the accompanying drawings, in which:

FIG. 1 is a schematic diagram of an auxiliary content distribution system according to an embodiment of the present invention.

FIG. 2 is a flow diagram illustrating distribution of auxiliary content according to an
10   embodiment of the present invention.

FIG. 3 is a block diagram illustrating a client device according to an embodiment of the present invention.

FIG. 4 is a block diagram illustrating a mediation server according to an embodiment of the present invention.

15   DESCRIPTION OF THE SPECIFIC EMBODIMENTS
Although the following detailed description contains many specific details for the purposes of illustration, anyone of ordinary skill in the art will appreciate that many variations and alterations to the following details are within the scope of the invention. Accordingly, the exemplary embodiments of the invention described below are set forth without any loss of
20   generality to, and without imposing limitations upon, the claimed invention.

As seen in FIG. 1 an auxiliary content distribution system **100** may include a mediation server **102** one or more client devices **104** and one or more distribution servers **106**. The mediation server **102**, client devices **104** and distribution servers **106** may be configured to
25   communicate over a network **101**. By way of example, and without loss of generality, the network **101** may be a bi-directional digital communications network. The network **101** may be a local area network or wide area network such as the Internet. The network **101** may be implemented, e.g., using an infrastructure, such as that used for CATV bi-directional

networks, ISDN or xDSL high speed networks to enable network connections for implementing certain embodiments of the present invention.

By way of example, and without limitation, the client devices **104** may be game consoles. Examples of commercially game consoles include the Xbox® from Microsoft Corporation of

5   Redmond Washington, the Wii® from Nintendo Company, Ltd of Kyoto, Japan and PlayStation® devices, such as the PlayStaion3 from Sony Computer Entertainment of Tokyo, Japan. Xbox® is a registered trademark of Microsoft Corporation of Redmond, Washington. PlayStation® is a registered trademark of Kabushiki Kaisha Sony Computer Entertainment of Tokyo, Japan. Wii® is a registered trademark of Nintendo Company, Ltd of Kyoto, Japan.

10   Alternatively the client devices may be any other type of network capable device that can receive and use auxiliary content. Such devices include, but are not limited to cellular telephones, personal computers, laptop computers, television set-top boxes, portable internet access devices, portable email devices, portable video game devices; personal digital assistants, digital music players and the like. Furthermore, the client devices **104** may

15   incorporate the functions of two or more of the devices in the examples previously listed.

Each client device **104** may be configured to submit input to the mediation server **102**. The mediation server **102** is configured to receive the input from the client device **104** and send contact information for a distribution server **106** to the client device **104** in response to the input. Each client device **104** may be further configured to receive the contact

20   information from the mediation server **102** and use the contact information to contact one or more of the distribution servers **106** with a request for advertising content information for an auxiliary content space within an interactive environment implemented with the client device **104**. The distribution servers **106** may be configured to service requests for auxiliary content information from the one or more client devices **104**.

25   As used herein, the term auxiliary content means content, e.g., in the form of text, still images, video images, animations, sounds, applets, three-dimensional content, etc, that is provided gratuitously to the client device **104**. By way of example, and without limitation, within the context of an interactive environment, e.g., a video game, three-dimensional content may include information relating to images or simulations involving three

30   dimensions. Examples of such information may range from static geometry through to a subset of a game level or a full game level with all of the expressive interactivity of the game title itself. Examples of auxiliary content include advertisements, public service

announcements, software updates, interactive game content and the like. The auxiliary content may appear at one or more pre-defined locations or instances of time in a simulated environment generated by the client device **104**. As used herein, the term simulated environment refers to text, still images, video images, animations, sounds, etc, that are

5 generated by the client device **104** during operation initiated by a user of the device. By way of example, and without limitation, a simulated environment may be a landscape within a video game that is represented by text, still images, video images, animations, sounds that the client device **104** presents to the user.

The client devices **104** may retrieve the auxiliary content assets from one or more content

10 servers **108**. The distribution servers **106** may determine which particular items of auxiliary content belong in particular spaces or time instances within the simulated environments generated by the client devices **104**. Each distribution server **106** may be responsible for distribution of auxiliary content to client devices **104** in different regions. The mediation server **102** acts as an intermediary between the client devices **104** and the distribution servers

15 **106**. In embodiments of the present invention, the mediation server **102** determines which distribution server **106** handles auxiliary content distribution for a client device in a particular region. The mediation server **102** may have a pre-existing trust relationship with each client device **104**. Such a pre-existing trust relationship may be established, e.g., with a cryptographic key pair. The pre-existing trust relationship between the client device **104** and

20 mediation server **102** may be leveraged to delegate management of multiple distribution servers **106**.

By way of example, the trust relationship may be established using Public key cryptography, also known as asymmetric cryptography. This form of cryptography involves the use of a pair of cryptographic keys - a public key and a private key. The private key is kept secret,

25 while the public key may be widely distributed. The keys are related mathematically, but the private key cannot be practically derived from the public key. A message encrypted with the public key can be decrypted only with the corresponding private key. Examples of well-known asymmetric key techniques include, but are not limited to, Diffie-Hellman, Digital Signature Standard (DSS), which incorporates the Digital Signature Algorithm, ElGamal,

30 Elliptic Curve techniques, password-authenticated key agreement techniques, Paillier cryptosystem and the RSA encryption algorithm (PKCS).

Specifically, the mediation server **102** may use a private cryptographic key to generate a public cryptographic key that is sent to the client devices **104**. The mediation server **102** may use the private cryptographic key to encode messages sent to the client devices **104** and/or decode messages received from the client devices. The client devices **104** may use the public

5   cryptographic key to encode messages sent to the mediation server **102** and/or decode messages received from the mediator.

Such cryptography between the client device **104** and the mediation server **102** may be used to verify that the mediation server **102** is authentic and not an imposter. To achieve this, the mediation server **102** may have a private key and the client device **104** may have a public key

10   that is generated from the private key. When the mediation server **102** communicates with the client device **104**, it encrypts its messages using the private key. The client device **104** may then decode the message using the public key, but that public key is not enough information to encrypt messages the same way the mediation server **102** does using the private key. If an imposter pretends to be the mediation server **102**, and tries to create its

15   own messages, the client device **104** will fail to decrypt the message. Because the imposter does not have the private mediator cryptography key, there is no way the imposter can correctly encrypt messages in a way the client will be able to decrypt.

By way of example, and without loss of generality, the auxiliary content distributed by the system **100** may include advertising content. Selection of advertising content and targeting of

20   such content to the device **104** may be managed by one or more campaign servers **110** coupled to the network **101**. Advertisers may upload advertising content to the content servers **108** via the campaign servers **110**. Advertisers may also assign regional responsibility for distribution of advertising content among the distribution servers **106** using the campaign servers **110**. Advertisers may then delegate management of these assignments

25   to the mediation server **102**. For example, the mediation server **102** may provide cryptographic universal resource locators (URLs) and cryptographic keys to facilitate communication among the campaign servers **110**, distribution servers **106** and content servers **108**.

In some embodiments, the system **100** may further include one or more reporting servers **112**

30   coupled to the network **101**. Client devices **104** may report user activity related to the auxiliary content. For example, in the case of auxiliary content in the form of advertising, the client devices **104** may be configured to report information to the reporting server **112**

relating to whether an advertisement was displayed and/or made an impression on the user. Examples of such impression reporting are described, e.g., in commonly-assigned U.S. Patent Application 11/241,229, filed September 30, 2007, the entire contents of which are incorporated herein by reference. In some embodiments, the mediation server **102** may also
5   provide a URL for a reporting server **112** and a cryptographic key for communicating with the reporting server.

As shown in FIG. 2, the system **100** may be configured to distribute auxiliary content according to an inventive method **200**. Various aspects of the method **200** may be implemented by execution of computer executable instructions running on the mediation
10   server **102** and/or client device **104** and/or distribution server **106** and/or content servers **108**. Specifically, a client device **104** may be configured, e.g., by suitable programming, to implement certain client device steps **210**. In addition, the mediation server **102** may be configured to implement certain mediation server steps **220**. Furthermore, the distribution server **106** and content server **108** may be configured to respectively implement distribution
15   server steps **230** and content server steps **240**.

Specifically, as indicated at **211** the client device **104** may submit input **202** to the mediation server **102**. The input **202** may identify a simulated environment generated by the client device **104** and may provide information that facilitates secure communication between the client device **104** and mediation server **102**. By way of example, if the client device is
20   generating a simulated environment in the form of a video game, the input **202** may include a game title. Furthermore, the input **202** may include an identifier for a region associated with the client device **104**. In addition, the input **202** may be encrypted according to a predetermined mediation cryptographic key **201**. The mediation cryptographic key **201** may be configured to facilitate secure communication between the client device **104** and the
25   mediation server **102**. By way of example, the mediation cryptographic key **201** may be a public cryptographic key generated by the mediation server **102** using a private cryptographic key **203**. Computer instructions implementing the client device steps **210** may be configured such that the client device **104** cannot properly decrypt the contact information **202** unless it was encrypted using the private cryptographic key **203** on the mediation server **102**.

30   As indicated at **221**, the mediation server receives the input **202** from the client device **104** and sends contact information **204** for a distribution server to the client device **104** in response to the input **202**. For example, at **222** the mediation server may determine which

distribution server **106** is responsible for handling auxiliary content for the client device **104** based on the input **202**. By way of example, the mediation server may perform a lookup in a table that relates the distribution server **106** to a particular region, game title or other criteria defined by the input **202**. In addition load balancing considerations may be built into the

5   process of determining the distribution server **106** at **222**. For example, if two or more distribution servers **106** are responsible for the same region and game title, the mediation server **102** may select from among these distribution servers one that is currently servicing fewer requests for auxiliary content information. Once the appropriate distribution server **106** has been determined, the mediation server **102** may send the contact information **204**

10 regarding the distribution server **106**, as indicated at **224**. The contact information **204** may include a network address or universal resource locator (URL) for one or more of the distribution servers **106**. In addition, the contact information **204** may further include one or more cryptographic keys **205** configured to facilitate secure communication between the client device **104** and the distribution server(s) **106**. By way of example, the cryptographic

15 key **205** may be a public key. The contact information may also include a URL and cryptographic key for a reporting server **112**.

The client device **104** receives the contact information **204** from the mediation server **102** and uses the contact information to contact one or more of the distribution servers **106** with a request for auxiliary content information for an auxiliary content space within an interactive

20 environment implemented with the client device **104**. Specifically, at **213**, the client device **104** may send a request **206** for auxiliary content information to a distribution server **106** identified by the contact information **204** from the mediation server **102**. The request **206** may be encoded using the included cryptographic key **205**. The distribution server **106** may service the request for auxiliary content information from one or more of the client devices

25 **104**. Specifically, the distribution server **106** may receive the request **206**, as indicated at **232**. The distribution server **106** may then determine which of one or more content servers **108** contains the auxiliary content for the client device **104**, as indicated at **234**. In some cases, auxiliary content for different spaces in the simulated environment may be stored on different content servers **108**. After determining which content servers **108** contain the

30 content for the client device **104** the distribution server may send content information **207** to the client device, as indicated at **236**. The content information may further contain information indicating which auxiliary content asset is to be displayed in a given auxiliary content space within the simulated environment generated by the client device **104**.

By way of example, the content information 207 may provide information for one or more

auxiliary content spaces. Each auxiliary content space information may contain a space

identifier, a list of one or more assets associated with each space identifier and one or more

addresses, e.g., one or more URLs, for one or more selected content servers 108 from which

5   the assets may be downloaded. It is noted that two or more different content servers 108 may

be associated with each auxiliary content space. Specifically, this information may be in the

form of a list or table associated with each auxiliary content space. The list may identify one

or more auxiliary content spaces using space identifiers, one or more URLs and a list of file

names for one or more corresponding auxiliary content assets that can be downloaded from

10   each URL. For example, content files A, B, and C may be downloaded at URL1, URL2 and

URL3 respectively, for auxiliary content spaces 1, 2 and 3.

After receiving the content information 207, as indicated at 214, the client device 104 may

send one or more content requests 208 to the one or more selected content servers 108 as

indicated at 215. The content request for each selected content server 108 may include a list

15   of auxiliary content files to be downloaded from the content server 108. Such a list may be

derived from the content information 207 obtained from the distribution server 106. After

receiving the content request 208, as indicated at 242, the content server may send auxiliary

content assets 209 (e.g., text, image, video, audio, animation or other files) corresponding to

the requested content, as indicated at 244. The client device 104 may then receive the assets

20   209 at 216 and (optionally) display the auxiliary content using the assets 209 and/or store the

assets as indicated at 217. By way of example, the simulated environment in the form of a

video game may include one or more advertising spaces, e.g., billboards, etc. Such spaces

may be rendered as images depicting a scene, landscape or background within the game that

is displayed visually. Advertising content may be displayed in these spaces may be displayed

25   using the content assets 209 during the course of the normal operation of the game.

Alternatively, advertising content assets 209 may be stored in a computer memory or hard

drive in locations associated with the advertising spaces and displayed at a later time.

By way of example, the client device may be configured as shown in FIG. 3. FIG. 3 is a

block diagram illustrating the components of a client device 300 according to an embodiment

30   of the present invention. By way of example, and without loss of generality, the client device

300 may be implemented as a computer system, such as a personal computer, video game

console, personal digital assistant, or other digital device, suitable for practicing an

embodiment of the invention. The client device **300** may include a central processing unit (CPU) **305** configured to run software applications and optionally an operating system. The CPU **305** may include one or more processing cores. By way of example and without limitation, the CPU **305** may be a parallel processor module, such as a Cell Processor. An

5   example of a Cell Processor architecture is described in detail, e.g., in <u>Cell Broadband Engine Architecture</u>, copyright International Business Machines Corporation, Sony Computer Entertainment Incorporated, Toshiba Corporation August 8, 2005 a copy of which may be downloaded at http://cell.scei.co.jp/, the entire contents of which are incorporated herein by reference.

10   A memory **306** is coupled to the CPU **305**. The memory **306** may store applications and data for use by the CPU **305**. The memory **306** may be in the form of an integrated circuit, e.g., RAM, DRAM, ROM, and the like). A computer program **303** may be stored in the memory **306** in the form of instructions that can be executed on the processor **305**. The instructions of the program **303** may be configured to implement, amongst other things, certain steps of a

15   method for auxiliary content distribution, e.g., as described above with respect to client device steps **210** in FIG. 2. By way of example, the program **303** may include instructions to contact a mediation server, receive contact information for a distribution server from the mediation server and contact the distribution server with a request for auxiliary content information for an auxiliary content space within an interactive environment. The program

20   **303** may operate in conjunction with one or more instructions configured to implement the interactive environment. By way of example, such instructions may be part of a main program **307**, such as a video game program. The client device **300** may be configured, by appropriate programming of the program **303**, to send a region identifier for the client device **300** and information corresponding to a title for the video game program to the mediation

25   server. The main program may call the program **303**, e.g., as a function or subroutine. Alternatively, the main program **307** may be a program for interfacing with a virtual world. Virtual worlds are described in commonly assigned U.S. Patent Applications 11/682,281, 11/682,284, 11/682,287, 11/682,292, 11/682,298, and 11/682,299, the contents of all of which are incorporated herein by reference.

30   In addition, a cryptographic key **301** may be embedded in the memory **306**. The cryptographic key may be configured to facilitate secure communication with a mediation

server as described above. By way of example, the cryptographic key **301** may be a public key generated by a mediation server using a private key.

The client device **300** may also include well-known support functions **310**, such as input/output (I/O) elements **311**, power supplies (P/S) **312**, a clock (CLK) **313** and cache **314**.

5   The client device **300** may further include a storage device **315** that provides non-volatile storage for applications and data. The storage device **315** may be used for temporary or long-term storage of auxiliary content assets **316** downloaded from a content server. By way of example, the storage device **315** may be a fixed disk drive, removable disk drive, flash memory device, tape drive, CD-ROM, DVD-ROM, Blu-ray, HD-DVD, UMD, or other

10   optical storage devices.

One or more user input devices **320** may be used to communicate user inputs from one or more users to the computer client device **300**. By way of example, one or more of the user input devices **320** may be coupled to the client device **300** via the I/O elements **311**. Examples of suitable input device **320** include keyboards, mice, joysticks, touch pads, touch

15   screens, light pens, still or video cameras, and/or microphones. The client device **300** may include a network interface **325** to facilitate communication via an electronic communications network **327**. The network interface **325** may be configured to implement wired or wireless communication over local area networks and wide area networks such as the Internet. The client device **300** may send and receive data and/or requests for files via one

20   or more message packets **326** over the network **327**.

The client device **300** may further comprise a graphics subsystem **330**, which may include a graphics processing unit (GPU) **335** and graphics memory **340**. The graphics memory **340** may include a display memory (e.g., a frame buffer) used for storing pixel data for each pixel of an output image. The graphics memory **340** may be integrated in the same device as the

25   GPU **335**, connected as a separate device with GPU **335**, and/or implemented within the memory **306**. Pixel data may be provided to the graphics memory **340** directly from the CPU **305**. Alternatively, the CPU **305** may provide the GPU **335** with data and/or instructions defining the desired output images, from which the GPU **335** may generate the pixel data of one or more output images. The data and/or instructions defining the desired output images

30   may be stored in memory **310** and/or graphics memory **340**. In an embodiment, the GPU **335** may be configured (e.g., by suitable programming or hardware configuration) with 3D rendering capabilities for generating pixel data for output images from instructions and data

defining the geometry, lighting, shading, texturing, motion, and/or camera parameters for a scene. The GPU **335** may further include one or more programmable execution units capable of executing shader programs.

The graphics subsystem **330** may periodically output pixel data for an image from the

5   graphics memory **340** to be displayed on a display device **350**. The display device **350** may be any device capable of displaying visual information in response to a signal from the client device **300**, including CRT, LCD, plasma, and OLED displays. The computer client device **300** may provide the display device **350** with an analog or digital signal. By way of example, the display **350** may include a cathode ray tube (CRT) or flat panel screen that displays text,

10   numerals, graphical symbols or images. In addition, the display **350** may include one or more audio speakers that produce audible or otherwise detectable sounds. To facilitate generation of such sounds, the client device **300** may further include an audio processor **355** adapted to generate analog or digital audio output from instructions and/or data provided by the CPU **305**, memory **306**, and/or storage **315**.

15   The components of the client device **300**, including the CPU **305**, memory **306**, support functions **310**, data storage **315**, user input devices **320**, network interface **325**, and audio processor **355** may be operably connected to each other via one or more data buses **360**. These components may be implemented in hardware, software or firmware or some combination of two or more of these.

20   By way of example, a mediation server **400** may be configured as shown in FIG. 4. By way of example, and without loss of generality, the mediation server **400** may be implemented as a computer system or other digital device. The mediation server **400** may include a central processing unit (CPU) **405** configured to run software applications and optionally an operating system. The CPU **405** may include one or more processing cores. By way of

25   example and without limitation, the CPU **405** may be a parallel processor module, such as a Cell Processor.

A memory **406** is coupled to the CPU **405**. The memory **406** may store applications and data for use by the CPU **405**. The memory **406** may be in the form of an integrated circuit, e.g., RAM, DRAM, ROM, and the like). A computer program **403** may be stored in the memory

30   **406** in the form of instructions that can be executed on the processor **405**. The instructions of the program **403** may be configured to implement, amongst other things, certain steps of a

method for auxiliary content distribution, e.g., as described above with respect to the
mediation server steps **220** in FIG. 2. Specifically, the mediation server **400** may be
configured, e.g., through appropriate programming of the program **403**, to receive input from
a client device, and send to the client device contact information for a distribution server, the

5   contact information being configured to facilitate communication between the client device
and the distribution server. The mediation server **400** may be configured, by appropriate
programming of the program **403**, to receive as input a region identifier for the client device
and information corresponding to a title for a video game program. The mediation server **400**
may select a particular distribution server from among a plurality of distribution servers

10   based on such inputs. For example, the memory **406** may contain a cross-reference table **407**
with a listing of distribution servers organized by game title and region. The program **403**
may perform a lookup in the table for the distribution server that corresponds to a region
identifier and title in input from the client device.

In addition, a cryptographic key **401** may be embedded in the memory **406**. The

15   cryptographic key may be configured to facilitate secure communication with a client device
as described above. By way of example, the cryptographic key **401** may be a private key that
can be used to generate public keys that can be transmitted to client devices, (such as the
client device **300** of FIG. 3, e.g. over a network.

The mediation server **400** may also include well-known support functions **410**, such as

20   input/output (I/O) elements **411**, power supplies (P/S) **412**, a clock (CLK) **413** and cache **414**.
The mediation server **400** may further include a storage device **415** that provides non-volatile
storage for applications and data. The storage device **415** may be used for temporary or long-
term storage of contact information **416** such as distribution server addresses and
cryptographic keys. By way of example, the storage device **415** may be a fixed disk drive,

25   removable disk drive, flash memory device, tape drive, CD-ROM, DVD-ROM, Blu-ray, HD-
DVD, UMD, or other optical storage devices.

One or more user input devices **420** may be used to communicate user inputs from one or
more users to the mediation server **400**. By way of example, one or more of the user input
devices **420** may be coupled to the mediation server **400** via the I/O elements **411**. Examples

30   of suitable input device **420** include keyboards, mice, joysticks, touch pads, touch screens,
light pens, still or video cameras, and/or microphones. The mediation server **400** may include
a network interface **425** to facilitate communication via an electronic communications

network **427**. The network interface **425** may be configured to implement wired or wireless communication over local area networks and wide area networks such as the Internet. The mediation server **400** may send and receive data and/or requests for files via one or more message packets **426** over the network **427**.

5   The components of the mediation server **400**, including the CPU **405**, memory **406**, support functions **410**, data storage **415**, user input devices **420**, and network interface **425**, may be operably connected to each other via one or more data buses **460**. These components may be implemented in hardware, software or firmware or some combination of two or more of these.

10   While the above is a complete description of the preferred embodiment of the present invention, it is possible to use various alternatives, modifications and equivalents. Therefore, the scope of the present invention should be determined not with reference to the above description but should, instead, be determined with reference to the appended claims, along with their full scope of equivalents. Any feature described herein, whether preferred or not,

15   may be combined with any other feature described herein, whether preferred or not. In the claims that follow, the indefinite article "A", or "An" refers to a quantity of one or more of the item following the article, except where expressly stated otherwise. The appended claims are not to be interpreted as including means-plus-function limitations, unless such a limitation is explicitly recited in a given claim using the phrase "means for."

WHAT IS CLAIMED IS:

1   1.   In a client device configured to interact with an interactive environment, a computer
2   implemented method for obtaining auxiliary content, comprising:
3   contacting a mediation server;
4   receiving contact information for a distribution server from the mediation server; and
5   contacting the distribution server with a request for advertising content information for an
6   auxiliary content space within the interactive environment using the contact information.

1   2.   The method of claim 1 wherein the contact information includes an address for the
2   distribution server.

1   3.   The method of claim 2 wherein the address includes a universal resource locator (URL)
2   for the distribution server.

1   4.   The method of claim 2 wherein the contact information further includes a cryptographic
2   key configured to facilitate secure communication between the client device and the
3   distribution server.

1   5.   The method of claim 1 wherein contacting the mediation server includes sending a region
2   identifier for the client device to the mediation server.

1   6.   The method of claim 5 wherein contacting the mediation server includes using a
2   cryptographic key embedded within the client device, wherein the cryptographic key is
3   configured to facilitate secure communication between the client device and the
4   mediation server.

1   7.   The method of claim 1 wherein the client device is configured to implement a video game
2   and wherein contacting the mediation server includes sending a region identifier for the
3   client device and information corresponding to a title for the video game to the mediation
4   server.

1   8.   The method of claim 1, further comprising receiving the requested content information
2   from the distribution server.

1   9. The method of claim 8 wherein the requested content information includes a list of one or

2   more assets for one more auxiliary content spaces within the interactive environment.

1   10. The method of claim 8 wherein the requested content information includes a list of one or

2   more assets for one more auxiliary content spaces within the interactive environment and

3   an address for a content server.

1   11. The method of claim 10, further comprising contacting the content server with a request

2   for the one or more assets.

1   12. The method of claim 11, further comprising receiving the one or more assets from the

2   content server.

1   13. The method of claim 12, further comprising using the one or more assets to display

2   advertising content in one or more auxiliary content spaces in the interactive

3   environment.

1   14. A client device configured to interact with an interactive environment, comprising:

2   a processor;

3   a memory coupled to the processor;

4   one or more instructions embodied in memory for execution by the processor, the

5   instructions being configured to implement a method for obtaining auxiliary content for

6   an interactive environment, the method comprising:

7   contacting a mediation server;

8   receiving contact information for a distribution server from the mediation server; and

9   contacting the distribution server with a request for auxiliary content information for an

10   auxiliary content space within the interactive environment.

1   15. The client device of claim 14, further comprising one or more instructions embodied in

2   memory configured to implement the interactive environment.

1   16. The client device of claim 14 wherein the interactive environment is a video game.

1   17. The device of claim 14, further comprising a cryptographic key stored in the memory,

2   wherein the cryptographic key is configured to facilitate secure communication between

3   the client device and the mediation server.

1   18. In a mediation server, a computer implemented method for managing distribution of
2   auxiliary content, comprising:
3   receiving input from a client device; and
4   sending contact information for a distribution server to the client device, the contact
5   information being configured to facilitate communication between the client device and
6   the distribution server.

1   19. The method of claim 18 wherein the contact information includes an address for the
2   distribution server.

1   20. The method of claim 19 wherein the address includes a universal resource locator (URL)
2   for the distribution server.

1   21. The method of claim 18 wherein the contact information includes a cryptographic key
2   configured to facilitate secure communication between the client device and the
3   distribution server.

1   22. The method of claim 21 wherein the cryptographic key is a public cryptographic key.

1   23. The method of claim 18 wherein the contact information includes an address for the
2   distribution server and a cryptographic key configured to facilitate secure communication
3   between the client device and the distribution server.

1   24. The method of claim 23 wherein the cryptographic key is a public cryptographic key.

1   25. The method of claim 18 wherein receiving input from a client device includes receiving a
2   region identifier for the client device.

1   26. The method of claim 18 wherein receiving input from a client device includes validating
2   authenticity of the client device using a cryptographic key configured to facilitate secure
3   communication between the client device and the mediation server.

1   27. The method of claim 26 wherein the cryptographic key is a private cryptographic key.

1   28. The method of claim 18 wherein receiving input from a client device includes receiving a
2   region identifier for the client device to the mediation server and validating authenticity
3   of the client device using a cryptographic key, wherein the cryptographic key is

4   configured to facilitate secure communication between the client device and the

5   mediation server.

1   29. The method of claim 28 wherein the cryptographic key is a private cryptographic key.

1   30. The method of claim 18, further comprising selecting the distribution server from among

2   a plurality of distribution servers based on the input.

1   31. The method of claim 30 wherein the input includes information corresponding to a region

2   for the client device.

1   32. The method of claim 30 wherein the input includes corresponding to a title for a software

2   program running on the client device.

1   33. The method of claim 32 wherein the software program is a video game program.

1   34. A mediation server, comprising:

2   a processor;

3   a memory; and

4   one or more instructions embodied in memory for execution by the processor, the

5   instructions being configured to implement a method for managing distribution of

6   auxiliary content, the method comprising:

7   receiving input from a client device; and

8   sending contact information for a distribution server to the client device, the contact

9   information being configured to facilitate communication between the client device and

10   the distribution server.

1   35. The mediation server of claim 34 wherein the contact information includes an address for

2   the distribution server.

1   36. The mediation server of claim 34 wherein the address includes a universal resource

2   locator (URL) for the distribution server.

1   37. The mediation server of claim 34 wherein the contact information includes a

2   cryptographic key configured to facilitate secure communication between the client

3   device and the distribution server.

1 38. The mediation server of claim 37 wherein the cryptographic key is a public cryptographic

2   key.

1 39. The mediation server of claim 34 wherein the contact information includes an address for

2   the distribution server and a cryptographic key configured to facilitate secure

3   communication between the client device and the distribution server.

1 40. The mediation server of claim 39 wherein the cryptographic key is a public cryptographic

2   key.

1 41. The mediation server of claim 34 wherein the instructions are configured such that the

2   mediation server does not send the contact information unless the input was encrypted

3   using a predetermined cryptographic key.

1 42. The mediation server of claim 41 wherein the predetermined cryptographic key is a

2   private cryptographic key.

1 43. The mediation server of claim 34 wherein the instructions are further configured to select

2   the distribution server from among a plurality of distribution servers based on the input.

1 44. In a system having a client device configured to interact with an interactive environment,

2   a mediation server, and one or more distribution servers, a method for distributing

3   auxiliary content, comprising:

4   submitting input from the client device to the mediation server;

5   receiving input from the client device at the mediation server and

6   sending contact information for a distribution server from the mediation server to the

7   client device in response to the input,

8   receiving the contact information at the client device; and

9   using the contact information to contact one or more of the distribution servers with the

10   client device to submit a request for auxiliary content information for an auxiliary content

11   space within an interactive environment implemented with the client device, and

12   servicing the request for auxiliary content information with the one or more distribution

13   servers.

1 45. An auxiliary content distribution system, comprising:

2   a mediation server;

3   one or more client devices; and

4   one or more distribution servers,

5   wherein the client device is configured to submit input to the mediation server;

6   wherein the mediation server is configured to receive input from the client device and

7   send contact information for a distribution server to the client device in response to the

8   input,

9   wherein the client device is further configured to receive the contact information from the

10   mediation server and use the contact information to contact one or more of the

11   distribution servers with a request for auxiliary content information for an auxiliary

12   content space within an interactive environment implemented with the client device, and

13   wherein the one or more distribution servers are configured to service requests for

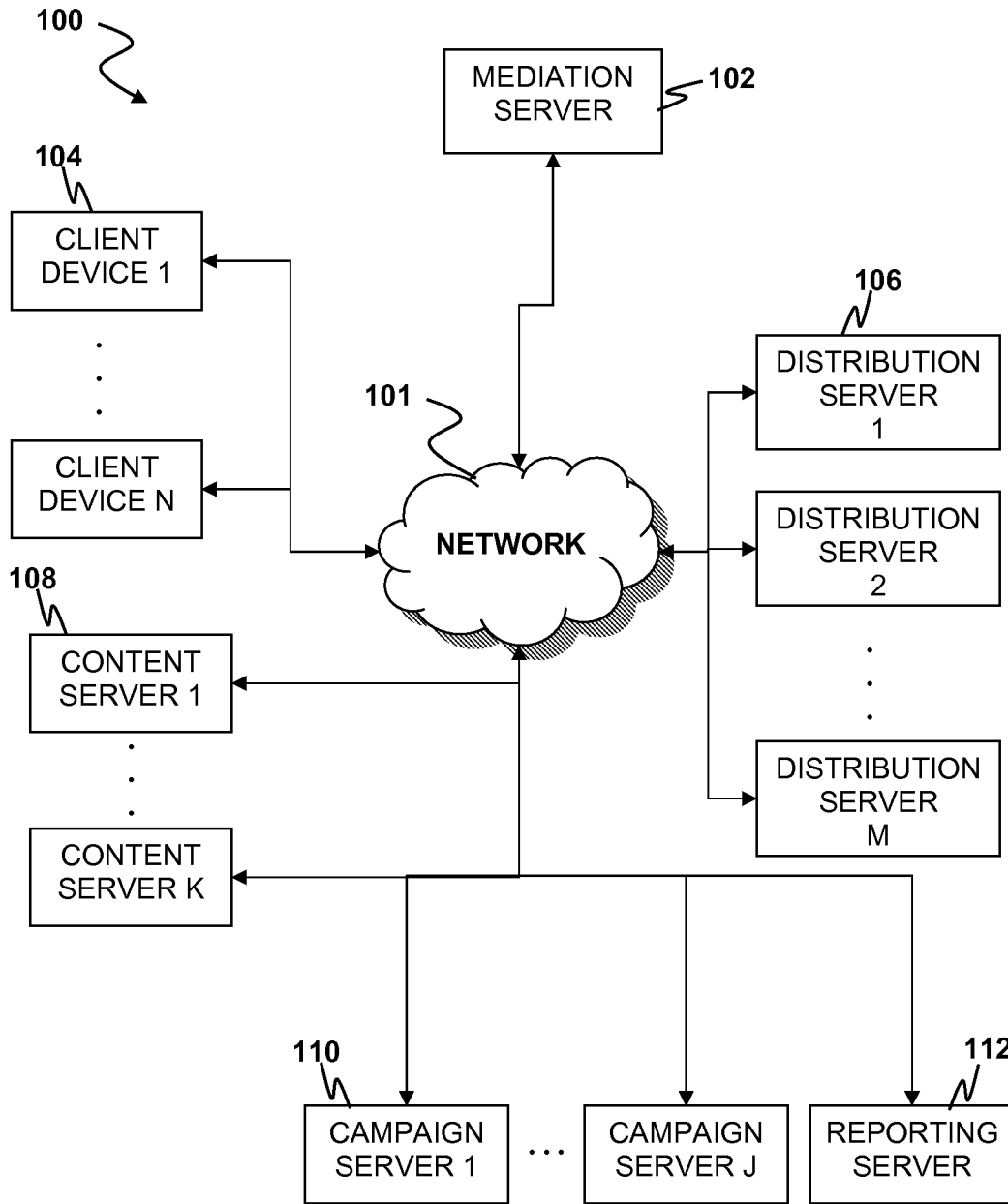14   auxiliary content information from the one or more client devices.
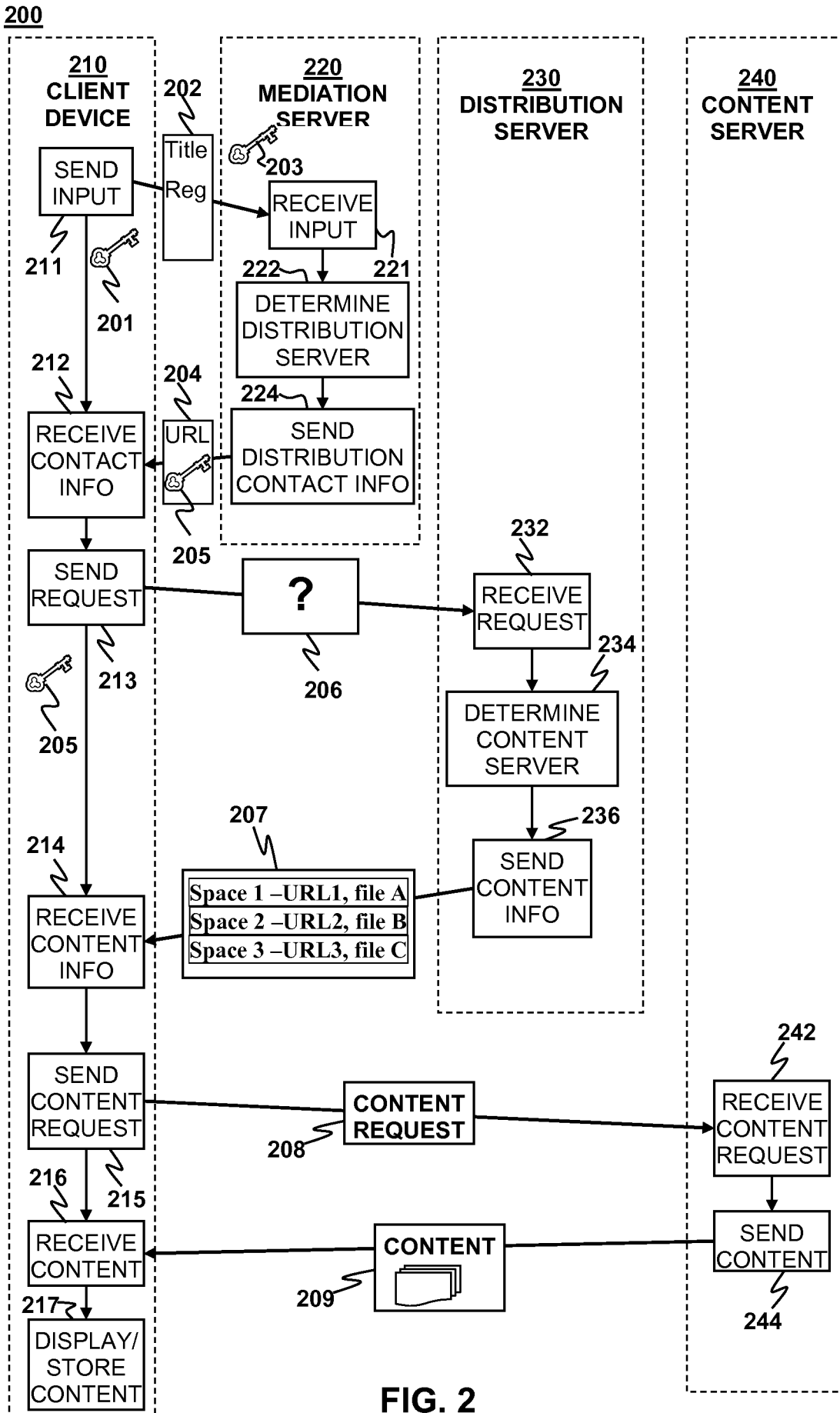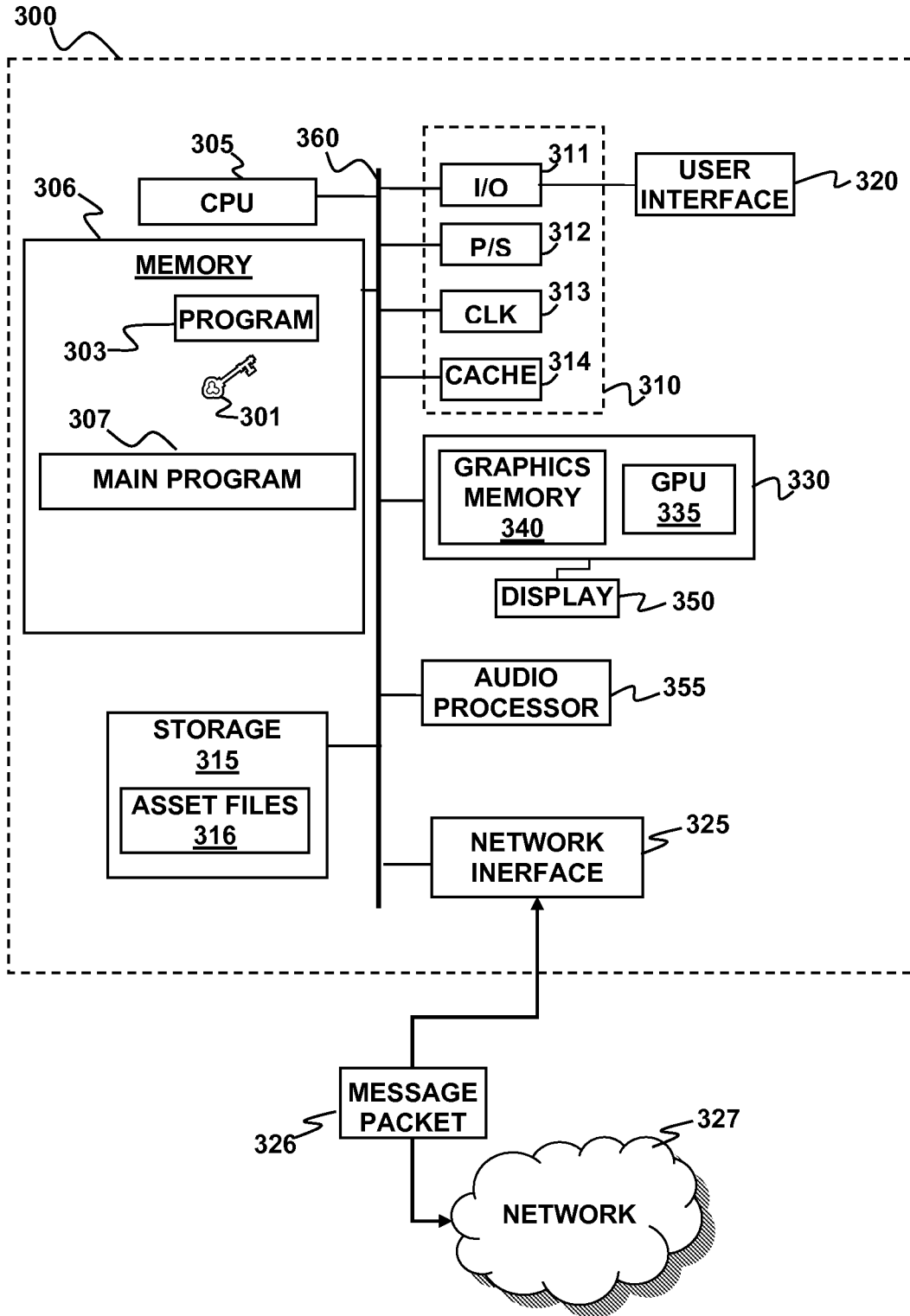
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FIG. 1

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200

210 CLIENT DEVICE

202 Title Reg

SEND INPUT — 211

201

RECEIVE CONTACT INFO — 212

204 URL

SEND REQUEST — 213

205

RECEIVE CONTENT INFO — 214

SEND CONTENT REQUEST — 216

RECEIVE CONTENT — 215

DISPLAY/ STORE CONTENT — 217

220 MEDIATION SERVER

203

RECEIVE INPUT — 221

DETERMINE DISTRIBUTION SERVER — 222

SEND DISTRIBUTION CONTACT INFO — 224

205

206 ?

207
| Space 1 – URL1, file A |
| Space 2 – URL2, file B |
| Space 3 – URL3, file C |

230 DISTRIBUTION SERVER

RECEIVE REQUEST — 232

DETERMINE CONTENT SERVER — 234

SEND CONTENT INFO — 236

240 CONTENT SERVER

208 CONTENT REQUEST

RECEIVE CONTENT REQUEST — 242

209 CONTENT

SEND CONTENT — 244

FIG. 2

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FIG. 3

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FIG. 4

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - H04N 7/173 (2008.04)
USPC - 725/112
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols) IPC (8): H04N 7/173 (2008.04) USPC: 725/112
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC: 725/91, 87, 96, 109 (See keywords below)
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Pub WEST (USPT, PGPB, JPAB, EPAB), Google Scholar, Dialog Pro. Search Terms Used: client, advertisement, gaming device, system, distribution, advertising server, mediator, broker, selection server, contact information, location identifier, URL, select, geographic location, cryptographic key, public key, online, video game

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2007/0078706 A1 (DATTA et al.), 05 April 2007 (05.04.2007), entire document, especially Abstract; Fig. 3B, 7, 8; para [0041]-[0046]; [0058]-[0061] and [0088]-[0091].	1-45
Y	US 2005/0119934 A1 (KAMIYAMA), 02 June 2005 (02.06.2005), entire document, especially Fig. 1, 2; para [0007]-[0009]; [0011]-[0013]; [0084]-[0090]; [0127] and [0137]-[0143].	1-45

☐	Further documents are listed in the continuation of Box C.	☐

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance		
"E"	earlier application or patent but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed	"&"	document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
24 August 2008 (24.08.2008)	**0 2 SEP 2008**

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