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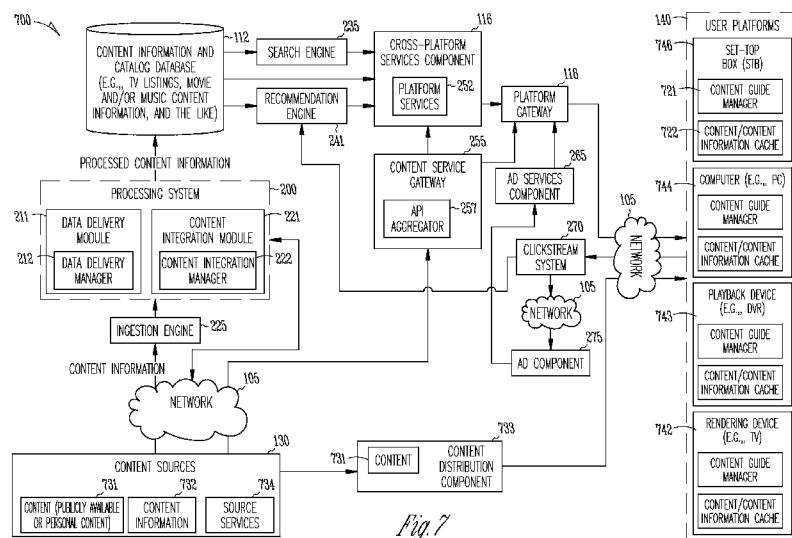


Fig. 7

(57) Abstract: A computer-implemented system and method for caching data in a content system. Embodiments include: gathering affinity information related to a particular user's affinity for particular types of content; receiving a data object related to a particular item of content from at least one source of a plurality of content sources via a data network; assigning, by use of a processor, a weight to the data object based on the affinity information; and flushing the data object from a content/content information cache based on the weight assigned to the data object.

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CACHING DATA IN A CONTENT SYSTEM

BACKGROUND

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15 Priority Applications

[0002] This patent application claims the benefit of the filing date of U.S. Provisional Patent Application Serial No. 61/345,813, filed May 18, 2010, by the same assignee, which is hereby incorporated by reference in its entirety.

[0003] This patent application claims the benefit of the filing date of U.S.
20 Provisional Patent Application Serial No. 61/345,877, filed May 18, 2010, by the same assignee, which is hereby incorporated by reference in its entirety.

[0004] This patent application claims the benefit of the filing date of U.S. Provisional Patent Application Serial No. 61/346,030, filed May 18, 2010, by the same assignee, which is hereby incorporated by reference in its entirety.

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Technical Field

[0005] This disclosure relates to networked systems. More particularly, the present disclosure relates to networked content systems.

30 Related Art

[0006] In conventional content aggregation and delivery systems, it can be difficult to manage content for playback on a particular client playback device when there are multiple playback devices, multiple playback device types, multiple content sources, and multiple instances (copies) of a particular desired

item of content. Typically, electronic program guides (EPG's) or interactive program guides (IPG's) were provided to allow a viewer and/or user to browse available programming. However, in conventional program guides, data was only available to devices through broadcast channels. In updated conventional program guides, the guides also support delivery of data over the Internet, but that delivered data is the same data as what is broadcast.

[0007] Well-known web surfing technology enables a computer user to navigate through a series of hyperlinks provided on web pages to drill into the topics of information that may suit their interest. Although web surfing provides a convenient way to obtain information available on data network, web surfing is not well suited for selecting among an array of content items for viewing or listening to content on consumer electronics (CE) devices.

[0008] Consumers have traditionally used CE devices to scan the sequential channel programming or time period selections by using a remote device and a television viewing monitor or audio device. Though some information on particular content items can be viewed or heard in a conventional system, the consumer is limited to selecting from one of the sequential programming channel options. Additionally, conventional CE devices or set-top boxes may have a limited capacity for cache storage. The limited cache storage can make it difficult to manage the cache content on a thin client device.

[0009] Thus, a computer-implemented system and method for caching data in a content system are needed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] Embodiments are illustrated by way of example and not limitation in the figures of the accompanying drawings, in which:

[0011] Figure 1 illustrates an example architecture for delivering content to a user of a user platform, according to various embodiments;

[0012] Figure 2 illustrates an architecture for delivering content and/or content information to a user platform, according to various embodiments;

[0013] Figure 3 illustrates a service provider for delivering content to a user of a user platform, according to various embodiments;

[0014] Figure 4 is a flow diagram illustrating a method of delivering content to a user of a user platform, according to various embodiments;

- [0015] Figure 5 illustrates a process for registering a user and/or a user platform with a content source;
- [0016] Figure 6 illustrates an example user platform, according to various embodiments;
- 5 [0017] Figure 7 illustrates an example architecture for a networked browsing and/or recommendation architecture within which various embodiments operate;
- [0018] Figure 8 illustrates a set of example platform services supported by an example cross-platform service component of a particular embodiment and
10 a set of source services provided by the content sources;
- [0019] Figure 9 illustrates a user platform according to an example embodiment;
- [0020] Figure 10 illustrates an example environment showing an example data connection between the user platform and the cross platform
15 services component;
- [0021] Figure 11 illustrates a user platform data delivery component for a user platform of an implementation;
- [0022] Figure 12 illustrates the factors used in an example embodiment to fill the content information cache in a user platform according to an example
20 embodiment;
- [0023] Figure 13 illustrates a user platform according to an example embodiment, wherein the example user platform includes components for data delivery, according to an embodiment;
- [0024] Figure 14 illustrates an alternative implementation of a user platform according to another example embodiment, wherein the example user platform includes components for content integration by using custom
25 integration applications on the user platform, according to an embodiment;
- [0025] Figures 15-16 illustrate a sequence of processing operations in example embodiments;
- 30 [0026] Figures 17-23 illustrate a sample content browsing and selection user interface provided in an example embodiment;
- [0027] Figure 24 illustrates a sequence of processing operations in an example embodiment;

[0028] Figure 25 shows a diagrammatic representation of a machine in the form of a computer system within which a set of instructions, for causing the machine to perform any one or more of the methodologies discussed herein, may be executed, according to an example embodiment; and

5 [0029] Figure 26 illustrates a sequence of processing operations in an example embodiment.

DETAILED DESCRIPTION

[0030] A computer-implemented method, system, and apparatus for
10 caching data in a content system are disclosed. In the following description, numerous specific details are set forth. However, it is understood that embodiments may be practiced without these specific details. In other instances, well-known processes, structures and techniques have not been shown in detail in order not to obscure the clarity of this description. Various embodiments are
15 described below in connection with the figures provided herein.

Overview of Various Embodiments

[0031] The various embodiments described herein are part of a content
browsing and recommendation system that includes an enhanced interactive
20 and/or electronic program/programming guide (IPG and/or EPG) and a content integration system. The various embodiments provide a rich content browsing and recommendation experience, which utilizes host site databases to correlate content across delivery media, such as linear television, internet-based video on demand services, recorded content, and content available on the home network.
25 In conventional program guides, data is only available to devices through broadcast channels. In updated conventional program guides, the guides also support delivery of data over the Internet, but that delivered data is the same data as what is broadcast.

[0032] Within this document, content includes television programming,
30 movies, music, spoken audio, games, images, special features, scheduled and unscheduled media, on-demand and/or pay-per-view media, and further includes broadcast, multicast, downloaded, streamed media, and/or media or content that is delivered by another means. The content as described herein can include publicly-available content, such as the content access sold by commercial

publishers, broadcasters, networks, record labels, media distributors, web-sites, and the like. The content as described herein can also include private or personal content, such as personal content libraries, playlists, personal movie, music, or photo libraries, private text libraries, personal mix recordings, originally recorded content, and the like. As described herein, the term, “content” is distinguished from the term, “content information” that is related to, but separate from the content itself. The term “content information,” which may include metadata, refers to information associated with or related to one or more items of content and may include information used to access the content. The content information, provided and/or delivered by various embodiments, is designed to meet the needs of the user in providing a rich media metadata browsing experience. The content information also includes guide data, listings data and program information, in addition to extended metadata, such as MyTV™ module metadata, celebrity biographies, program and celebrity images, and the like for channel lineups and other media and/or content sources that are available to the end user at the user’s location. A MyTV™ module is provided by the Microsoft™ Media Center system to view live TV broadcast programming and/or to view a program guide of available broadcast programming. As described herein, guide data can be used to generate a content guide that can be used to display available programming options, sources of the programming, and temporal information for the available programming options to enable a user to browse, search, select, and view/consume a desired programming option.

[0033] Unfortunately, because there are so many available content sources and so much available information for each content source, the volume of data in the content and the available content information can overwhelm a network’s ability to transfer the data and a user platform’s ability to receive, process, and display or render the content and the content information on a sufficiently frequent basis. Without effective management of the data delivery and consumption by a user platform, it is effectively impossible for all the content and content information to be packaged up and delivered on a sufficiently frequent basis to all user platforms; because the content and content information includes so many content sources other than conventional linear television. This situation leads to two conclusions:

1. A host site must provide an internet-based service that can provide selected content and content information to all deployed user platforms in real time.
2. The existence of such a service allows the host site to radically reduce the amount of content information packaged and delivered to user platforms in bulk on a scheduled, e.g., daily, basis.

[0034] The various embodiments described herein provide an architecture that allows a host site to package and bulk deliver content information and content itself to user platforms, wherein the content information contains only the content listings and/or program guide for the channel line-up for which the user has indicated a use or preference. Additionally, the various embodiments described herein provide an architecture that allows a host site to package and deliver content and content information in real-time to user platforms based on a user content selection or preference. The content itself can be delivered to a user platform via a content integration system described herein.

[0035] Within this document, the term “user” includes a viewer of television and/or video content as well as a consumer of other content. In the various embodiments described herein, the user platform can fetch content and content information, including extended metadata, extended program information, celebrity information such as biographies, images, trailers, and the like, that the user platform needs based on the usage of the user platform by a user. In two example embodiments described herein, there are at least two methods for delivering required and/or requested content information to a user platform. The first method is to fill a local user platform content information cache with content information at off-peak times. The second method, employed when the user needs content information that is not in the local cache, is to get the content information by using host site services in real time. In a particular embodiment, a host site can use a cross-platform service (CPS) component and real-time services in both cases. Other equivalent embodiments can be implemented without cross-platform services. These methods and services are described in more detail below.

[0036] Some example embodiments described herein also include a system and method for delivering content to a user of a registered user platform.

Assets retrieved from a number of content sources may be stored in a database at a service provider or the content itself can be retained at the content source for direct delivery to a user platform as described in more detail herein. The term “asset” can be taken to include, but is not limited to, one or more collections of content, content information and metadata associated with the content, e.g., descriptions, synopses, biographies, trailers, reviews, links, etc., and content source catalogs. Each asset can contain a content item and content information related to the content item. Content information related to a number of content items retrieved from the assets may be presented to the user of the registered user platform. In response to a request from the user, a content item associated with a content source may be delivered directly to the user platform without a need for explicit user authentication. The service provider may authenticate on behalf of the user so that the user does not need to be asked to authenticate each time the user employs the registered user platform to order content from the content source.

[0037] In example embodiments, the content may comprise, but is not limited to, digital content including electronic publications such as electronic books, journals, newspapers, catalogs, and advertisements, and multimedia content including audio and video content. Content sources are originators, providers, publishers, and/or broadcasters of such content and assets. Content sources can be conventional television or radio broadcasters, Internet sites, printed media authors or publishers, magnetic or optical media creators or publishers, and the like.

[0038] A registered user platform, e.g., a registered user device or a set of user devices, may comprise a consumer electronic (CE) device including additional hardware and software that enables the consumer electronic device to register with a service provider. Some consumer electronic devices, such as television sets, may enable access to the Internet by being coupled to a computer, e.g., a personal computer (PC) such as a laptop or a desktop computer, etc. The registered consumer electronic device may be used by a user to access content from various content sources such as, for example, Amazon, Netflix, Napster, CBS, etc., over the Internet, directly without connection through a computer, as discussed in detail below.

[0039] Figures 1 and 2 illustrate example architectures 100 and 101 for delivering content and content information to a user of a user platform 140, according to various embodiments. Preferably, the user platform 140 receiving the content and/or content information comprises a registered user platform.

5 Registration for a user platform 140 is further described below in relation to Figures 2-5. The user platform 140 may gain access to one or more content items from a content source 130, e.g., a third party content source such as Amazon, Netflix, Napster, CBS, etc., via services of a service provider 110 including, for example, Macrovision Corporation, Rovi Corporation, or another

10 host or service provider. The user platform 140 may comprise, for example, a television (TV) 142, a digital video recorder (DVR) 143, or other user devices shown under user platforms 140. The user platforms 140 may also include a computer (PC) 144 and/or a network attached storage device (NAS) 146, such as a network router or a wireless access point device that may optionally form a

15 home network. The user platforms 140 may also include a set-top box. The user platforms 140, for example, the television 142, the computer 144, and/or the set-top box may be coupled to the content source 130 via a content network 150. The content network 150 optionally includes a variety and/or a combination of video and/or television content distribution and/or delivery networks such as, for

20 example, cable, satellite, terrestrial, analog, digital, standard definition, high definition, RF (UHF, VHF) and/or broadcast networks. The user platforms 140 and content sources 130 may have access to the wide-area data network 120, e.g., the Internet, as well.

[0040] Figure 1 also illustrates that an equivalent configuration of architecture 100, 101, and/or 700 of various embodiments can include multiple

25 content information processing sites 108, each managing a portion of the functionality provided as described herein. A particular embodiment may include an additional layer, called the Partner Sites, wherein each Partner Site is hosted on a separate server and each Partner Site communicates with the user

30 platform 140 and/or the content guide manager 721 (shown in Figure 7) of a network-enabled user platform 140, described in more detail herein. In this embodiment, each Partner Site can manage a subset of the available content and content information from content sources 130. Further, it will be apparent to those of ordinary skill in the art that another equivalent configuration includes a

portion of the functionality provided by the user platform 140 being downloaded from the service provider 110 and/or processing sites 108, such as a collocation facility, to the user platform 140 and executed locally at the client and/or user location. In any of these alternative configurations, the architecture 100, 101, 5 and/or 700 of various embodiments provides and supports enabling content information aggregation and access by user platforms as described in more detail herein, in addition to the functions and/or services for content browsing and recommendation.

[0041] In an example embodiment shown in Figure 2, the service 10 provider 110 may comprise a service provider database 112, such as a content information database coupled via an intranet 114 to hosted services 115. The hosted services 115 may comprise a cross platform services (CPS) component 116 and a cross platform gateway (CPGW) or “platform gateway” 118. The platform gateway 118 may act as an interface between the user platform 140 and 15 the service provider 110. The cross platform services component 116 may be responsible for processing requests from the user platform 140 via interactions with the content sources 130, as described in more detail below.

[0042] Figure 3 is a diagram illustrating a more detailed example of a 20 service provider 110 for delivering content to a user of a user platform that is preferably registered such as, for example, the user platform 140 of Figures 1 and 2. User platform 140 registration and/or device registration is further described below in relation to Figure 6. As shown in Figure 3, the service provider 110 comprises a data processor 111, a memory 113, a service provider database 112, a provision module 117, cross platform services component 116, 25 and platform gateway 118. The provision module 117 may receive assets from various content sources such as, for example, the content sources 130 of Figures 1 and 2. The delivery of assets from the content source 130 may be via a wide-area data network 120 of Figures 1 and 2, such as the Internet. The assets may be received periodically, e.g., daily, in a batch mode operation or the provision 30 module 117 may request assets from the content sources on demand or receive the assets in real time. In some embodiments, real time means as soon as the assets are available for delivery from the content source.

[0043] The assets may be temporarily stored in the memory 113 such as within a buffer, for example, from where the assets may be transferred and

recorded in the service provider database 112, which may correspond, for example, to the service provider database 112 of Figure 2. In operation, the data processor 111 may cause an interface device, such as, for example, the interface device 644 shown in Figure 6 and described below, to present to a user of the user platform 140, information related to a number of content items retrieved from the assets. In an example embodiment, the data processor 111 may cause the provision module 117 to retrieve the content from the assets stored within the service provider database 112 and make the content accessible to the interface device 644 via the wide-area data network 120 of Figures 1 and 2, by using the platform gateway 118.

[0044] The platform gateway 118, which acts as an interface between the user platform 140 of Figures 1 and 2 and the service provider 110, may comprise software and/or hardware to translate between communication protocols used internally by the service provider 110 such as, for example, between the platform gateway 118 and the cross platform services component 116. These translated protocols may include, without limitation, a simple object access protocol (SOAP) and protocols used by the user platform 140 such as, for example, Internet Protocol (IP) and/or Transmission Control Protocol (TCP). The platform gateway 118 may receive, via the wide-area data network 120, from the user platform 140, a request by the user for content associated with the content source 130 of Figures 1 and 2.

[0045] The user may provide membership information regarding a membership with the content source 130 to the service provider 110, the first time the user attempts to access content from the content source 130, via the user platform 140. The membership information, for example, may include, but is not limited to, authentication information such as a username, a password and account identification, such as an account number and so forth. The membership information may be stored in the memory 113 in a member list associated with the content source 130 along with a registration code associated with the user platform 140 for future reference.

[0046] In later access attempts, the data processor 111 of the service provider 110 may determine that the user, and/or the user platform 140, has a membership with the content source 130, by referring to the member list associated with the content source 130 and the registration code of the user

platform 140. Then, the data processor 111 may perform the authentication on behalf of the user, by using the stored authentication information, such that the user may access content from the content source 130 without explicit authentication being performed by the user.

5 [0047] Regardless of the foregoing alternatives, accessing the content from the content source 130 can be achieved via several methods. For example, the data processor 111 may cause the provision module 117 to allow the user to receive delivery of the content directly from the content source 130 to the user platform 140. This embodiment is beneficial because the service provider 110
10 does not have to provision the resources necessary to store selected content for a plurality of users. In another embodiment, the data processor 111 causes the provision module 117 to retrieve the content from the assets stored in the service provider database 112, and allow the user to receive delivery of the content from the service provider 110. In this embodiment, the service provider 110 first
15 retrieves the content from the content source 130 and stores the content as assets in the service provider database 112. This embodiment is beneficial because the service provider 110 can retain control over the content delivery process.

[0048] Figure 4 is a flow diagram illustrating a further example method 400 of delivering content to a user of a user platform 140 of Figures 1 and 2, according to various embodiments. At an operation 410 shown in Figure 4,
20 assets or asset information received from the content source 130 may be stored in the service provider database 112 or memory 113. Information related to a number of content items retrieved from the assets can be presented, via the wide-area data network 120 of Figures 1 and 2, to a user of the user platform 140, at
25 operation 420. The user determines if one or more of the content titles, presented as part of the content information, may be of interest. The user then submits a request for particular content titles to the service provider 110. The service provider 110, at operation 430, may receive a request from the user for one or more content items associated with the content source 130 from the user
30 platform 140.

[0049] If it is determined at the control operation 440 that the user does not have a membership with the content source 130, and thus is not a registered user, then at operation 460, the data processor 111 causes the provision module 117 to automatically register the user with the content source 130. The

registration of the user may proceed according to the steps described below in relation to Figure 5.

[0050] If it is determined at the control operation 440 that the user does have a membership with the content source 130, and thus is a registered user, then at operation 450, the data processor 111 causes the provision module 117 to facilitate delivery of the requested content to the user without a need for explicit user authentication by the user. In order to skip explicit user authentication, upon receiving the request for content, the provision module 117 may receive an authentication token associated with the user from the content source 130 and invoke, by using the authentication token, an interface associated with the content source 130.

[0051] The provision module 117 may facilitate delivery of the requested content at operation 450 by allowing the user to download the content directly from the content source 130 on demand to the user platform 140. The provision module 117 may also retrieve the content from the assets stored in the service provider database 112 and allow the user to download the content from the service provider 110. Once registered with the content source 130, the user may download, stream, and/or receive content directly from the content source 130 to the user platform 140 without the need for explicit user authentication.

[0052] Figure 5 is a flow diagram illustrating a further example method 501 of delivering content to a user of a user platform 140 of Figures 1 and 2, according to various embodiments. Preferably, the user platform 140 is registered. As shown in Figure 5, a service provider 110 receives the request for the content from a user platform 140, at operation 531. If the data processor 111 determines, at operation 541, that the user does not have a membership with the content source, and thus is not a registered user, the data processor 111 may cause the provision module 117 to automatically register the user with the content source 130, at operation 561. For instance, the data processor 111 may cause the provision module 117 to receive an authentication token associated with the user from the content source 130, at operation 562, and invoke an interface associated with the content source by using the authentication token, at operation 564, to register the user with the content source 130 and allow the user to access the content, at operation 550.

[0053] More specifically, at operation 550, in response to receiving the request for content from the user platform 140, the data processor 111 may cause the provision module 117 to facilitate delivery of the content to the user, without a need for user authentication such as, for example, without the need for the user to login, provide a password, and/or provide payment or credit information, as described above. In some implementations, the provision module 117 is a software module, and the data processor 111 causes the software module to execute. With regard to registration of the user platform 140, the first time that a non-registered user platform 140 device is used, e.g., a consumer electronic (CE) device, television 142, or a digital video recorder (DVR) 143, the user may send a registration request. In another embodiment, the provision module 117 may automatically register the non-registered user platform 140 when the user platform 140 is coupled with the service provider 110 via a wide-area data network 120 for the first time. In one embodiment, for example, the provision module 117 provides the user with a registration code for the user platform 140. The user provides the registration code when the user explicitly registers the user platform 140 or refers to the user platform 140 in communications with the service provider 110. The user platform 140 of some embodiments is further described below with respect to Figure 6.

20

User Platform Registration

[0054] As mentioned above, the user platform 140 is preferably registered. The user platform registration or “device registration” operates alternatively, or in conjunction with, the “user registration” of some embodiments. User registration is used to identify and/or authorize a particular individual person for access to content via a user platform. User platform registration is used to identify and/or authorize a particular device or interface for access to content. Either or both types of registration can be used in various embodiments. Figure 6 illustrates an example user platform 140, which may correspond to the user platform 140 shown in Figures 1 and 2. The user platform 140 preferably comprises a first consumer electronic (CE) device 642, such as the television 142 or the digital video recorder (DVR) 143 of Figure 2, an interface device 644, a memory 646 and a configuration module 648. The memory 646 and/or the interface device 644 may be preconfigured within the

television 142 and/or the digital video recorder 143. Alternatively, the memory 646 and/or the interface device 644 are added along with the configuration module 648 to form a non-registered user platform 140 that is enabled for registration. For instance, the memory 646 and/or the interface device 644 may
5 optionally be coupled internally or externally to the television 142 and/or the digital video recorder 143.

[0055] As mentioned above, some user platforms 140 are initially not registered and require registration for operation with the service provider 110. In these cases, the first time that a user activates a non-registered user platform 140,
10 the interface device 644 preferably communicates, via the wide-area data network 120, with the service provider 110. Once the non-registered user platform 140 communicates with the service provider 110, the configuration module 648 may work with the provision module 117 to register the non-registered user platform 140 with the service provider 110. When the
15 registration is complete, the configuration module 648 may receive a registration code from the provision module 117. The configuration module 648 may then save the registration code in the memory 646 on the user platform 140. Once registered, the user platform 140 is ready to perform the functionalities described herein with respect to a registered user platform.

20 [0056] The interface device 644 may include hardware and/or software and may also provide various user interfaces to display a variety of information to the user. In an embodiment, the interface device 644 may receive the user interfaces from the service provider 110. The user interfaces, for example, may be used to display information related to a collection of content and associated
25 metadata available from the service provider 110. The user interfaces may also provide for the user one or more search boxes to enable the user to search for content under a variety of lists such as title, artist, category, subject, company name, etc. The interface device 644, as mentioned above, may also provide connectivity between the user platform 140 and the service provider 110, via the
30 wide-area data network 120. Interactions between the user platform 140 and the components of the architectures shown in Figures 1 and 2 are discussed in more detail below.

[0057] The content browsing and/or recommendation functions of various embodiments described herein are used to facilitate the correlation of

content and related content information for delivery across various delivery media. Figure 7 illustrates an example environment for a networked browsing and/or recommendation architecture 700 with which various embodiments operate. The networked browsing and/or recommendation architecture 700 includes the functionality of the service provider 110 described above plus additional features described below. As shown in Figure 7, a processing system 200 is in networked communication, via a network 105, with one or more content sources 130, such as the content sources 130 shown in Figures 1 and 2. As shown in Figures 1 and 2, network 105 can be a wide-area data network 120, such as the Internet. Network 105 can also be a content network 150. Network 105 can also be a combination of either or both of the wide-area data network 120 and the content network 150. The processing system 200 is also in networked data communication, via the network 105, with one or more user platforms 140, such as the user platforms 140 shown in Figures 1 and 2. The one or more user platforms 140 may include or be in networked data communication with rendering devices 742, playback devices 743, computer 744, set-top box 746, and/or other types of user devices operating in or with user platform 140. For example, the television 142 shown in Figure 2 may correspond to rendering device 742 shown in Figure 7. The digital video recorder 143 shown in Figure 2 may correspond to playback device 743 shown in Figure 7. The personal computer 144 shown in Figure 2 may correspond to computer 744 shown in Figure 7. The network access system 146 shown in Figure 2 may correspond to set-top box (STB) 746 shown in Figure 7. The processing system 200 is preferably used to process content information 732 that is related to, but may be peripheral, ancillary, or distinct from, content 731 that is desired and requested by users for playback and/or rendering. As shown in Figure 7, the environment for the architecture 700 preferably includes content information 732, content 731 in the form of items of content, and/or both.

[0058] In some embodiments, the user platforms 140 are configured to communicate directly with the processing system 200 via the network 105. Further, the user platforms 140, such as the rendering device 742, the playback device 743, and/or the set-top box (STB) 746, may use local interfaces such as USB or local wireless interfaces such as Bluetooth, 802.11, 802.3, and the like, for direct data communication with the computer 744, which can communicate

with the processing system 200. The user platforms 140 are used by individuals who can log in to or otherwise gain access to the processing system 200 via the network 105 and become subscribers or members of a content browsing and recommendation service enabled by the various embodiments described herein.

5 The process for registration and/or activation by subscribers and non-subscribers is described in more detail above. In a particular embodiment shown in Figure 7, some content guide and/or content information functions are selectively provided in or by one or more of the user platforms 140. For instance, in some embodiments, a particular user platform 140 is configured for or enabled with a
10 content guide manager 721 and/or a content information cache 722. The content guide manager 721 controls the flow of a selected item of content into and out of a cache 722, data buffer, or local database 392 (shown in Figure 11) for the user platform 140 for playback, rendering, and/or recording of content for a user. The content information cache 722 of the user platform 140 as shown in Figure 7
15 can be considered a content cache for temporary storage of content in user platform 140. The data buffer or local database 392 (shown in Figure 11) can also be considered a content cache for user platform 140. Additionally, the content guide manager 721 controls the flow of content information such as, for example, content metadata related to a selected item of content, into and out of
20 the content information cache 722 of the user platform 140 as shown in Figure 7. In this manner, portions of the content information cache 722 and/or data buffer or local database 392 (shown in Figure 11) of the user platform 140 as shown in Figure 7 can be considered a content cache and a content information cache for temporary storage of content and/or content information in user platform 140.

25 **[0059]** The content guide manager 721 includes processing logic to communicate with the cross-platform services component 116 via platform gateway 118 and the network 105 to coordinate access to a user-selected item of content 731 directly from the one or more content sources 130 by the user platform 140 via the network 105. The cross platform services component 116
30 shown in Figure 2 may correspond to cross platform services component 116 shown in Figure 7. The platform gateway 118 shown in Figure 2 may correspond to platform gateway 118 shown in Figure 7. The content guide manager 721 also includes processing logic to communicate with the cross-platform services component 116 via the platform gateway 118 and network 105 to obtain

available content information 732, and related content metadata, associated with identified items of content 731 available through the content sources 130. In an example embodiment, this content information 732 includes content information related to a particular content item. Content items are further described above in relation to Figures 1-2. The content information 732 may include content metadata, biographical information on the authors, writers, actors, directors, producers, or the like, background information on the content item, web links or text identifiers related to the content item, information identifying related content items, information related to categories, genres, or the like that relate to the content item, information identifying other users and/or viewers who may share an interest in content similar to the particular item of content, content reviews, and other content information related to the particular item of content. Content reviews can be summaries, critiques, overviews, polling or survey information, or other type of analysis, opinion, or parody of a particular content item. This content information, obtained by the processing system 200 from various content sources 130, is maintained in a database 112 by the processing system 200 of various embodiments. This content information can be made available to user platforms 140, via platform services 252, for viewing, searching, and/or selection by users of user platforms 140. The users of user platforms 140 can log in to accounts maintained by the processing system 200, search for lists of available content and related content information by using a search engine 235, and select a particular item or items of content and/or a related item or items of content information for download or streaming to the user platform 140 via local interfaces and/or network 105. Content distribution component 733 includes processing logic to communicate with one or more content sources 130 and one or more user platforms 140 to facilitate the downloading or streaming of a particular selected item of content to a user platform 140 of a requesting user. The content sources 130 can include feeds or repositories of digital content 731 that are downloaded or streamed to a particular user platform 140 via the network 105. The content 731 can include various forms of digital content including video or multimedia, e.g., MPEG, still images, e.g., JPEG or TIFF, audio, e.g., MP3, spoken audio, digital documents, executable code, and the like. The content sources 130 may represent websites, servers, peer-to-peer nodes, databases, data storage local to the processing system 200, data storage local to

the user platforms 140, and the like. As described in more detail herein, the processing system 200 and the content sources 130 operate in concert with the content guide manager 721 to control the access to content information and content, and the playback of selected content on the user platforms 140 from the content sources 130. Note that in a particular embodiment, the selected item of content 731 can be downloaded or streamed directly from the content source 130 to the user platform 140 of a requesting user via the content distribution component 733 and network 105. In contrast, the content information 732 corresponding to a selected item of content 733 can take a different path to the user platform 140 of a requesting user. The content information can be obtained from content sources 130 and processed by ingestion engine 225. The content information can then be uploaded to database 112 by the data delivery module 211 of processing system 200. At a time of its choosing, a user platform 140, and the content guide manager 721 therein, can obtain the content information from the database 112 by using a platform service 252 of cross-platform services component 116. The content information can be downloaded to a requesting user platform 140 via the platform gateway 118 and stored in the content information cache 722 of the user platform 140.

[0060] Referring still to Figure 7, the processing system 200 is in data communication with a plurality of content sources 130 via the network 105. The content sources 130 represent any of a variety of content producers, content aggregators, or other content sources from which a plurality of items of content 731 and related content information 732 can be obtained. Examples of content sources 130 include CinemaNow, Netflix, Amazon, CBS, Video Detective, and the like. The processing system 200 obtains content information 732, as related to various content items 731, from the content sources 130 via an ingestion engine 225. The ingestion engine 225 is configured to accept content information 732 in a variety of forms and formats. This variety of content information 732 is preferably normalized or otherwise re-formatted and structured into a form that is conveniently processed by the processing system 200. A data delivery manager 212 of the data delivery module 211 of the processing system 200 receives the ingested content information from ingestion engine 225 and determines a catalog or catalogs to which a particular item of content information relates. Additionally, the data delivery manager 212

performs classification, grouping, and cross-correlation operations to associate particular items of content information with content catalogs, content groupings, content types, content sources, or particular content items. The data delivery manager 212 performs the classification, grouping, and cross-correlation operations by using the data in the content information item itself. For example, keywords, metadata, tags, and the like can be extracted from the content information and used to categorize or classify a particular content information item in association with one or more content catalogs or groupings. Once the data delivery manager 212 processes the content information, the processed and classified content information is stored in a database 112 with information identifying associated content catalogs, categories, types, groupings, or content sources.

[0061] A content integration module 221 and content integration manager 222 of the processing system 200 is responsible for managing the delivery of content items 731, but not content information 732, to particular user platforms 140, with which users have made content selections. The content integration manager 222 coordinates the delivery of selected content items 731 from the content sources 130 to particular user platforms 140 via content distribution component 733 and the network 105. The delivery of selected content items 731 is processed as a content download or a streamed content feed, in some implementations.

[0062] The content information 732 stored in the database 112 by the data delivery manager 212 is structured and conveniently searchable by using search engine 235. The database 112 thereby retains all structured content information 732 across all content sources 130. The platform services 252 provided by the cross-platform services component 116 includes services for querying content information in the database 112 by using the search engine 235. The cross-platform services component 116 makes these platform services 252 available to user platforms 140 via the network 105 and the platform gateway 118. The platform services 252 can include services to enable a user platform 140 to search the processed content information in the database 112 based on a content catalog identifier, a content category, type, grouping, or content source. Other queries based on keywords, tags, or metadata are also supported by the platform services 252. The platform services 252 provided by the cross-platform

services component 116 also include services for requesting a recommendation for content information by using a recommendation engine 241. The processing performed by the recommendation engine 241 is described in more detail below.

[0063] The recommendation engine 241 obtains user behavior information, and optionally user profile information (collectively denoted user interest information), to correlate user interests with corresponding content information retained in the database 112. For this purpose, the recommendation engine 241 is coupled to a clickstream system 270 as shown in Figure 7. The clickstream system 270 is in data communication with a plurality of user platforms 140 via the network 105. The clickstream system 270 collects user behavior information including mouse click events, mouseover events, webpage access and/or view events, object selection events, purchase or bid events, and the like. Additionally, a user identifier and optionally a user profile can also be associated with the user behavior information to form the user interest information. This user interest information is provided to the recommendation engine 241 by the clickstream system 270 and is used by the recommendation engine 241 to correlate user interests with corresponding content information retained in the database 112. Additionally, the clickstream system 270 may provide the user interest information to an advertisement (ad) component 275 via the network 105. The ad component 275 is used for making decisions regarding which ads to serve to a user, and for reporting ad relevant information, such as click through and/or conversion rates and the like. The ad component 275 may use the user interest information to target advertisements that relate to the users operating a particular user platform 140. The ad component 275 may further determine which ads to deliver to a particular user platform 140. The ad component 275 may notify the ad services component 265 with information identifying particular advertisements that should be delivered to identified user platforms 140. The ad services component 265 delivers the selected ads to the identified user platforms 140. The ad component 275 may also generate reports detailing how the advertisements were targeted.

[0064] Referring still to Figure 7, a content service gateway 255 is shown in data communication between the cross-platform services component 116 and the content sources 130. The content service gateway 255 is responsible for communication with content sources 130 such as from third party sources.

The content service gateway 255 aggregates application programming interfaces (API's) by using an API aggregator 257. The API aggregator 257 generates a generalized abstracted content service API from the various individual API's provided by each of the content sources 130. In essence, the API aggregator 257
5 builds a generalized abstracted content service API on top of the different API's provided by each of the content sources 130. In this manner, the API aggregator 257 generates a standardized content service API that can be used by cross-platform services component 116 and user platforms 140 via the platform gateway 118. The user platforms 140 of an embodiment preferably use the
10 standardized content service API of the content service gateway 255 for real-time communication with any of a variety of content sources 130.

[0065] The cross-platform services component 116 provides a uniform service interface for the user platforms 140. In one embodiment, this service interface provided by the cross-platform services component 116 is a web
15 service interface. In an example embodiment, the platform services 252 supported by the cross-platform services component 116 include, for example, one or more of the following services: user account management services, user platform profile management services, recommendation services, search services, listings services, listing preferences services, remote record services,
20 rich media services, watchlist services, user behavior services, and/or user profile services. A set of platform services 252 offered in an example cross-platform services component 116 is further described in relation to Figure 8.

[0066] Figure 8 illustrates a set of example platform services 252 and source services 734 supported by some embodiments such as, for example, the
25 cross-platform services component 116 of Figure 7 and content sources 130. As shown in Figure 8, the platform services 252 include a rich media service 851, a listings service 852, a user behavior service 853, a listing preference service 854, a search service 856, an integrated search service 857, a watchlist service 858, a user profile service 859, and a user account management service 860. In each
30 case, the platform services 252 provide a uniform service interface for the user platforms 140 described herein.

[0067] The rich media service 851 enables a user of a user platform 140 to configure the user platform for the presentation of rich media content, such as images, graphics, or video. The listings service 852 enables a user of a user

platform 140 to view content item listings as stored in a database 112. The user behavior service 853 enables a user of a user platform 140 to configure the user platform to capture and report user behavior data in a desired manner. The listing preference service 854 enables a user of a user platform 140 to specify
5 types of content listings likely of interest to the particular user. The search service 856 enables a user of a user platform 140 to search content item listings as stored in the database 112. The integrated search service 857 enables a user of a user platform 140 to search content item listings as stored in the database 112 or accessible via the network 105. The watchlist service 858 enables a user
10 of a user platform 140 to specify types of content items for which the user wishes to be notified when the specified content items become available. The user profile service 859 enables a user of a user platform 140 to manage the parameters retained in a user profile related to the user. The user account management service 860 enables a user of a user platform 140 to manage the
15 parameters retained in a user account related to the user.

[0068] Figure 8 also illustrates a set of source services 734. Source services 734 are provided by and sometimes resident in the content sources 130. Some content sources 130 provide various services 861, 862, and 863 of their own, which enable a consumer to browse, access, purchase, and download
20 particular content items offered by the particular content source 130. However, other content sources 130 may not provide any source services or the provided services may not be compatible or efficient for use with the content information aggregation system described herein. As such, a particular embodiment can be configured to use the source services 734, if the source services 734 are provided
25 by the content source 130. But, the various embodiments described herein do not rely on or require that such source services 734 be provided by the content source 130. One of ordinary skill in the art will recognize additional services can be provided alternatively and/or in conjunction with the service sets illustrated in the example of Figure 8.

30 [0069] A user platform 140 according to an example embodiment is further described by reference to Figures 9 through 13. As shown in Figure 9, the user platform 140 is configured to include user platform software 372. All or portions of the user platform software 372 can be installed within the user platform 140 firmware or downloaded into the user platform 140 via a network

105. The user platform software 372 includes native applications 374, which perform standard functions on conventional user platforms 140. Additionally, the user platform software 372 may be configured to include a content guide manager 721 that is preferably installed within the user platform software 372.

5 The content guide manager 721 is configured to communicate with the various components of the architecture 700 of Figure 7 to coordinate the selection and delivery of particular items of content and content information to a user platform 140. The content guide manager 721, in an example embodiment, includes a guide generator 366, a user platform data delivery component 367, and a user

10 behavior & preferences component 368. The guide generator 366 gathers content information by using the architecture 700 and builds a user interface compliant electronic and/or interactive program guide (EPG and/or IPG) for display to a user of a user platform 140. The guide lists the various content items and content information as selected by a user. Native applications 374 can

15 access the guide generator 366 to obtain data to populate program guides or to build content metadata browsing experiences for a user. The guide generator 366, in turn, uses the user platform data delivery component 367 to obtain the content information data from the architecture 700, as described above. The user behavior & preferences component 368 provides user-side functionality to gather

20 user behavior data used by the clickstream system 270. The user behavior & preferences component 368 further stores user preferences with which the user can customize the interfaces and services provided on a particular user platform 140. The user behavior data includes mouse click events, mouseover events, webpage access and/or view events, object selection events, purchase or bid

25 events, and the like.

[0070] As shown in Figure 9, the guide generator 366 according to an example embodiment, is configured to include an electronic program guide (EPG) search engine 380 and a jobs manager 381. The guide search engine 380 provides application program interfaces to query the guide listings data, channel

30 mapping, and the like, stored in the database 112 of the architecture 700. The jobs manager 381 schedules jobs to occur at particular times such as, for example, according to a periodic schedule of events. In this case, the jobs manager 381 can schedule the content and content information cache filling and flushing operations described herein.

[0071] Figure 10 illustrates an example environment showing an example data connection between the user platform 140 and the cross platform services component 116 with platform services 252 included therein. A platform gateway 118 can be used to facilitate networked data communications between the user platform 140 and the cross platform services component 116 via network 105. In this manner, the user platform 140, and a user thereof, may access and use the platform services 252.

[0072] Figure 11 illustrates the user platform data delivery component 367 of an embodiment in further detail. As shown in Figure 11, the user platform data delivery component 367 is configured to include a data access module 385, a data reception engine 386, a click stream engine 387, an internet data loader 388, a cross-platform client manager 390, a data cache fill engine 391, a local database 392, and a cache list 399. The data access module 385 provides access to the local database 392, in which local data such as, for example, guide data and/or content information, are preferably stored. The data reception engine 386 unpacks the content information delivered by the architecture 700 via the internet data loader 388 and populates the local database 392 by using the data access module 385. In a particular embodiment, the user platform 140 indicates to the architecture 700 which channel lineup the user platform 140 needs, and the user platform 140 receives only the content information, e.g., the listings data, for that lineup. The click stream engine 387 records the user's behavior and reports the user behavior back to the clickstream system 270 via the user behavior module 368. The cross-platform client manager 390 provides a user platform-resident interface for platform services 252 through the platform gateway 118. The data cache fill engine 391 uses the cross-platform client manager 390 to contact platform services 252 and retrieve content information such as, for example, metadata to be cached in the local database 392 for local use on the user platform 140. In a particular embodiment, the local database 392 can be used as content information cache 722 maintained on each user platform 140.

[0073] In a particular embodiment, the user platforms 140 maintain a local cache 722 of content information, e.g., metadata, which is available immediately to the user. This content information cache 722 is built by retrieving or generating a list of content information items to fetch by using the

platform services 252 on a periodic, e.g., daily, basis. The cache filling may be controlled by a server as a method of load balancing, so that the platform services 252 are used as evenly as possible over time. On a periodic basis such as, for example, once per day, the user platform 140 queries the platform services 252 to retrieve content information identifiers with which the user platform 140 can generate a cache list 399 for the user platform 140. The user platform 140 can also determine the time the user platform 140 should begin filling its content information cache 722. At the correct time, as determined and/or scheduled by the jobs manager 381, the user platform 140 communicates with the platform services 252 and retrieves content information items that are identified in the cache list 399.

[0074] Referring to Figure 12, the factors used in an example embodiment to fill the content information cache 722 in a user platform 140 are illustrated. In the example of Figure 12, these factors include editorial recommendations 395, item-based recommendations 396, personalized recommendations 397, and promotions 398. These factors are used to generate the content information cache list 399. In essence, the factors provide information indicative of the types of content information that is likely of interest to a particular user of a user platform 140. The more accurate the factors are for a particular user, the more likely it is that the content information ultimately requested by the user will already be resident locally in the content information cache 722 in the user platform 140. If the requested content information is already stored in the content information cache 722, the user platform 140 need not incur the time and expense to obtain the requested content information via the architecture 700. Given an accurate set of factors, the user platform 140 infrequently, or as infrequently as possible, may need to perform an access to the real-time platform services 252 of the architecture 700 in response to user action. Thus, the user platform 140 and the other portions of architecture 700 of various embodiments is able to predict the prospective user demand based on user behavior, prior user content selection, and user profiling. Nevertheless, any requested content information that is not in the content information cache 722 is fetched via the platform services 252 of the architecture 700.

Content Integration of an Example Embodiment

[0075] One of the key features of the various embodiments described herein is the ability to guide the user to content that is available via traditional and non-traditional means. Some of these non-traditional means may include:

- 5 • Video On Demand such as from Amazon
- Other video delivery means such as Netflix Instant Queue
- White-box services such as CinemaNow and/or other brand experiences such as Blockbuster
- Ad-supported services, e.g., broadcast and cable networks
- 10 • Premium music services such as Rhapsody
- Mixed-model music services such as Pandora
- User-generated content services, e.g., Flickr and YouTube

[0076] Once the various embodiments have guided the user to the available content as described herein, some embodiments enable the user to
15 access selected content items via a public and/or private data network. In some cases, this process of providing access to selected content items involves user registration or linking with an existing user account as described above. In some cases, the process involves transactions where the user pays for access to the content. However, once the user has selected a particular content item and
20 provided registration and/or payment information for the selected content, the various embodiments then provide the content to the user. This portion of the various embodiments described herein for providing the content to the user is denoted content integration, which is described in more detail below.

[0077] As described herein, various embodiments provide a service
25 technology that allows for the ingestion and correlation of content and catalog information into one or more databases to indicate the availability and accessibility of Internet-based content and/or network accessible content. The ingested content and/or catalog information may be stored and/or presented in conjunction with and/or in a manner that is similar as for linear television data.
30 Instead of indicating that a particular program is available on a certain channel of a lineup at a certain time, this content and catalog information may indicate that a particular program is available via an Internet-enabled content source.

Additionally, these services can allow the linking of user platform devices and user profiles to accounts with these content sources.

[0078] Because the content sources 130 that provide the content 731 have a wide variety of goals for doing so, various embodiments accommodate
5 different models for the content sources 130 to deliver content to the user platforms 140. In various embodiments, there are at least three models of content integration as described below:

- A first model of content integration involves a custom application on the user platform 140 that generates a high-quality, tightly integrated
10 experience around the content 731 from a particular content source 130. This first model involves components and processes with which the user platform 140 communicates directly with the services and API's of the particular content source 130 for access to the content itself and for access to content information, including content directories, metadata,
15 tags, reviews, blogs, and the like provided by the particular content source 130. Alternatively, the user platform 140 utilizes the services of an architecture such as the architecture 100, 101, and/or 700 described above, for access to the content itself and for access to content information, including content directories, metadata, tags, reviews, blogs,
20 and the like provided by the particular content source 130 via the architecture 100, 101, and/or 700. A hybridization of these approaches is also possible.
- A second model of content integration involves using the services of an architecture 100, 101, and/or 700, with an application on the user
25 platform 140 that offers a small amount of customization in the form of skinning and the presence or absence of advertising content while browsing the directory of content available from the content sources 130. Skinning refers to placing a "skin" or a custom user interface or webpage over an interface or page provided by a content source 130. This second
30 model may not allow for the flexibility of the full-custom application of the first model, but may be used for a broad set of content sources 130.
- A third model of content integration involves the content sources 130 developing specialized web sites for use with user platforms 140 and the platform services 252 described above in relation to Figures 7, 8 and 10.

This third model may not provide an experience that is as graphically rich as a custom experience, but allows for flexibility and control of the experience by the content source 130.

[0079] Figure 13 further illustrates a user platform 140 according to an example embodiment, wherein the example user platform 140 includes components for content integration. As shown in Figure 13, a user platform 140 is configured to include user platform software 372. All or portions of the user platform software 372 can be installed within the user platform 140 firmware or downloaded into the user platform 140 via a network 105. The user platform software 372 includes native applications 374, which perform content-related functions on the user platform 140. Native applications 374 on the user platform 140 are used to couple the user platform 140 to the platform services 252, or directly to source services 734 that are provided by the content sources 130, to search and browse content directories, gain access to content, and play selected content items. JavaScript applications 375 may be written by and/or for the content sources 130 and installed on the user platform 140 to enable a user of the user platform 140 to browse content directories of the content source 130, gain access to content, and play selected content items.

[0080] Additionally, the user platform software 372 may be configured to include content integration manager 1310 as installed in the user platform software 372. The content integration manager 1310 is configured to communicate with the various components of the architecture 100, 101, and/or 700 and/or content sources 130 directly to coordinate the delivery of selected items of content to a user platform 140. The content integration manager 1310, in an example embodiment, includes a content acquisition module 1315, a media framework module 1317, and a Document Object Model (DOM) plug-in module 1319. The content acquisition module 1315 of an example embodiment is configured to communicate with the content integration module 221 and content integration manager 222 of the processing system 200 of Figure 7 to coordinate the delivery of selected items of content from a particular content source 130 to a user platform 140 via a content distribution component 733. As described above, the content integration module 221 and content integration manager 222 of the processing system 200 is responsible for managing the delivery of content items 731, but typically not content information 732, to particular user platforms

140, with which users have made content selections. The content integration manager 222 coordinates the delivery of selected content items 731 from content sources 130 to particular user platforms 140 via the content distribution component 733 and the network 105. The delivery of selected content items 731 is processed as a content download or a streamed content feed, in some implementations. The content acquisition module 1315 of an example embodiment is configured to communicate directly with the content sources 130 via network 105 to direct the transmission of selected content 731 to the requesting user platform 140. The content acquisition module 1315 can also be configured to communicate directly with the content sources 130 via network 105 for the acquisition of selected content 731. The media framework module 1317 of an example embodiment provides the structure and functionality definitions of the media playback and rendering capabilities of a particular user platform 140. The document object model module 1319 of an example embodiment provides access to the media framework 1317 so the content can be played or recorded.

[0081] Content integration via the processing system 200 enables the ability to adapt to protocol changes without updating the software on the user platform 140, thereby providing flexibility as business models and understanding of use cases evolve. As described in relation to Figure 7, the architecture 700 enables a user platform 140 to obtain content information from a database 112. The content information provides a user with searchable information related to particular items of content available from various content sources 130. When using the architecture 700, if a user platform 140 requests availability information for a particular item of content 731, the search returns hits for the content sources 130 that provide the particular item of content 731, as well as results from the database 112. When using the architecture 700, a native application 374 on the user platform 140 may allow the user of the user platform 140 to acquire the selected content 731 via the content acquisition module 1315 and jump directly to playing the content 731 by using the media framework module 1317 and document object model module 1319. In a particular embodiment, there is no need to jump into another application associated with that particular content source 130.

[0082] In an alternative embodiment, the user platform 140 acquires the selected content 731 directly from the content sources 130 by using the source services 734. The primary drawback to this approach is that changes to the services and/or protocols used by the content sources 130 require an update of the user platform 140 such as, for example, a software update. The primary advantage of this alternative approach is simplified registration either for the user, the user platform 140, for the architecture 100, 101, and/or 700, and/or for the content sources 130.

[0083] In another alternative embodiment, the user platform 140 acquires the selected content 731 by using the architecture 700 or by using source services 734 provided by the content sources 130 directly. In this implementation, the user platform 140 may acquire related advertising by using the architecture 700 and the ad services component 265 therein, as described in relation to Figure 7. Because the integration of content 731 and related advertising on a user platform 140 may require a higher level of control and/or device-specific information, the ad services component 265 in cooperation with the user platform software 372 may provide the necessary level of control to support ad services on the user platform 140.

[0084] Figure 14 illustrates an alternative implementation of a user platform according to another example embodiment, wherein the example user platform 140 includes components for content integration by using custom integration applications 1420 and/or 1421 on the user platform 140. When it is mutually advantageous to a host (e.g., a service provider 110) or a user platform 140 manufacturer and/or one or more content sources 130, custom integration applications 1420 and/or 1421 are generated for a user platform 140 to enable a user to browse and play content on the user platform 140. In this case, the user browsing experience is highly customized and well integrated into the overall user experience. Implementing the custom integration applications 1420 and/or 1421 natively allows for a sophisticated browsing experience and the use of advanced rendering and animation techniques. The custom integration applications 1420 and/or 1421 provide the presentation layer for browsing, acquiring rights to, and initiating playback of content from the content source 130. As shown in Figure 14, a user platform 140 is configured to include user platform software 372. All or portions of the user platform software 372 can be

installed within the user platform 140 firmware or downloaded into the user platform 140 via a network 105. The user platform software 372 may include custom integration applications 1420 and/or 1421, which perform customized content-related functions on the user platform 140. Custom integration applications 1420 and/or 1421 on the user platform 140 are used to couple the user platform 140 to platform services 252, or directly to the source services 734 provided by the content sources 130, to search and browse content directories, gain access to content, and play selected content items. The template applications 1422 and 1423 preferably include content integration applications that are not customized or specific to a particular content source 130. The guided browse module 1425 handles the data model for browsing and searching content by using a protocol compatible with the architecture 100, 101, and/or 700. The guided browse module 1425 of the content integration manager 1410 is used to retrieve content information by using a protocol compatible with the architecture 100, 101, and/or 700, and to provide this content information to the template applications 1422 and 1423 provided in the presentation layer of the user platform software 372. This content information may be used to retrieve the selected content 731, itself. The custom guided browse module 1427 preferably uses a specific protocol or service of a particular content source 130. The custom guided browse module 1427 is used to retrieve content information by using a specific protocol compatible with a particular content source 130 and to provide this content information 732 to the custom integration applications 1420 and 1421 provided in the presentation layer of the user platform software 372. This content information may be used to retrieve the content 731, itself in a customized application. The media player 1429 is provided to authenticate a user platform 140 with the content distributor 733 and to play the media with the selected content 731. The user interface (UI) toolkit 1431 is provided to support some basic user interface structures, functionality, and data objects from which a particular user interface is built and customized. The content sources 130 that either want full control of the user experience or that do not integrate with the architecture 100, 101, and/or 700 may provide web pages for access to their content catalogs and content, provided that the content sources 130 develop those web pages according to pre-established guidelines. These guidelines are based on the capabilities of the browser that is embedded into a user platform

140. In order to facilitate media playback of content provided by using this mechanism, the document object model module 1319 may be required to provide access to the media player on the user platform 140. The user interface toolkit 1431 also supports conventional user interface technologies, e.g., AJAX, CSS-
5 TV, CE-HTML and may provide a wide array of layout options and advertising capability for the content sources 130.

Real-Time Data Caching

[0085] In a particular embodiment, a real-time cache management process is used to manage the content and content information cache on the user platform 140. As described above, various techniques can be used to load
5 content and/or content information into the content information cache 722 or the data buffer or local database 392 of the user platform 140. This cached content and/or content information can be represented as data objects that each can occupy a portion of the cache on the user platform 140. The data objects can be content items or portions of content items, such as movies, programs,
10 television/broadcast content, personal content, internet content, on-demand content, music, spoken audio, video clips, images, graphics, and the like. The data objects can also be content information items or portions of content information items, such as information related to celebrities or actors appearing in movies or videos, information related to music performers or producers,
15 information related to awards or reviews associated with particular content items, and the like.

[0086] In a conventional cache management system, the oldest data objects in the cache (e.g., the data objects that have been resident in the cache for the longest period of time) are flushed first when additional cache storage space
20 is needed. However, this conventional process can be disadvantageous when the oldest data objects in the cache are of high value to a user of user platform 140.

[0087] In an embodiment described herein, each data object that can occupy a portion of the cache on the user platform 140 is assigned a weight or a value/importance parameter. The weight for each data object corresponds to an
25 automatically-determined value or importance of the data item to the user of user platform 140. In other words, the weight corresponds to the user's affinity for the particular data object. In a particular embodiment, a numerically large weight can correspond to a high value data object. A numerically small weight can correspond to a low value data object. A weight corresponding to a particular
30 data object can be automatically-determined in a variety of ways.

[0088] In one embodiment, explicit user profile information can be used to assign a weight to a particular data object. For example, as part of a prompted user profile data gathering operation, the user can be prompted to explicitly specify the kinds or categories of content s/he most prefers. Similarly, the user

can be prompted to explicitly specify the kinds or categories of content information s/he prefers. For example, as part of a prompted user profile data gathering operation, the user may specify that s/he likes comedies, movies with a majority of positive reviews, and any content directed by Spike Lee. The user
5 may also specify that s/he dislikes westerns and sitcoms starring Charlie Sheen. Additionally, as part of a prompted user profile data gathering operation, the user may specify a variety of demographic information, such as the user's gender, age, location, marital status, education level, and the like. It will be apparent to those of ordinary skill in the art that a wide variety of explicit user profile
10 information can be collected using a prompted user profile data gathering operation. Once the explicit user profile information for a particular user is collected, the data objects associated with any content or content information delivered to the user can be assigned a weight corresponding to the explicit user profile information. For example, in the sample user scenario set forth above, a
15 data object corresponding to a movie comedy directed by Spike Lee would receive a numerically large weight. Similarly, a data object corresponding to a movie western would receive a numerically small weight.

[0089] In another embodiment, implicit user profile information can be used to assign a weight to a particular data object. For example, implicitly
20 gathered user behavior information can be used to automatically determine a weight to be assigned to a particular data object. Implicitly gathered user behavior information can be obtained in a variety of ways. For example, a particular user's history of content selections can be used to infer an affinity for a particular type of content. Similarly, the absence of a user selection of a
25 particular type of content can be used to infer a dislike for the particular type of content. In another example, a particular user's history of content rentals or purchases can be used to infer an affinity for a particular type of content. It will be apparent to those of ordinary skill in the art that a wide variety of implicit user behavior information can be collected using an implicit user behavior data
30 gathering operation. Once the implicit user behavior information for a particular user is collected, the data objects associated with any content or content information delivered to the user can be assigned a weight corresponding to the implicit user behavior information. For example, if a particular user often orders movie comedies, it can be inferred that the user has an affinity for movie

comedies. In this case, the data objects associated with any movie comedies delivered to the user can be assigned a numerically large weight. In another example, a particular content item may be generally popular among the content-consuming public. In this case, it can be inferred that the popular content item will likely also be popular to the particular user to whom corresponding data objects are being delivered. Thus, data objects corresponding to popular content items can be assigned a numerically large weight. It will also be apparent to those of ordinary skill in the art that a combination of explicit user profile information and implicit user behavior information (generally denoted affinity information) can be used to assign a weight to a particular data object delivered to a particular user and cached in the user's user platform 140. Therefore, using the variety of techniques described above, a weight can be assigned to each data object delivered to a particular user and cached in the user's user platform 140. The assigned weight can correspond to the affinity information gathered for the particular user. In one embodiment, the weight assigned to a particular data object can be stored with the data object itself in a header of the data object, for example. Alternatively, the weight assigned to a particular data object can be stored separately from the data object in a data store in user platform 140 and associated with the data object using a data object identifier.

20 [0090] As described above, each data object delivered to a particular user and cached in the user's user platform 140 can be assigned a weight based on the user's affinity information. As described next, the assigned weight is used to manage the filling and flushing of data objects in the content/content information cache 722 in user platform 140. Conventional cache management systems use only the age of a particular data item to determine whether the data item should be flushed from the cache. As described above, conventional cache management systems flush the oldest data items (e.g., the data items that have been resident in the cache for the longest period of time) first when additional cache storage space is needed. In other words, conventional cache management systems flush the cache based on the age of the data items in the cache.

30 [0091] In the embodiments described herein, the data object weight can also be used to determine whether or not a particular data object is flushed from the content/content information cache. In one embodiment, a combination of the age of the data object and the weight of the data object can be used to determine

which data objects should be flushed from the cache when additional cache space is needed. For example, if two data objects have been resident in the cache for the same length of time, the cache management system of a particular embodiment can be configured to flush the data object with the numerically smaller weight from the cache first. The cache management system of a particular embodiment can also be configured with a variety of rules and policies to maximize the likelihood that the data objects of most interest to the user (and therefore the data objects most often accessed by the user), based on the weights assigned to the data objects, will most likely be resident in the cache when requested by the user. For example, a rule or policy can be implemented to handle the following situation in a configurably preferable manner. In one example, a first data object may have been resident in the cache for a shorter length of time than a second data object; yet, the first data object has been assigned a numerically smaller weight than the second data object. A rule or policy can be implemented to flush the first data object from the cache, even though the first data object has been resident in the cache for a shorter length of time than a second data object. In some situations, it may be preferable to manage the cache in this manner to keep high value content in the cache for a longer period of time. A variety of rules and policies can be developed to manage the cache in a highly configurable manner. For example, the difference in ages between the first data object and the second object can be used to drive a decision as to which data object to flush first. Additionally, the difference in the weights between the first data object and the second object can also be used to drive a decision as to which data object to flush first. Relationships between data objects can also be used to drive a decision as to which data object to flush first. For example, a set of data objects related to the same content item may be retained in the cache as a set rather than flushing one of the data objects in the set. Combinations of these factors can also be used to affect the manner in which the cache on user platform 140 is managed.

30 [0092] The cache management system of a particular embodiment can also be configured to manage an expiration time. The expiration time is the next time a user platform 140 process is allowed to access the server and check for a newer version of a particular data object. The user platform 140 process may need to access the server periodically to determine if the server has a newer

version of a particular data object of interest. However, system inefficiencies may result if the user platform 140 process tries to access the server for this purpose too often. The expiration time is used to manage this operation. The cache management system of a particular embodiment can be configured to set
5 the expiration time to a value that provides the best trade-off between the user platform's need for the newest data objects and the server's need to limit repetitive client accesses.

[0093] Figure 26 illustrates a sequence of processing operations in an example embodiment. As shown in Figure 26, the processing operations
10 performed by an example embodiment 2600 include: gathering affinity information related to a particular user's affinity for particular types of content, at processing block 2610; receiving a data object related to a particular item of content from at least one source of a plurality of content sources via a data network, at processing block 2612; assigning, by use of a processor, a weight to
15 the data object based on the affinity information, at processing block 2614; and flushing the data object from a content/content information cache based on the weight assigned to the data object, at processing block 2616.

[0094] Figure 15 illustrates a sequence of processing operations in an example embodiment. As shown in Figure 15, the processing operations
20 performed by an example embodiment 1500 include: gathering available content information related to particular items of content from a plurality of content sources via a data network, at processing block 1510; processing the content information, by using a data processor, to provide a searchable database of processed content information, at processing block 1512; providing a service,
25 accessible via the data network, to enable a user platform to request a search of the processed content information and identify a selected content item, at processing block 1514; and, directing at least one content source to provide the selected content item directly to the user platform, at processing block 1516.

[0095] Figure 16 illustrates a sequence of processing operations in an
30 example embodiment. As shown in Figure 16, the processing operations performed by an example embodiment 1600 at a user platform include: invoking a service from a user platform, via a data network, to search processed content information in a database, at processing block 1610; retrieving a search result from the service via the data network, the search result including selected

content information, at processing block 1612; using a data processor to identify a selected content item from the search result, at processing block 1614; requesting delivery of the selected content item, at processing block 1616; and receiving the selected content item at the user platform from a content source via a content distributor, at processing block 1618.

[0096] Figures 17 through 23 illustrate various example interface components of a sample content browsing and selection user interface provided in an example embodiment. In the sample user interface shown, a selection of content items can be shown with a command option, icon, or user-selectable component representing each content item. As described above, these content items can represent any of a variety of content including video, audio, still imagery, graphics, animation, video games, movies, music, spoken audio, digital books, documents, and the like. Each content item or content asset can be taken to include, but is not limited to, one or more collections of content, content information and metadata associated with the content, e.g., descriptions, synopses, biographies, trailers, reviews, links, related cast or crew, related content items, etc., and content source catalogs. Each content item or content asset can contain a representation of particular content, a link to corresponding content, and content information related to the content item. As described herein, the user interface examples shown in Figures 17-23 can be used to browse and select content items and content information related to a number of content items. The content items and related content information may be presented to the user of the registered user platform.

[0097] Referring to the example shown in Figure 17, the sample content browsing and selection user interface includes a root page 1700 that provides an information area 1720 and a set of user-selectable command options 1711, 1712, 1713, 1714, and 1715 in a command option area 1710 of the Root page 1700. Note that the rectangular box shown surrounding the command option area 1710 is provided in the figures herein merely to highlight the area for explanation and is not needed in the actual interface of the example embodiments described herein. A user can manipulate a conventional television remote control device, cursor control device, keyboard arrow buttons, or other pointing and/or control mechanism to select one of the command options 1711, 1712, 1713, 1714, and 1715 in the command option area 1710. Additionally, the user can select a

particular command option of the command options 1711, 1712, 1713, 1714, and 1715 by using a select button on a conventional television remote control device, conventional mouse, wireless telephone, or other user platform control device to select (e.g., click on) a desired command option. A user selection of a particular
5 command option 1711, 1712, 1713, 1714, and 1715 can also be activated in response to a mouseover event or 'hover' operation in the proximity of the desired command option 1711, 1712, 1713, 1714, and 1715.

[0098] In the example Root page 1700 shown in Figure 17, the user is given an option to select from among several different content sources or content
10 source types. For example, a user can choose to select a movie to watch by using a 'Movie' command option 1713 to select from a source of movie content. Alternatively, a user can choose to search for desired content by using a 'Search' command option 1711 to select from a list of search results. Alternatively, a user can choose to select a television program by using a 'TV' command option 1712
15 to select from a source of television content. Alternatively, a user can choose to select data network content or a website by using an 'Internet' command option 1715 to select from a source of internet content. Alternatively, a user can choose to configure a set of system parameters by using a 'Settings' command option 1714. Additionally, a user can choose to select from a set of personal content,
20 including a personal video or audio library by using a 'Personal' command option to select from a source of personal content. It will be apparent to those of ordinary skill in the art in view of this disclosure that the root page 1700 can include other command options for user selection of other content sources or other content source types. Once a particular content source or content source
25 type is selected by the user by using the root page 1700, the service provider 110, as described above, can access a content catalog or content database 112 to obtain a listing of one or more collections of content, content information and metadata associated with the content from the selected content source. If the content items or content information for the selected content source is not
30 available in the content database 112, pre-defined links can be used to obtain the content items or content information for the selected content source. In this manner, the content items and the related content information for the selected content source can be made available for the user and displayed to the user in the manner detailed below for an example embodiment.

[0099] Referring now to the example shown in Figure 18, the sample content browsing and selection user interface includes a movie portal page 1800 that can be presented to the user in response to the user selecting the 'Movie' command option 1713 from root page 1700. In an example embodiment, the movie portal page 1800 can provide a variety of user-selectable movie content items in an information area 1820 of movie portal page 1800. Additionally, the movie portal page 1800 can provide a variety of movie-related options in a command option area 1810 of movie portal page 1800. In this example embodiment, the movie-related options provided in command option area 1810 give the user an option to select from among several different movie content sources or movie content source types. For example, a user can choose to select a movie to watch by using an 'On Demand' command option 1812 in command option area 1810. The 'On Demand' command option 1812 enables the user to pick movie content from an on-demand, pay-per-view, or downloaded movie content source. Alternatively, a user can choose to select a movie to watch by using a 'Your Movies' command option 1814 in command option area 1810. The 'Your Movies' command option 1814 enables the user to pick movie content from a user's personal movie library. Alternatively, a user can choose to view a listing of movie content by using a 'Movie Listings' command option 1816 in command option area 1810. The 'Movie Listings' command option 1816 enables the user to view or browse movie content items available for viewing and/or purchase from a variety of selectable movie content sources. Additionally, the 'Movie Listings' command option enables the user to view movie content items available for viewing and/or purchase from an aggregation or combination of several movie content sources. In this manner, a user can view movie content items without having to know where a particular movie content item is sourced. The user can also use various options provided within the 'Movie Listings' functionality to sort, filter, and group the movie content items within the movie listing as desired.

[00100] Alternatively, a user can choose to search movie listings for a particular movie content item by using a 'Find' command option 1818 in command option area 1810. The 'Find' command option 1818 enables the user to enter a search query and search movie content items available for viewing and/or purchase from a variety of selectable movie content sources.

Additionally, the 'Find' command option 1818 enables the user to search movie content items available for viewing and/or purchase from an aggregation or combination of several movie content sources. In this manner, a user can search movie content items without having to know where a particular movie content item is sourced. The user can also use various options within the 'Find' functionality to enter a search query, which is used by the content browsing and selection user interface to retrieve matching movie content items for display to the user in movie search results. The search query can be entered with a variety of keywords, wildcards, and filter and group identifiers to enable a user to identify desired movie content items in a compact and efficient search syntax.

[00101] Alternatively, a user can choose to view a listing of recommended movie content by using a 'Recommended' command option 1819 in command option area 1810. The 'Recommended' command option 1819 enables the user to view or browse recommended movie content items available for viewing and/or purchase from a variety of selectable movie content sources. In an example embodiment, the processing system 200 can use recommendation engine 241 to gather user interest information, as described above, and to correlate user interests with corresponding content items and content information retained or identified in the database 112. In this manner, processing system 200 can automatically assemble a list of recommended movie content items of likely interest to a particular user based on the user interest information. This list of recommended movie content items can be displayed for a user in response to selection of the 'Recommended' command option 1819 in command option area 1810. Additionally, the list of recommended movie content items can be sourced from an aggregation or combination of several movie content sources. In this manner, a user can view recommended movie content items without having to know where a particular movie content item is sourced. The user can also use various options provided within the 'Recommended' functionality to sort, filter, and group the recommended movie content items within the recommended movie listing as desired.

[00102] In a manner similar to the 'Recommended' functionality described above, the content browsing and selection user interface of an example embodiment can also provide a set of recommended movie content items in the information area 1820 of movie portal page 1800. In the example shown in

Figure 18, the recommended movie content items are shown in the information area 1820 below a 'Just For You' banner. As explained above, the recommended movie content items can be automatically assembled from a list of movie content items of likely interest to a particular user based on the user interest information.

5 [00103] Referring now to the example shown in Figure 19, the sample content browsing and selection user interface includes a television or broadcast (TV) listing page 1910 that can be presented to the user in response to the user selecting the 'TV' command option 1712 from root page 1700 shown in Figure 17. In an example embodiment, the TV listing page 1910 can provide a variety of user-selectable TV content items in an information area 1914 of TV listing page 1910. Additionally, the TV listing page 1910 can provide a variety of TV programming-related options in a command option area 1912 of TV listing page 1910. In this example embodiment, the TV programming options provided in TV listing page 1910 give the user an option to select from among several different TV content groupings. For example, a user can choose to select TV content to watch by using an 'All Listings' command option in command option area 1912. The 'All Listings' command option enables the user to pick TV or broadcast content from a variety of channels and time periods as shown in the example information area 1914 of Figure 19. Alternatively, a user can choose to select TV/broadcast content from a variety of different TV content groupings, such as a grouping represented by the 'Favorites' command option in command option area 1912. The 'Favorites' command option enables the user to pick TV/broadcast content from a group of pre-defined user favorites. The user favorites can be TV/broadcast content items explicitly specified by the user as favorite TV content items by using options provided by the 'Favorites' functionality. Additionally, the user favorites can be TV/broadcast content items implicitly identified by using recommendation engine 241 to gather user interest information, as described above, and to correlate user interests with corresponding TV/broadcast content items and content information.

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30 [00104] Alternatively, a user can choose to select TV/broadcast content from a grouping represented by the 'Movies' command option in command option area 1912. The 'Movies' command option enables the user to pick TV/broadcast content from a group of broadcast movie options. Alternatively, a user can choose to select TV/broadcast content from a grouping represented by

the 'Sports' command option in command option area 1912. The 'Sports' command option enables the user to pick TV/broadcast content from a group of broadcast sports programming options. Alternatively, a user can choose to select TV/broadcast content from a grouping represented by the 'Kids' command option in command option area 1912. The 'Kids' command option enables the user to pick TV/broadcast content from a group of broadcast programming options targeted for children. Alternatively, a user can choose to select TV/broadcast content from a grouping represented by the 'HD Listings' command option in command option area 1912. The 'HD Listings' command option enables the user to pick TV/broadcast content from a group of broadcast programming options provided in high definition. Alternatively, a user can choose to select TV/broadcast content from a grouping represented by the 'Just For You' command option in command option area 1912. The 'Just For You' command option enables the user to pick TV/broadcast content from a group of broadcast programming options automatically determined as likely of interest to the user by the recommendation engine 241. As explained above, the recommendation engine 241 can automatically assemble a list of TV/broadcast content items of likely interest to a particular user based on the user interest information. Alternatively, a user can choose to select TV/broadcast content from a grouping represented by the 'Date/Time' command option in command option area 1912. The 'Date/Time' command option enables the user to pick TV/broadcast content based on a user-specified date/time parameter(s). Alternatively, a user can choose to select for viewing a set of editorial information associated with TV/broadcast content as represented by the 'Editorial' command option in command option area 1912. The 'Editorial' command option enables the user to view editorial information related to a variety of TV/broadcast content or content groupings as previously gathered from a variety of editorial sources. It will be apparent to those of ordinary skill in the art in view of the disclosure herein that a variety of other TV/broadcast program grouping options can be similarly provided via the TV listing page 1910 as described herein.

[00105] Referring now to the example shown in Figure 20, the sample content browsing and selection user interface includes a personal content listing page 2010 that can be presented to the user in response to the user selecting a

'Personal Content' command option from root page 1700 shown in Figure 17. In an example embodiment, the personal content listing page 2010 can provide a variety of user-selectable personal content items in an information area 2014 of personal content listing page 2010. The listing of personal content can be
5 obtained from a user's personal video or audio library as previously downloaded or linked with the processing system 200. The personal content can be stored on a user's digital video recorder (DVR), hard disk device, flash drive, portable media device, DVD or CD player, video/audio/photo libraries, or the like as accessible via the user's user platform. As with the content groupings described
10 above in regard to movie or TV/broadcast content, the personal content can be grouped into a variety of user-definable groupings. These personal content groupings can be configured for selection by a user by using corresponding command options provided in command option area 2012. For example, as shown in Figure 20, a user can configure the user's personal content into
15 groupings, such as those shown in sample command option area 2012.

[00106] As described above, the user can perform browsing and/or searching operations by using various user interface elements as described above. For example, the user can perform a search operation by using a corresponding command option ('Search') 1711 provided in the command
20 option area 1710 shown in Figure 17. The personal content items can be included in these browsing and/or searching operations such that browse or search operations of aggregated content can include results with matching personal content items as well as movie or TV/broadcast content items. In this manner, a user can perform operations on personal content that are similar to
25 operations performed on public content (e.g., on-demand movies, TV/broadcast content, internet content, etc.). This functionality of the present embodiments effectively removes the distinction between personal content and public content and thereby allows the user to manage his/her content in a holistic manner. This holistic approach provided by the various embodiments enables the user to focus
30 on the content itself rather than the source from which the content originates.

[00107] Referring again to Figure 17, the sample content browsing and selection user interface includes an option for a user to select an Internet content display presented to the user in response to the user selecting the 'Internet' command option 1715 from root page 1700 shown in Figure 17. In an example

embodiment, the Internet content display can provide a variety of user-selectable Internet content items or website options in an information area 1720. In a particular embodiment, information area 1720 can be configured similarly to a conventional web browser on a conventional personal computer. Additionally, the Internet content display can provide a variety of Internet browsing-related options in an information area of an Internet browsing display. In this manner, a user can use the content browsing and selection user interface to browse the Internet in a manner similar to a user using a personal computer and web browser to browse the Internet.

10 [00108] Referring again to the example shown in Figure 18, the sample content browsing and selection user interface includes a movie portal page 1800 that can be presented to the user in response to the user selecting the ‘Movie’ command option 1713 from root page 1700. In an example embodiment, the movie portal can provide a variety of user-selectable movie content items in an information area 1820 of movie portal page 1800. In the example embodiment shown in Figure 18, each user-selectable movie content item in an information area 1820 is represented as a view of a movie DVD jacket, DVD/CD case, album cover, or the like including a graphical image consistent with the actual image provided on a physical version of the corresponding content selection. By rendering the various content items in this manner, a user is more easily able to select a particular content item based in part on a familiar image associated with the content in addition to the textual identifier for each content item. If no graphical image consistent with an actual image provided on a physical version of the corresponding content selection is available, a user-selectable image can be associated with a particular content item to enable a user to associate a familiar image with the particular content item.

[00109] As shown in the example of Figure 18 and described above, a user can select a particular content item from the list of content items in information area 1820 by using a select button on a conventional television remote device, conventional mouse, wireless telephone, or other user platform control device to click on a desired content item. In the example of Figure 18, the user has selected the content item, “Forrest Gump” as indicated by the red arrows shown on either side of the command option representing the “Forrest Gump” movie selection. As a result of this content item selection, the content

item page 2110 of Figure 21 can be displayed. It will be apparent to those of ordinary skill in the art in view of this disclosure that a similarly formatted display screen can be displayed for a selection of any of the content items provided in information area 1820.

5 [00110] Referring now to Figure 21, in response to selection of the command option representing the “Forrest Gump” content item in information area 1820, the content item page 2110 of Figure 21 can be displayed. In an example embodiment, the user selection of a particular content item opens up an overview display screen, such as content item page 2110, which provides several
10 sets of information and selectable command options associated with the selected content item. In the sample content item page 2110 shown in Figure 21, these sets of information associated with the selected content item include a content item synopsis, which provides a description, summary, or abstract of the plot or subject matter associated with the selected content item. Other information can
15 include a rating, genre, category, run time, ranking, date, video and/or audio resolution, and the like as associated with the particular content item. The sets of information associated with the selected content item can also include a listing of the personnel associated with the content item, such as director, producer, cast, author, performer, writer, composer, and the like. The sets of information
20 associated with the selected content item can also include a one or more images associated with the content item. These images can portray still images of scenes from the movie, pictures of the actors, performers, or songwriters, or other memorable images reminiscent of the particular content item. The sets of information associated with the selected content item can also include a list of
25 awards or credits received by the content item or its originators. The sets of information associated with the selected content item can also include a listing of the sources from which the content item can be obtained for viewing, listening, purchase, rent, or otherwise. The selectable command options associated with the selected content item can include a selectable command option for requesting
30 a viewing of a trailer of the selected content item. In response to a selection of this selectable command option, all or a portion of the information area 2114 can be replaced with a video window for displaying of a trailer associated with the selected content item. The selectable command options associated with the selected content item can include a selectable command option for requesting

that the selected content item be bookmarked or added to a list of favorite content items. In response to a selection of this selectable command option, the selected content item, or a link thereto, is added to a list of favorite content associated with the particular user. As described above, the user can, at a later time, select one or more content items from the user's favorites list. The selectable command options associated with the selected content item can include a selectable command option for requesting that the selected content item be played or otherwise rendered for viewing by the user. In response to a selection of this selectable command option, all or a portion of the information area 2114 can be replaced with a video window for displaying the selected content item. The selectable command options associated with the selected content item can include a selectable command option for providing a user-entered rating or ranking of the selected content item. In response to a selection of this selectable command option, the user's rating or ranking of the selected content item can be added to a global pool of content rating/ranking data collected from a plurality of users and maintained by the processing system 200. The global pool of content rating/ranking data can be used by the recommendation engine 241 when preparing the list of recommended content for a particular user. Additionally, advertising content can be displayed in the information area 2114 to provide a revenue source for the service provider 110.

[00111] As detailed above, the overview display screen of an example embodiment, such as content item page 2110, provides several sets of information and selectable command options associated with the selected content item. Additionally, the overview display screen can provide a variety of content-related options in a command option area 2112 of content item page 2110. In this example embodiment, the content-related options provided in command option area 2112 give the user an option to select from among several different dimensions of the selected content item. For example, a user can choose to watch/listen to a selected content item by using a 'Watch' command option in command option area 2112. The 'Watch' command option enables the user to activate a content player associated with the selected content item or otherwise enable the processing system 200 to fetch and render the selected content item from an on-demand, pay-per-view, downloaded content source, TV/broadcast source, or personal content source. Alternatively, a user can choose to view the

synopsis of the selected content item by using a 'Synopsis' command option in command option area 2112. The 'Synopsis' command option enables the user to view detailed descriptive information associated with the selected content item. In a particular embodiment, the content item synopsis can include hyperlinks or
5 embedded selectable command options, which can direct the user to other information related to the selected content item. In this manner, the user can 'drill' into the details of a particular content item (or pursue a specific dimension of the content item) that is of most interest to the user. This feature of the various embodiments is described in more detail below.

10 **[00112]** In the example embodiment illustrated in Figure 21, the content-related options provided in command option area 2112 give the user an option to select from among several different dimensions of the selected content item. For example, a user can choose to view detailed information related to the cast and crew of a selected content item by using a 'Cast & Crew' command option in
15 command option area 2112. In response to user-selection of the 'Cast & Crew' command option in command option area 2112, the display screen 2210 can be displayed as shown in Figure 22.

[00113] Referring now to Figure 22, display screen 2210 is shown in response to user selection of the 'Cast & Crew' command option of command
20 option area 2112. Display area 2210 provides additional levels of detail related to the personnel associated with the selected content item. For example, as shown in Figure 22, a set of people associated with the selected content item, as each represented by selectable command options, can be displayed in command option area 2212. Any of the people represented by the selectable command
25 options in command option area 2212 can be selected by the user. As shown in the example of Figure 22, the user has selected the command option associated with 'Evangeline Lily' as indicated by the highlighted command option and the red arrows on either side of the command option associated with 'Evangeline Lily'. In response to the user selection of this particular person associated with
30 the selected content item, additional details related to the selected person are displayed in command option area 2212. It will be apparent to those of ordinary skill in the art in view of this disclosure that additional details related to the other people represented in command option area 2212 would be displayed in command option area 2212 upon selection of the command option corresponding

to the other person. Additionally, the highlighted command option associated with a selected person includes embedded user-selectable command options, which allow a user to view further details and activate additional functionality related to the selected person. For example, the detailed information related to the selected person shown in Figure 22 indicates that the selected person, 'Evangeline Lily' has appeared in '3 Movies' and '2 TV Shows'. The text strings, '3 Movies' and '2 TV Shows' can be represented in the highlighted command option associated with a selected person as user selectable command options or hyperlinks. As such, a user can select these embedded command options or hyperlinks and be directed to a new display screen containing further detailed information on the selected item. For example, in regard to the sample display screen 2210 shown in Figure 22, the user can select the embedded command option associated with the '3 Movies' in which the selected person, 'Evangeline Lily' has appeared. In response to this selection, the user is directed to a new display screen showing further information related to the three movies in which selected person, 'Evangeline Lily' has appeared. This new display screen can itself also include embedded command options or hyperlinks, which can allow a user to view further details and/or activate additional functionality related to the selected item. For example, the user can activate an embedded command option in this new display screen to watch or record one of the three movies in which selected person, 'Evangeline Lily' has appeared. Similarly, the user can 'drill' into other information related to or linked with a previously selected item to delve into detailed information in various dimensions of a selected item.

25 **[00114]** For example, referring again to Figure 22, the user is presented with several options corresponding to dimensions related to a selected content item in command option area 2214. These dimensions are represented by selectable command options that enable a user to obtain many levels of detailed information and functionality related to a selected dimension as described above.

30 For example, the user can select the command option 'Cast' as provided in command option area 2214 (or 'Cast & Crew' in command option area 2112) to obtain many levels of linked detailed information and functionality related to the personnel associated with the selected content item as described above. This linked information can be arranged hierarchically or linearly.

[00115] In similar fashion, other dimensions of information related to a selected content item, each dimension being represented by selectable command options in command option area 2214, enable a user to obtain many levels of detailed information and functionality related to other selected dimensions as well. For example, a user can select a command option 'Plot' corresponding to a plot dimension corresponding to a selected content item. In an example embodiment, the plot dimension enables a user to obtain many levels of detailed information and functionality related to the plot of the selected content item. For example, the user can obtain a summary of the plot of the selected content item, obtain a list of other content items with a similar plot, obtain a list of other content items by the same writer and/or author, and watch, purchase, and/or rent a content item with a similar or related plot all via the content browsing and selection user interface provided in the various embodiments.

[00116] Similarly, a user can select a command option 'Music' in command option area 2214 corresponding to a music or audio dimension associated with a selected content item. In an example embodiment, the music or audio dimension enables a user to obtain many levels of detailed information and functionality related to the music or audio track of the selected content item. For example, the user can obtain a listing of the music and/or audio associated with the selected content item, obtain a list of other content items with a similar musical score and/or audio track, obtain a list of other content items having a musical score and/or audio track by the same musician/composer/sound technician, and watch, purchase, and/or rent a content item with a similar or related musical score and/or audio track all via the content browsing and selection user interface provided in the various embodiments.

[00117] Similarly, a user can select a command option 'Review' in command option area 2214 or 2112 corresponding to reviews associated with a selected content item. In an example embodiment, the review dimension enables a user to obtain many levels of detailed information and functionality related to the published reviews of the selected content item. For example, the user can obtain a listing of the published reviews associated with the selected content item, obtain a list of other content items with similar reviews, a similar genre, or from a similar category, obtain a list of other content items having a review by the same reviewer, and watch, purchase, and/or rent a content item with a similar

or related review, a similar genre, from a similar category, or from the same reviewer all via the content browsing and selection user interface provided in the various embodiments. An example of a list of reviews 2310 is shown in the example of Figure 23.

5 [00118] Referring again to Figure 21, a user can select a command option 'Photos' in command option area 2112 corresponding to photographs or images associated with a selected content item. In an example embodiment, the photos dimension enables a user to obtain many levels of detailed information and functionality related to the published photographs or images corresponding to
10 the selected content item. For example, the user can obtain a listing of the published photographs or images associated with the selected content item, obtain a list of other content items with similar photographs or images, obtain a list of other content items having a photographs or images by the same photographer, animator, illustrator, or graphic artist, and watch, purchase, and/or
15 rent a content item with a similar or related photographs or images, or from the same photographer, animator, illustrator, or graphic artist all via the content browsing and selection user interface provided in the various embodiments.

[00119] Referring still to Figure 21, a user can select a command option 'Similar' in command option area 2112 corresponding to a request for other
20 content related to a selected content item. In an example embodiment, the similar content dimension enables a user to obtain many levels of detailed information and functionality related to other content related to the selected content item. For example, the user can obtain a listing of other content items related to the selected content item, obtain a list of other content items with a similar genre or
25 from a similar category, rating, ranking, date, etc., and watch, purchase, and/or rent a related content item all via the content browsing and selection user interface provided in the various embodiments.

[00120] Referring still to Figure 21, a user can select a command option 'Awards' in command option area 2112 corresponding to awards or
30 certifications associated with a selected content item. In an example embodiment, the awards dimension enables a user to obtain many levels of detailed information and functionality related to the awards or certifications corresponding to the selected content item. For example, the user can obtain a listing of the awards or certifications associated with the selected content item,

obtain a list of other content items with similar awards or certifications, and watch, purchase, and/or rent a content item with a similar or related award or certification all via the content browsing and selection user interface provided in the various embodiments. It will be apparent to those of ordinary skill in the art
5 in view of this disclosure that a variety of other content information dimensions associated with a selected content item can be similarly provided by using the functionality described herein.

[00121] Thus, the content browsing and selection user interface provided in various embodiments herein improves the user's content browsing and
10 selection of digital content items in a digital content library by using a digital representation of the desired content item.

[00122] Figure 24 illustrates a sequence of processing operations in an example embodiment. As shown in Figure 24, the processing operations performed by an example embodiment 2400 at a user platform include: gathering
15 available content information related to particular items of content from at least one source of a plurality of content sources via a data network, at processing block 2410; processing the content information, by using a processor, to provide a digital representation of a content item, at processing block 2412; receiving a selection of the content item, the selection being in response to a user action
20 performed on the digital representation corresponding to the content item, at processing block 2414; and displaying an expanded dimension of information associated with the selected content item in response to receiving the selection of the content item, the expanded dimension of information including at least one user-selectable command option to obtain an additional level of detailed
25 information related to the selected content item, at processing block 2416.

[00123] Figure 25 shows a diagrammatic representation of a machine in the example form of a computer system 2500 within which a set of instructions, for causing the machine to perform any one or more of the methodologies discussed herein, may be executed. In alternative embodiments, the machine
30 operates as a standalone device or may be coupled, e.g., networked, to other machines. In a networked deployment, the machine may operate in the capacity of a server or a client machine in client-server network environment, or as a peer machine in a peer-to-peer and/or distributed network environment. The machine may be a server computer, a client computer, a personal computer (PC), a tablet

PC, a set-top box (STB), a Personal Digital Assistant (PDA), a cellular telephone, a web appliance, an audio or video player, a network router, switch or bridge, or any machine capable of executing a set of instructions, sequential or otherwise, that specify actions to be taken by that machine. Further, while a single machine is illustrated, the term “machine” shall also be taken to include any collection of machines that individually or jointly execute a set, or multiple sets, of instructions to perform any one or more of the methodologies discussed herein.

[00124] The example computer system 2500 includes a data processor 2502, e.g., a central processing unit (CPU), a graphics processing unit (GPU), or both, a main memory 2504 and a static memory 2506, which communicate with each other via a bus 2508. The computer system 2500 may further include a video display unit 2510, e.g., a liquid crystal display (LCD), a cathode ray tube (CRT), or other imaging technology. The computer system 2500 also includes an input device 2512, e.g., a keyboard, a cursor control device 2514, e.g., a mouse, a disk drive unit 2516, a signal generation device 2518, e.g., a speaker, and a network interface device 2520.

[00125] The disk drive unit 2516 includes a machine-readable medium 2522 on which is stored one or more sets of instructions, e.g., software 2524, embodying any one or more of the methodologies or functions described herein. The instructions 2524 may also reside, completely or at least partially, within the main memory 2504, the static memory 2506, and/or within the processor 2502 during execution thereof by the computer system 2500. The main memory 2504 and the processor 2502 also may constitute machine-readable media. The instructions 2524 may further be transmitted or received over a network 2526 via the network interface device 2520.

[00126] Applications that may include the apparatus and systems of various embodiments broadly include a variety of electronic and computer systems. Some embodiments implement functions in two or more specific interconnected hardware modules or devices with related control and data signals communicated between and through the modules, or as portions of an application-specific integrated circuit. Thus, the example system is applicable to software, firmware, and hardware implementations. In example embodiments, a computer system, e.g., a standalone, client or server computer system,

configured by an application may constitute a "module" that is configured and operates to perform certain operations as described herein. In other embodiments, the "module" may be implemented mechanically or electronically. For example, a module may comprise dedicated circuitry or logic that is permanently configured, e.g., within a special-purpose processor, to perform certain operations. A module may also comprise programmable logic or circuitry, e.g., as encompassed within a general-purpose processor or other programmable processor, that is temporarily configured by software to perform certain operations. It will be appreciated that the decision to implement a module mechanically, in the dedicated and permanently configured circuitry, or in temporarily configured circuitry, e.g. configured by software, may be driven by cost and time considerations. Accordingly, the term "module" should be understood to encompass an entity that is physically or logically constructed, permanently configured, e.g., hardwired, or temporarily configured, e.g., programmed, to operate in a certain manner and/or to perform certain operations described herein. While the machine-readable medium 2522 is shown in an example embodiment to be a single medium, the term "machine-readable medium" should be taken to include a single medium or multiple media, e.g., a centralized or distributed database, and/or associated caches and servers that store the one or more sets of instructions. The term "machine-readable medium" shall also be taken to include any medium that is capable of storing, encoding or carrying a set of instructions for execution by the machine and that cause the machine to perform any one or more of the methodologies of the present description. The term "machine-readable medium" shall accordingly be taken to include, but not be limited to, solid-state memories, optical media, and/or magnetic media. As noted, the software may be transmitted over a network by using a transmission medium. The term "transmission medium" shall be taken to include any non-transitory medium that is capable of storing, encoding or carrying instructions for transmission to and execution by the machine, and includes digital or analog communications signal or other intangible medium to facilitate transmission and communication of such software.

[00127] The illustrations of embodiments described herein are intended to provide a general understanding of the structure of various embodiments, and they are not intended to serve as a complete description of all the elements and

features of apparatus and systems that might make use of the structures described herein. Many other embodiments will be apparent to those of ordinary skill in the art upon reviewing the above description. Other embodiments may be utilized and derived therefrom, such that structural and logical substitutions and changes may be made without departing from the scope of this disclosure. The figures provided herein are merely representational and may not be drawn to scale. Certain proportions thereof may be exaggerated, while others may be minimized. Accordingly, the specification and drawings are to be regarded in an illustrative rather than a restrictive sense.

10 **[00128]** The description herein may include terms, such as “up”, “down”, “upper”, “lower”, “first”, “second”, etc. that are used for descriptive purposes only and are not to be construed as limiting. The elements, materials, geometries, dimensions, and sequence of operations may all be varied to suit particular applications. Parts of some embodiments may be included in, or substituted for, those of other embodiments. While the foregoing examples of dimensions and ranges are considered typical, the various embodiments are not limited to such dimensions or ranges.

15 **[00129]** The Abstract is provided to comply with 37 C.F.R. §1.74(b) to allow the reader to quickly ascertain the nature and gist of the technical disclosure. The Abstract is submitted with the understanding that it will not be used to interpret or limit the scope or meaning of the claims.

20 **[00130]** In the foregoing Detailed Description, various features are grouped together in a single embodiment for the purpose of streamlining the disclosure. This method of disclosure is not to be interpreted as reflecting an intention that the claimed embodiments have more features than are expressly recited in each claim. Thus, the following claims are hereby incorporated into the Detailed Description, with each claim standing on its own as a separate embodiment.

25 **[00131]** The system of an example embodiment may include software, information processing hardware, and various processing steps, which are described herein. The features and process steps of example embodiments may be embodied in articles of manufacture as machine or computer executable instructions. The instructions can be used to cause a general purpose or special purpose processor, which is programmed with the instructions to perform the

steps of an example embodiment. Alternatively, the features or steps may be performed by specific hardware components that contain hard-wired logic for performing the steps, or by any combination of programmed computer components and custom hardware components. While embodiments are
5 described with reference to the Internet, the method and system described herein is equally applicable to other network infrastructures or other data communications systems.

[00132] Various embodiments are described herein. In particular, the use of embodiments with various types and formats of user interface presentations
10 and/or application programming interfaces may be described. It can be apparent to those of ordinary skill in the art that alternative embodiments of the implementations described herein can be employed and still fall within the scope of the claimed invention. In the detail herein, various embodiments are described as implemented in computer-implemented processing logic denoted
15 sometimes herein as the “Software”. As described above, however, the claimed invention is not limited to a purely software implementation.

Thus, a computer-implemented system and method for caching data in a content system are disclosed. While the present invention has been described in terms of several example embodiments, those of ordinary skill in the art can recognize
20 that the present invention is not limited to the embodiments described, but can be practiced with modification and alteration within the spirit and scope of the appended claims. The description herein is thus to be regarded as illustrative instead of limiting.

CLAIMS

What is claimed is:

1. A computer-implemented method comprising:
gathering affinity information related to a particular user's affinity for
5 particular types of content;
receiving a data object related to a particular item of content from at least
one source of a plurality of content sources via a data network;
assigning, by use of a processor, a weight to the data object based on the
affinity information; and
10 flushing the data object from a content/content information cache based
on the weight assigned to the data object.
2. The computer-implemented method of claim 1 wherein the affinity
information includes explicit user profile information.
15
3. The computer-implemented method of claim 1 wherein the affinity
information includes implicit user behavior information.
4. The computer-implemented method of claim 1 wherein the data object
20 includes information related to a particular content item or a particular content
information item.
5. The computer-implemented method of claim 1 wherein the
content/content information cache is flushed based on an age of the data object
25 and the weight of the data object.
6. The computer-implemented method of claim 1 wherein the data object is
of a type from the group: movie content information, television/broadcast
content information, personal content information, internet content information,
30 celebrity content information, review content information, award content
information.

7. The computer-implemented method of claim 1 including delivering a selected item of content to a user platform of a user.
8. A system comprising:
5 one or more data processors;
a content/content information cache accessible to the one or more data processors; and
a cache management component, being executable by the one or more data processors, to:
10 gather affinity information related to a particular user's affinity for particular types of content;
receive a data object related to a particular item of content from at least one source of a plurality of content sources via a data network;
assign, by use of a processor, a weight to the data object based on the
15 affinity information; and
flush the data object from the content/content information cache based on the weight assigned to the data object.
9. The system of claim 8 wherein the affinity information includes explicit
20 user profile information.
10. The system of claim 8 wherein the affinity information includes implicit user behavior information.
- 25 11. The system of claim 8 wherein the weight assigned to the data object is stored in a header of the data object.
12. The system of claim 8 wherein the content/content information cache is flushed based on an age of the data object and the weight of the data object.
30
13. The system of claim 8 wherein the data object is of a type from the group: movie content information, television/broadcast content information, personal content information, internet content information, celebrity content information, review content information, award content information.

14. The system of claim 8 being configured to deliver a selected item of content to a user platform of a user.

5

100

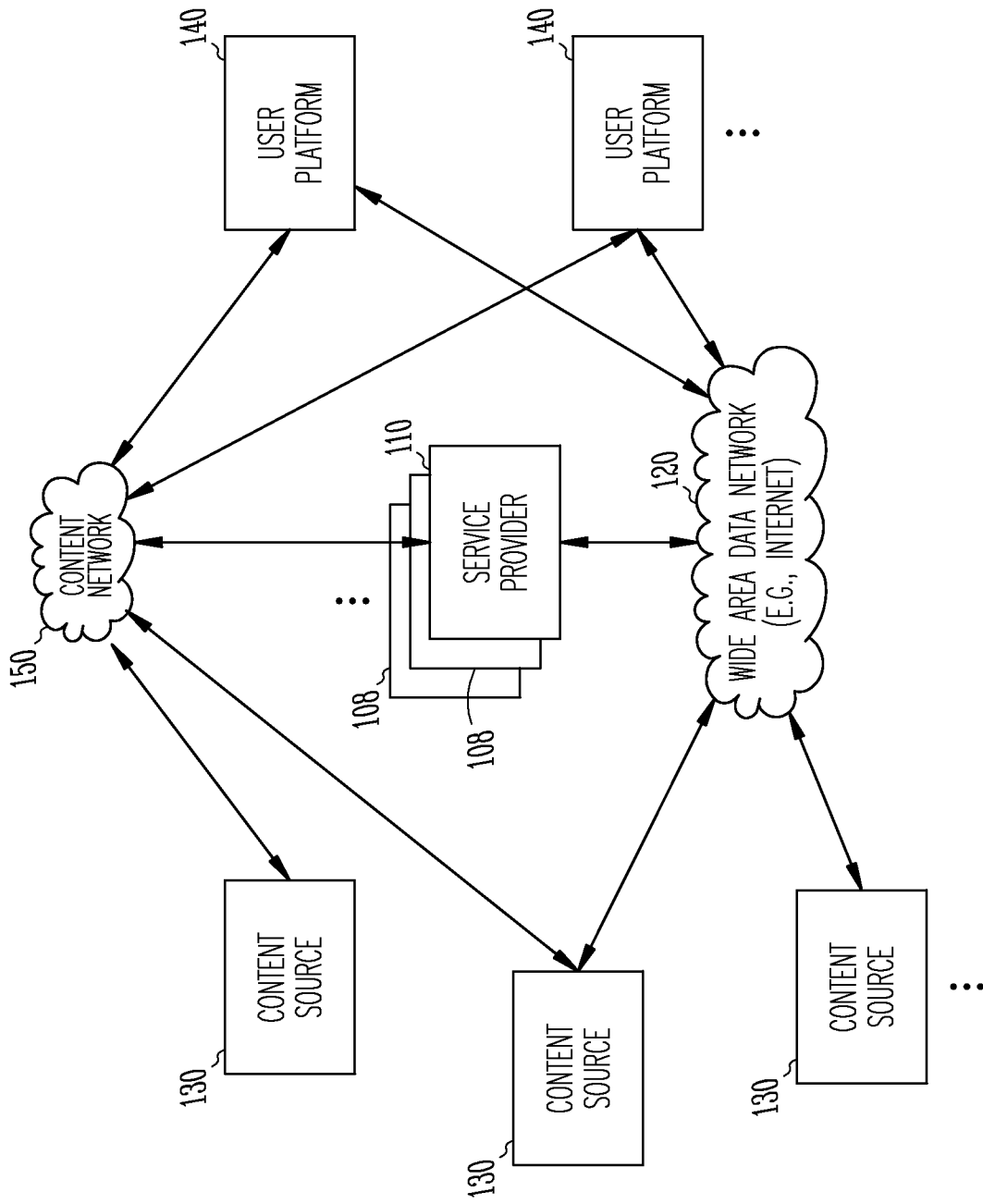


Fig. 1

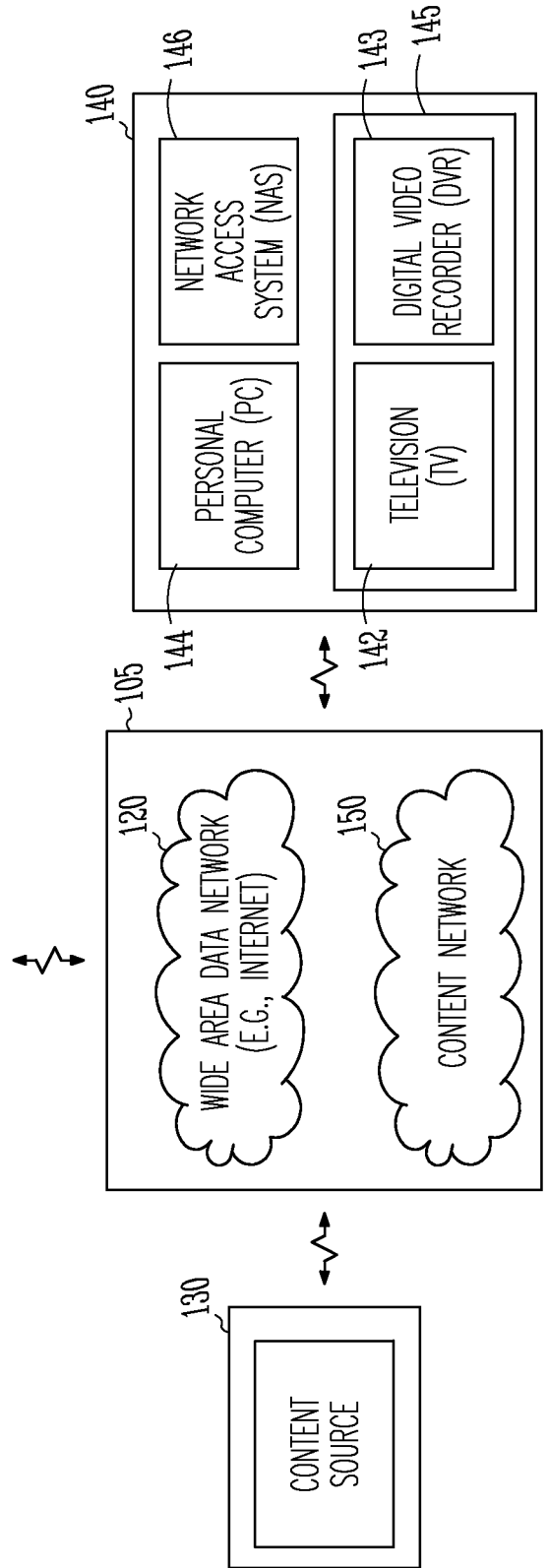
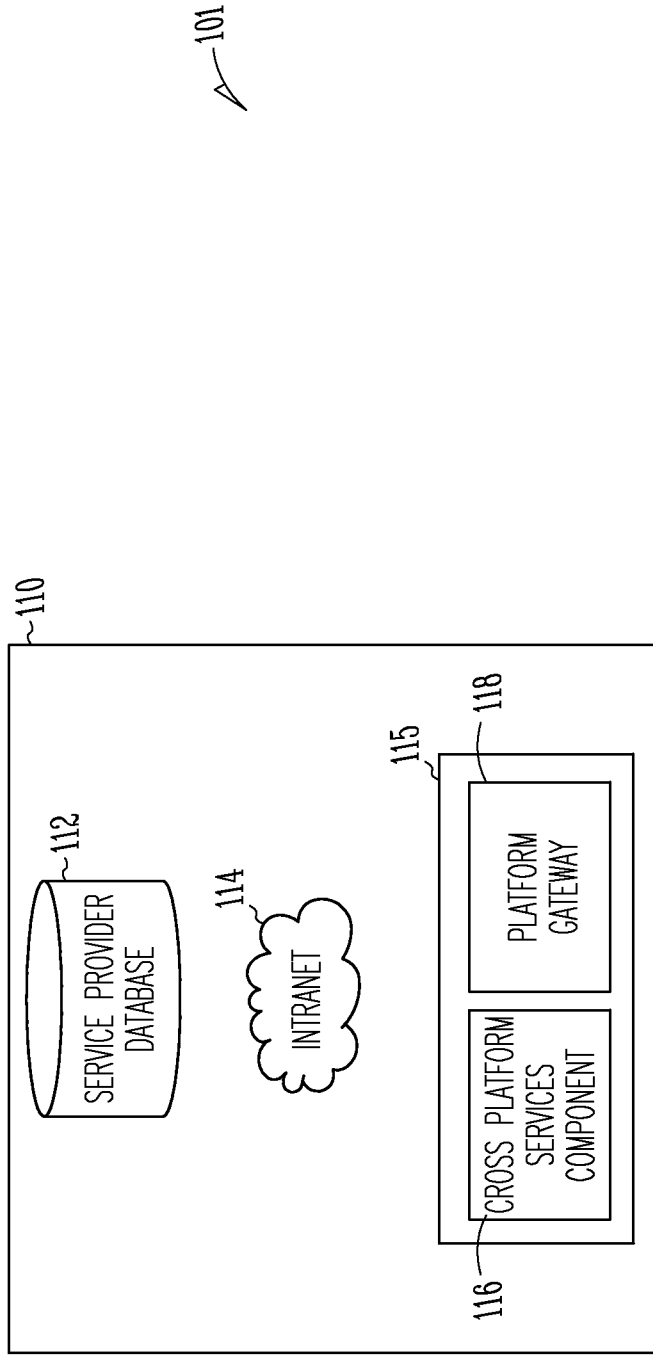


Fig. 2

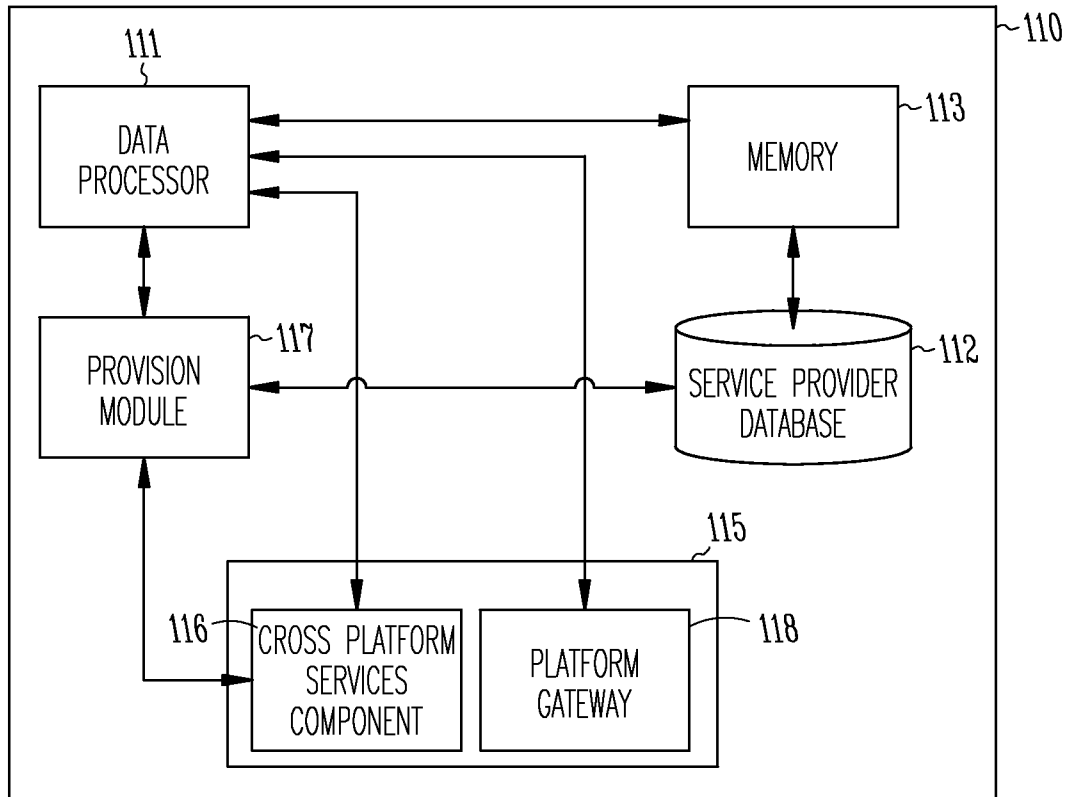


Fig. 3

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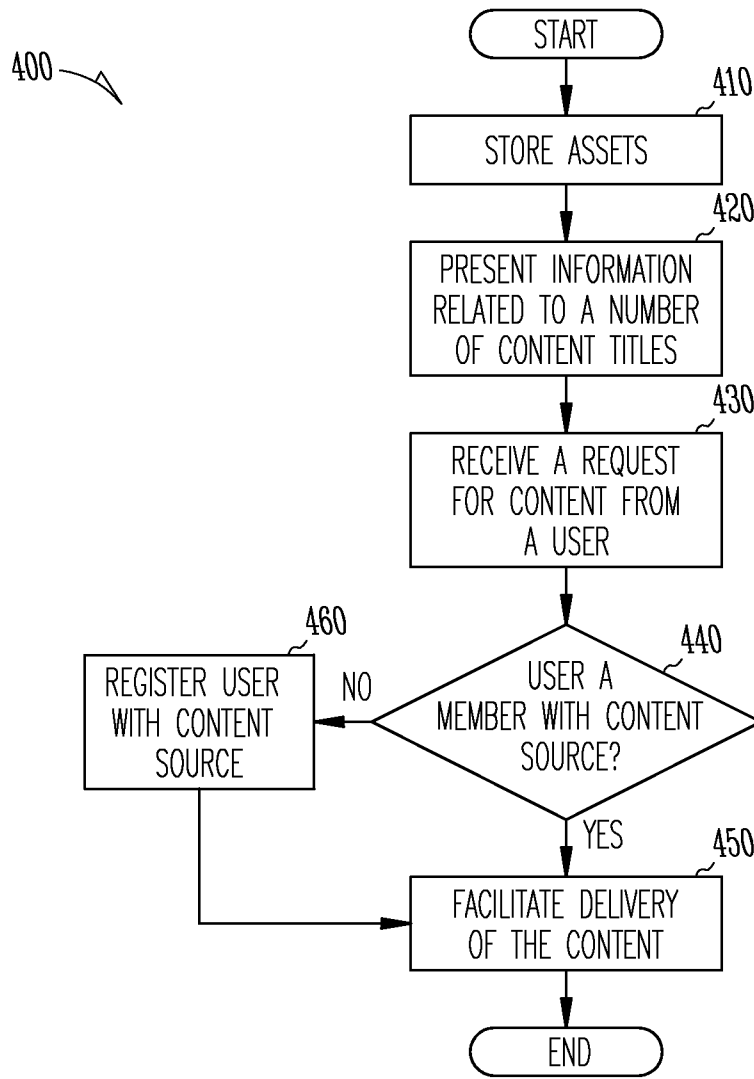


Fig. 4

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501

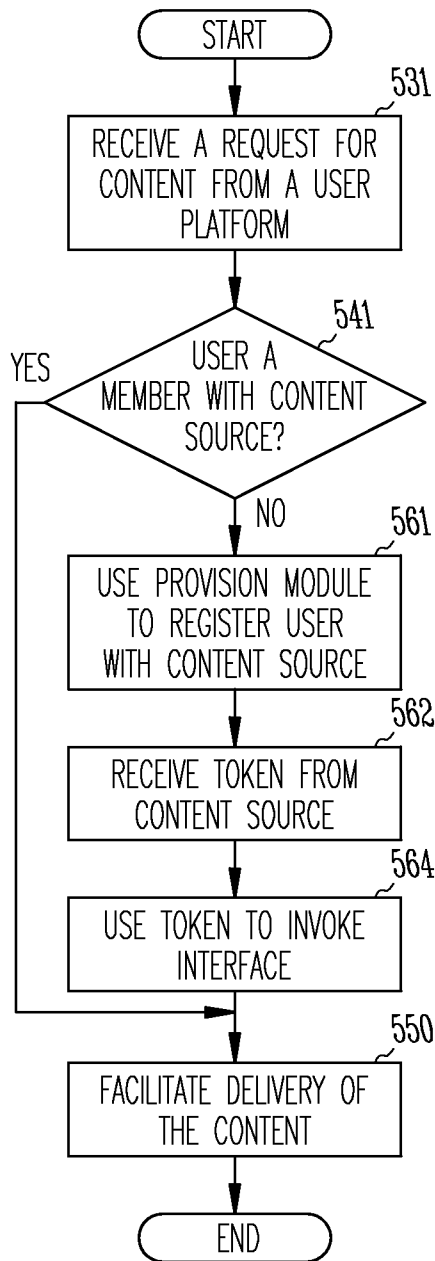


Fig. 5

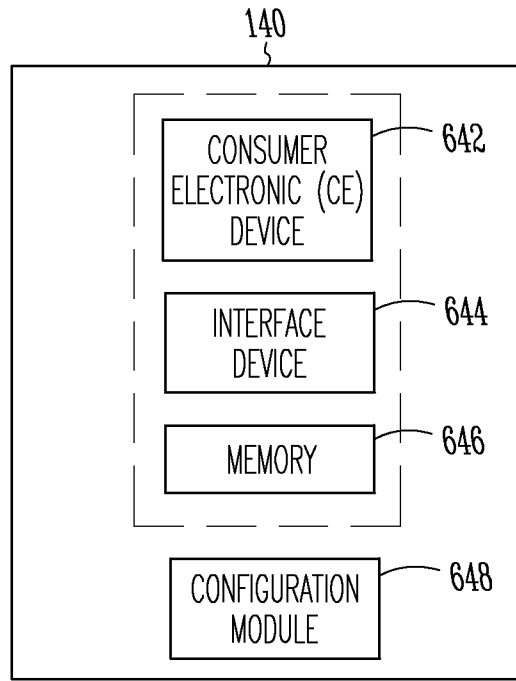


Fig. 6

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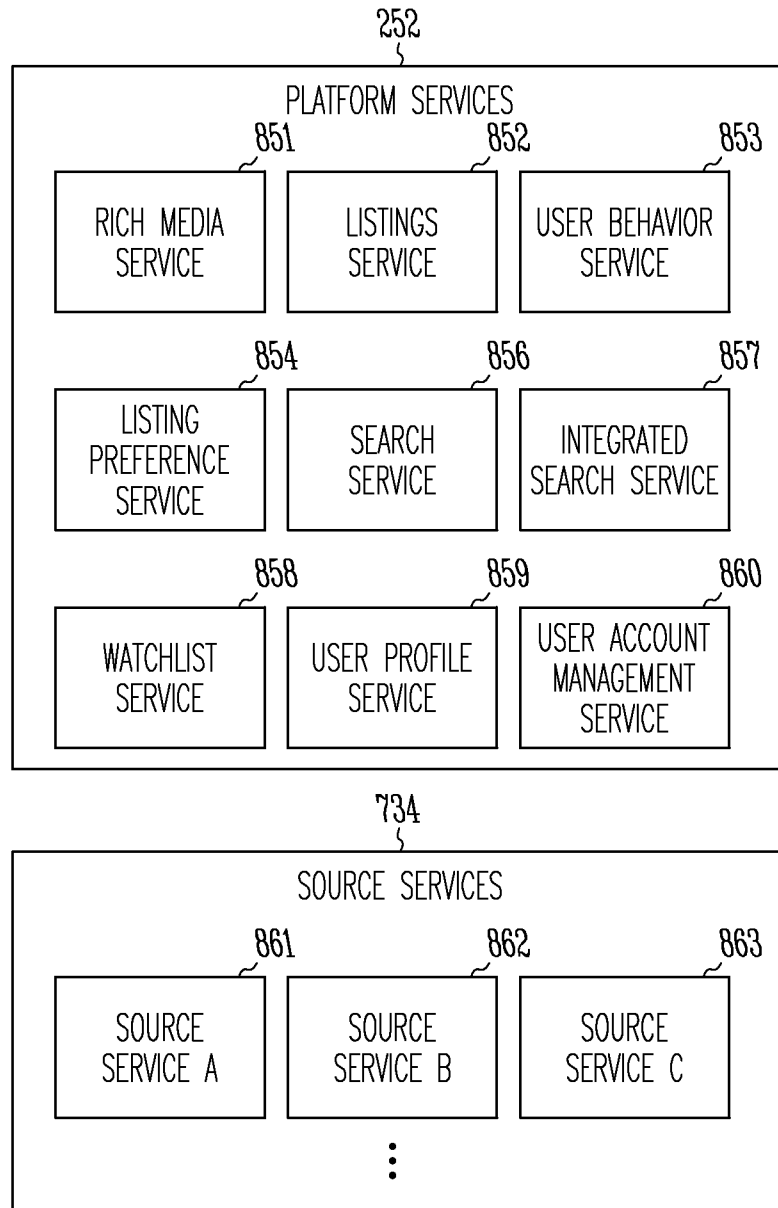


Fig. 8

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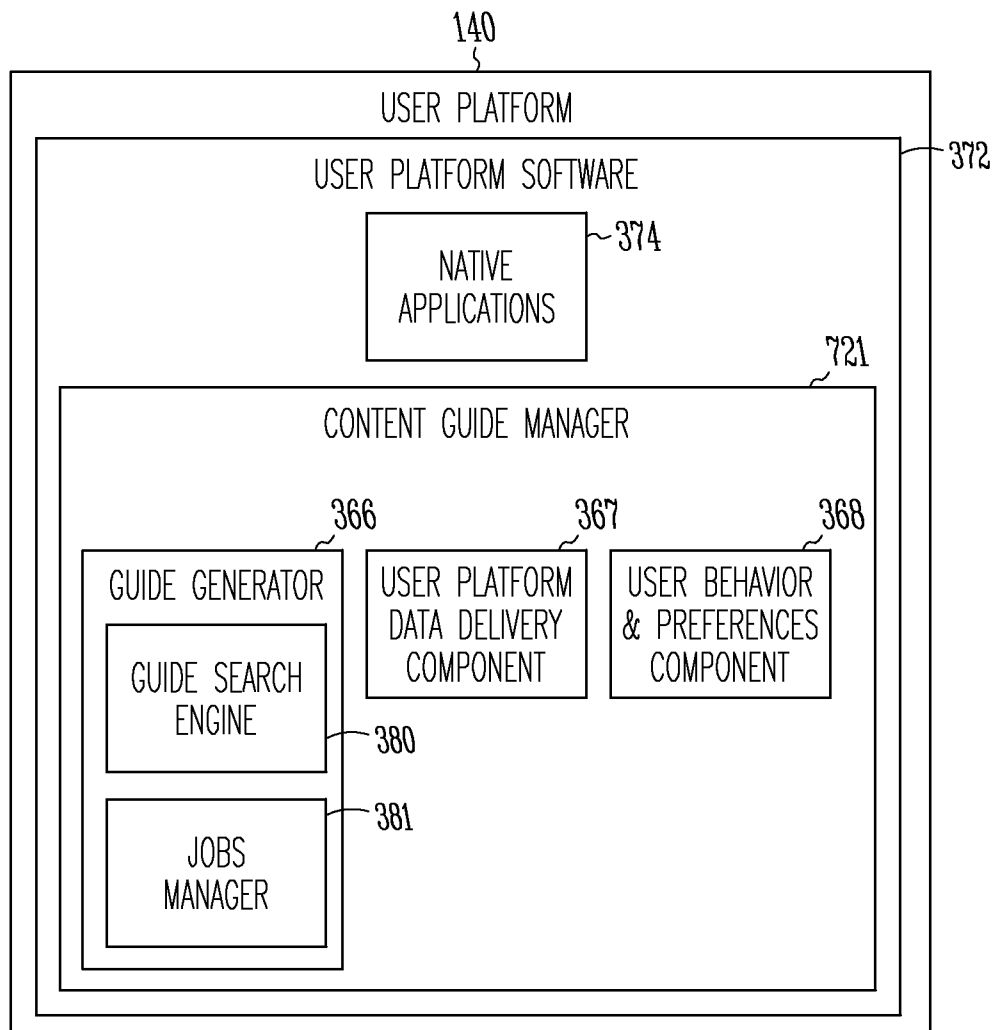


Fig. 9

10/26

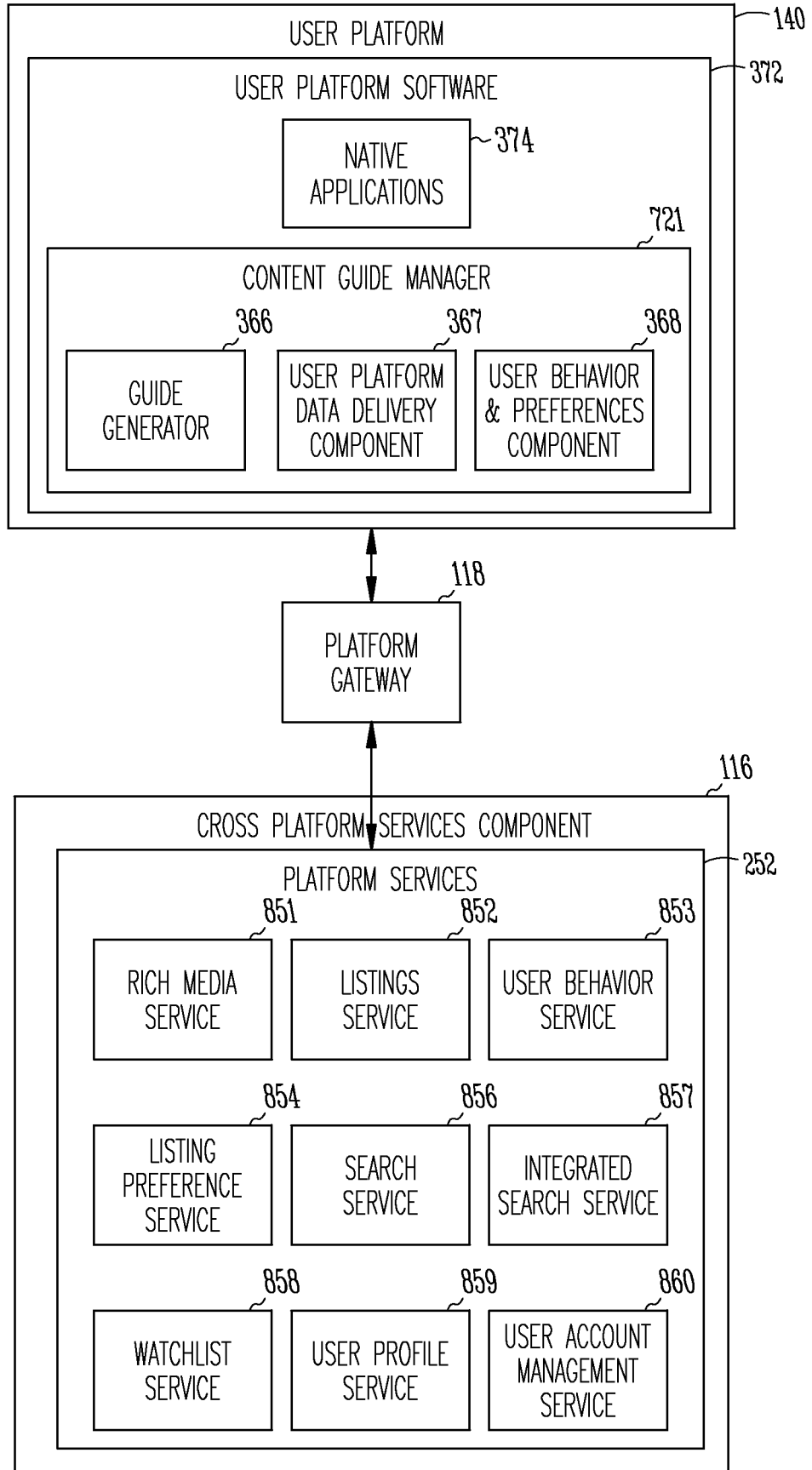


Fig. 10

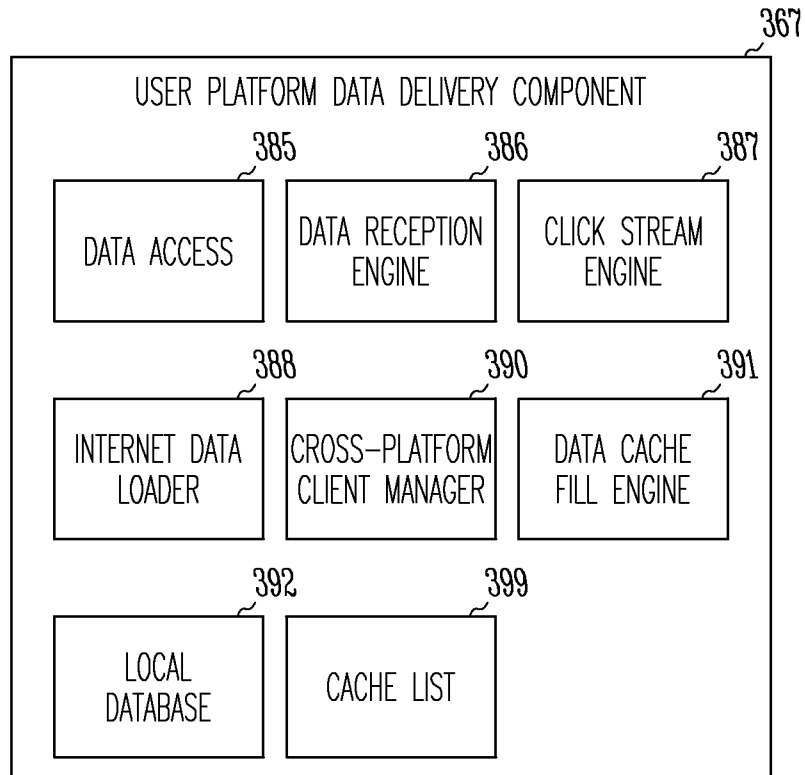


Fig. 11

12/26

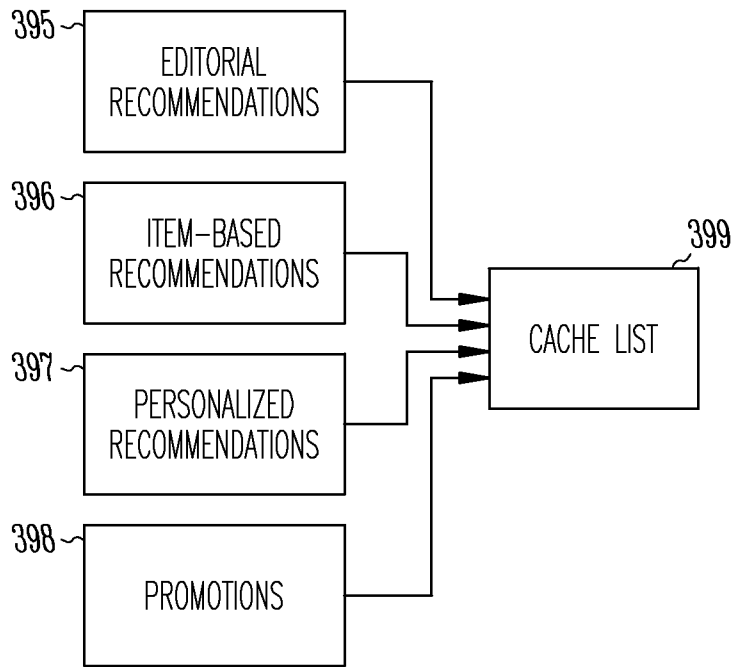


Fig. 12

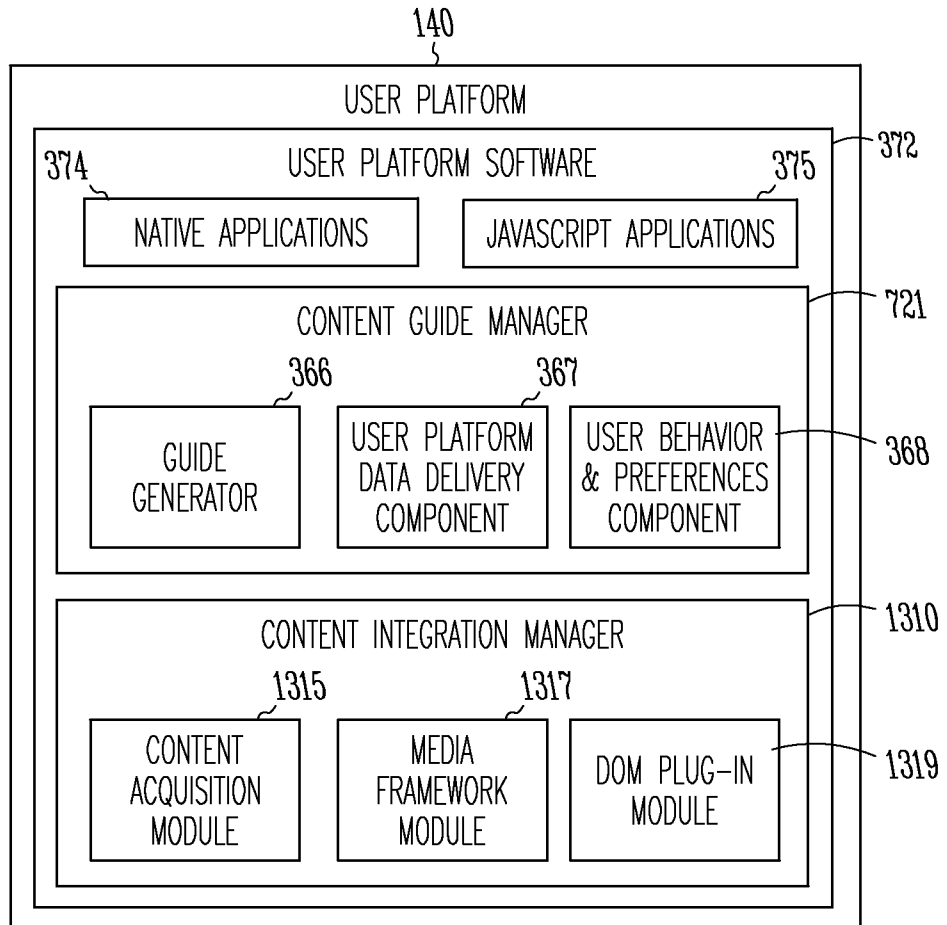


Fig. 13

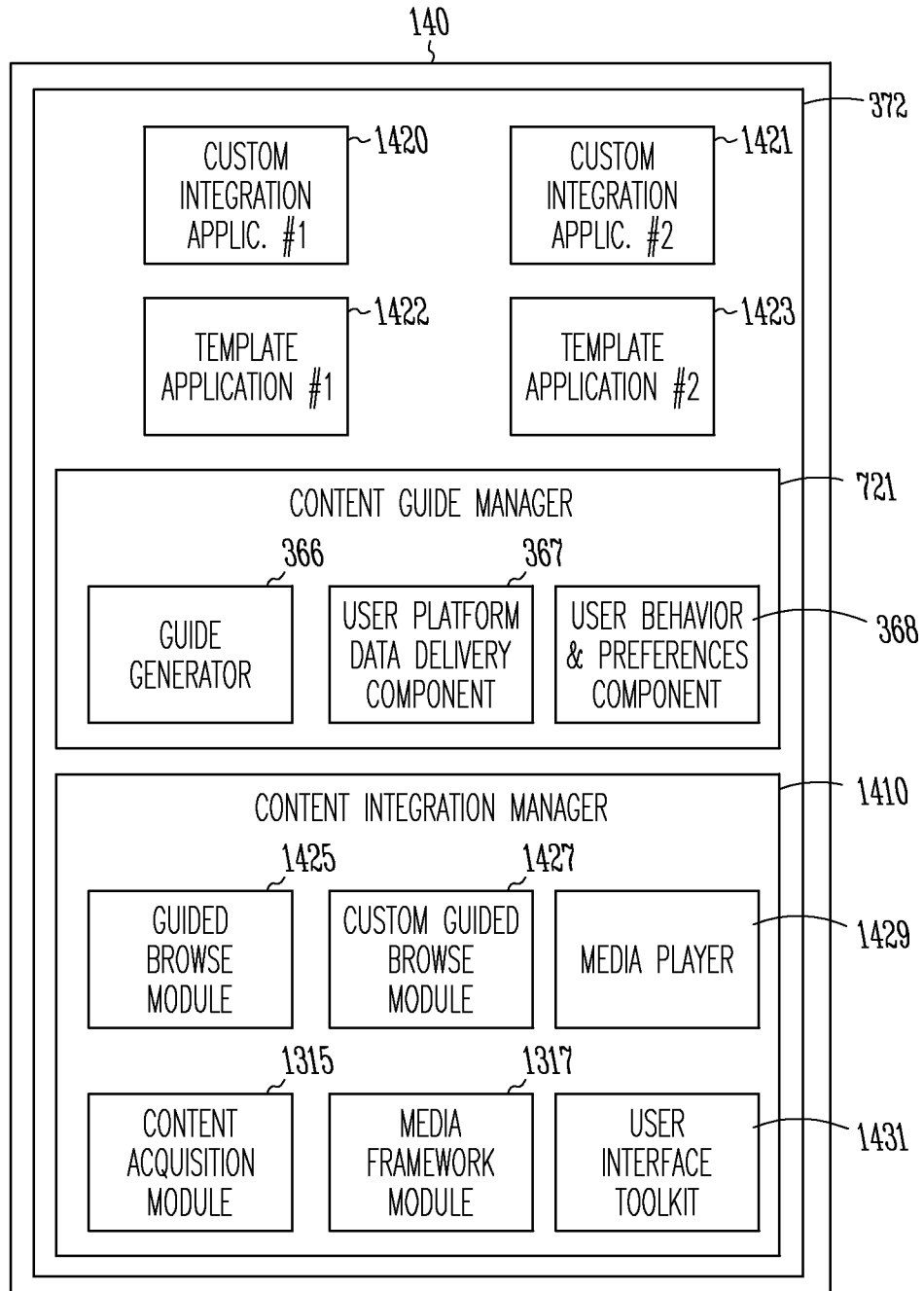
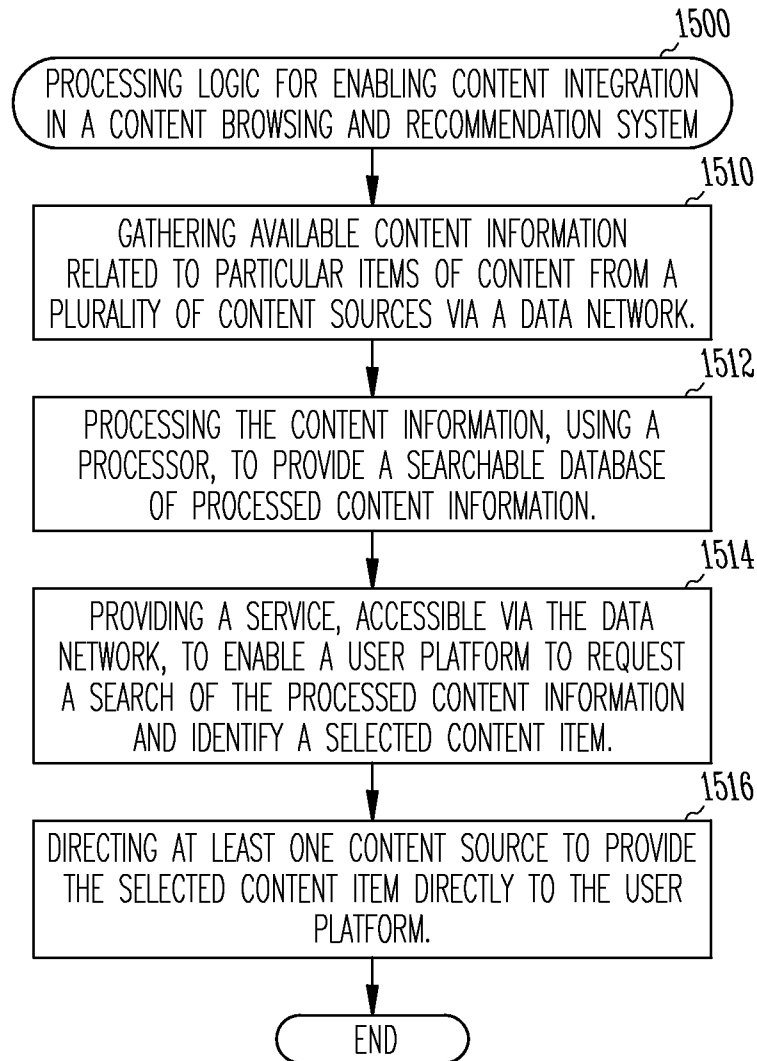
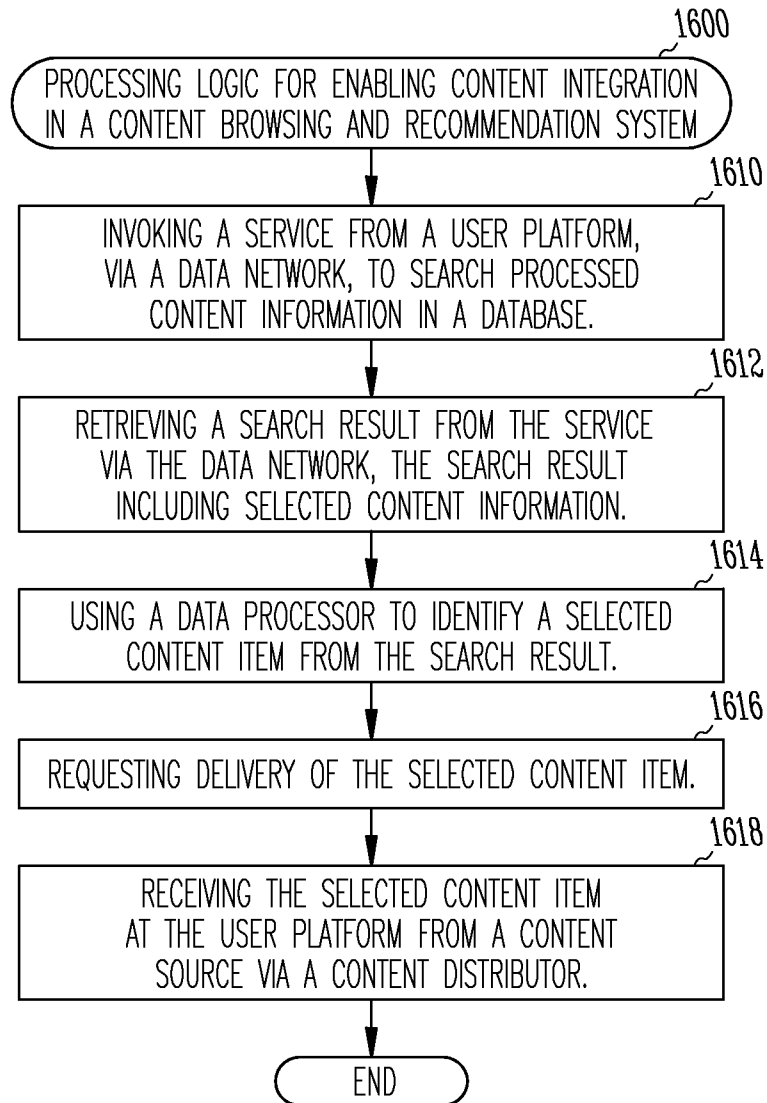


Fig. 14

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*Fig. 15*

16/26

*Fig. 16*

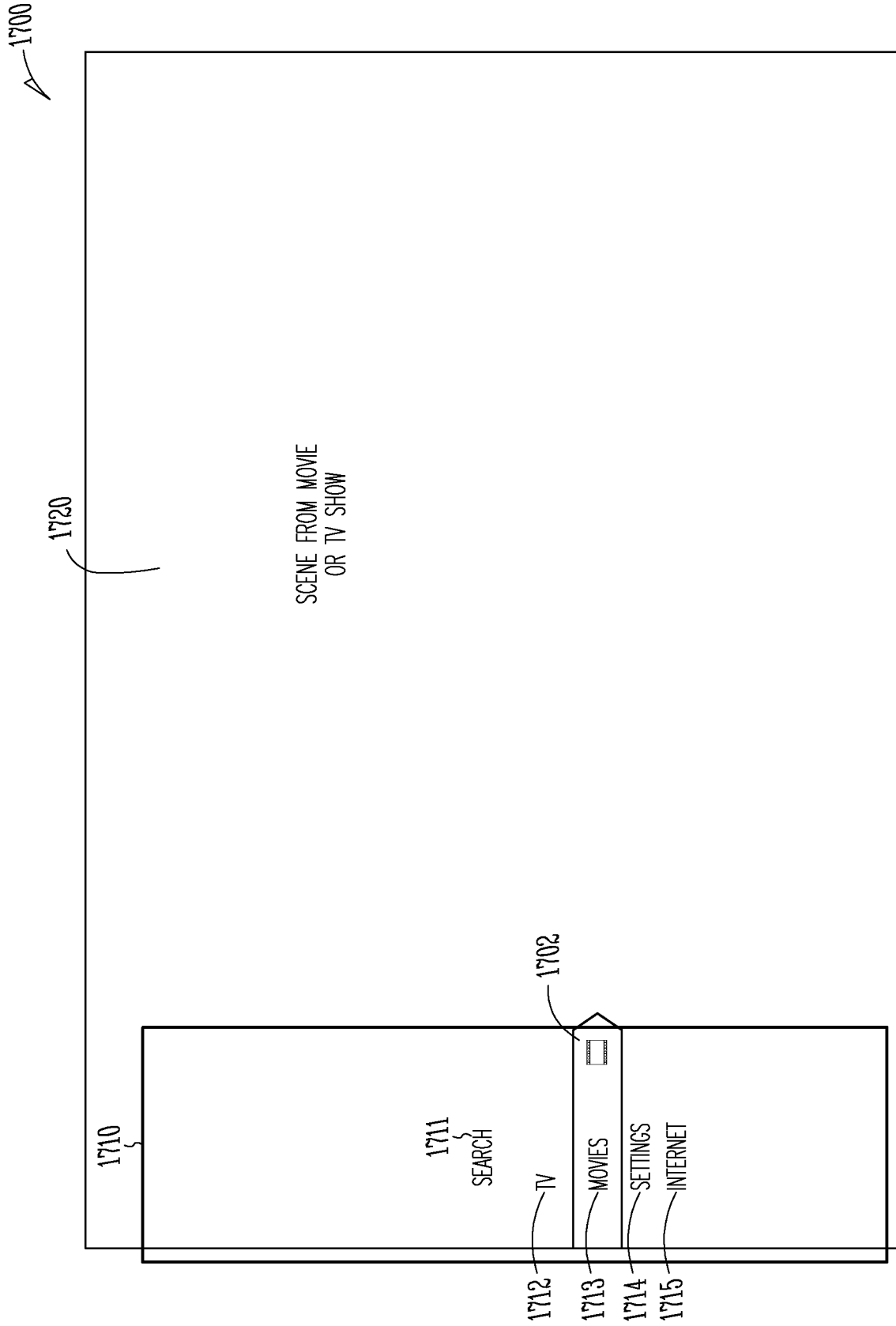


Fig. 17

1800

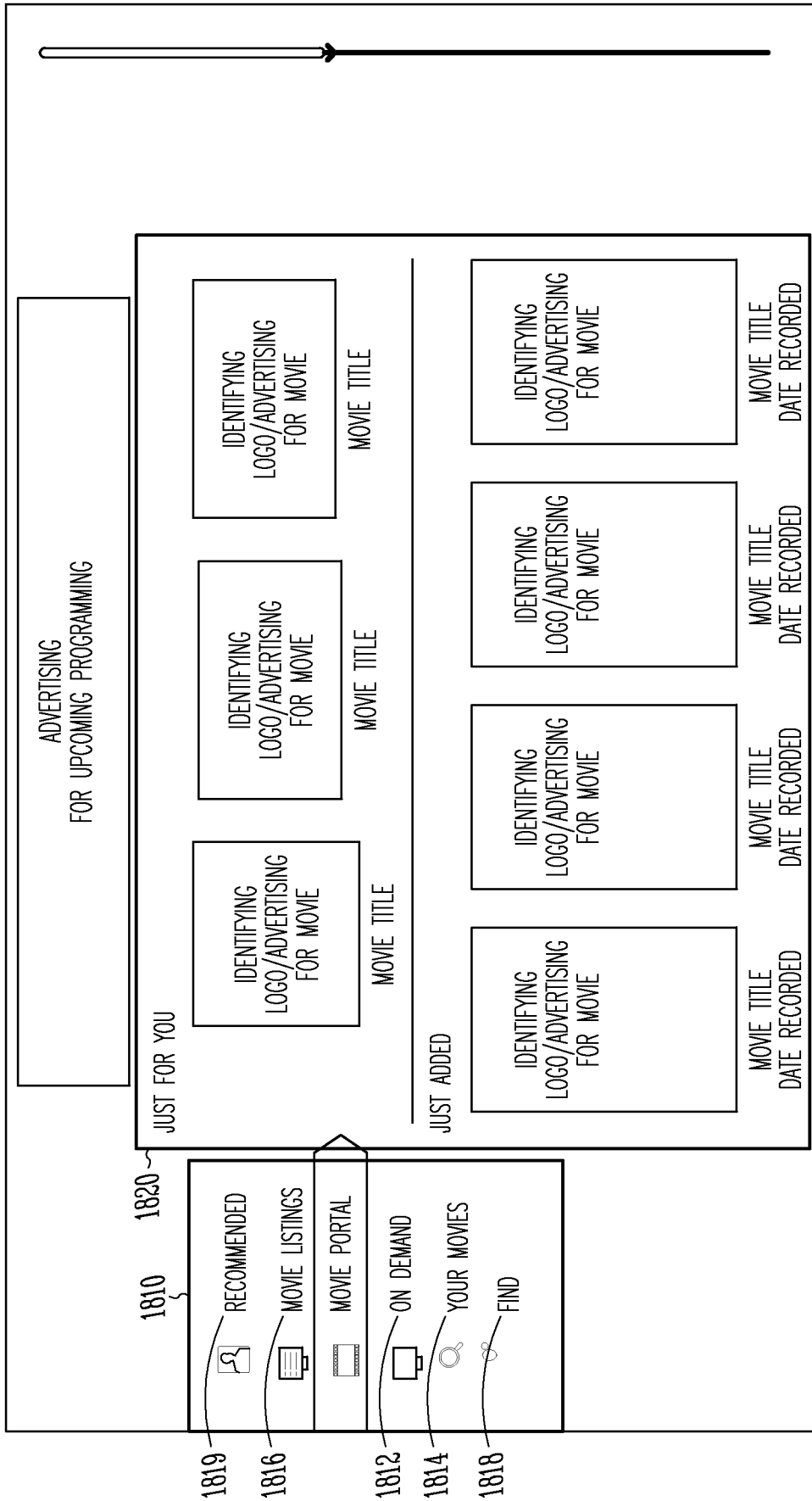


Fig. 18

Fig. 19

1910

<p>1912</p> <p>DATE/TIME JUST FOR YOU HD LISTINGS EDITORIAL</p>		<p>1914</p> <p>◀ ALL LISTINGS</p> <p>FAVORITES MOVIES SPORTS KIDS HOME</p>		<p>CHANNEL</p>	<p>2 PM</p>	<p>30</p>	<p>2 PM</p>	<p>4 PM</p>	<p>5 PM</p>
				<p>STATION LOGO</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	
		<p>001</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>
		<p>002</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>
		<p>003</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>
		<p>004</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>
		<p>007</p>	<p>ADVERTISING PHOTO/ SCENE FROM TV SHOW</p>	<p>ADVERTISING PHOTO/ SCENE FROM TV SHOW</p>	<p>ADVERTISING PHOTO/ SCENE FROM TV SHOW</p>	<p>ADVERTISING PHOTO/ SCENE FROM TV SHOW</p>	<p>ADVERTISING PHOTO/ SCENE FROM TV SHOW</p>	<p>ADVERTISING PHOTO/ SCENE FROM TV SHOW</p>	<p>ADVERTISING PHOTO/ SCENE FROM TV SHOW</p>
		<p>STATION LOGO</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>
		<p>008</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>
		<p>009</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>
		<p>010</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>
		<p>011</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>	<p>TITLE OF TV SHOW</p>
									<p>CURRENT TIME</p>

2010

<p>2012</p> <p>EVENT 1/DATE OF EVENT</p> <p>EVENT 2/DATE OF EVENT</p> <p>EVENT 3/DATE OF EVENT</p> <p>EVENT 4/DATE OF EVENT</p> <p>EVENT 5/DATE OF EVENT</p> <p>YOUR PHOTOS</p>	<p>2014</p> <p>PHOTO FROM EVENT 1</p> <p>PHOTO FROM EVENT 2</p> <p>PHOTO FROM EVENT 3</p> <p>PHOTO FROM EVENT 4</p> <p>PHOTO FROM EVENT 5</p>	PHOTO FROM EVENT 1	PHOTO FROM EVENT 1	PHOTO FROM EVENT 1	PHOTO FROM EVENT 1	PHOTO FROM EVENT 1	
		PHOTO FROM EVENT 2	PHOTO FROM EVENT 2	PHOTO FROM EVENT 2	PHOTO FROM EVENT 2	PHOTO FROM EVENT 2	PHOTO FROM EVENT 2
		PHOTO FROM EVENT 3	PHOTO FROM EVENT 3	PHOTO FROM EVENT 3	PHOTO FROM EVENT 3	PHOTO FROM EVENT 3	PHOTO FROM EVENT 3
		PHOTO FROM EVENT 4	PHOTO FROM EVENT 4	PHOTO FROM EVENT 4	PHOTO FROM EVENT 4	PHOTO FROM EVENT 4	PHOTO FROM EVENT 4
		PHOTO FROM EVENT 5	PHOTO FROM EVENT 5	PHOTO FROM EVENT 5	PHOTO FROM EVENT 5	PHOTO FROM EVENT 5	PHOTO FROM EVENT 5
		CURRENT TIME					

Fig. 20

2110

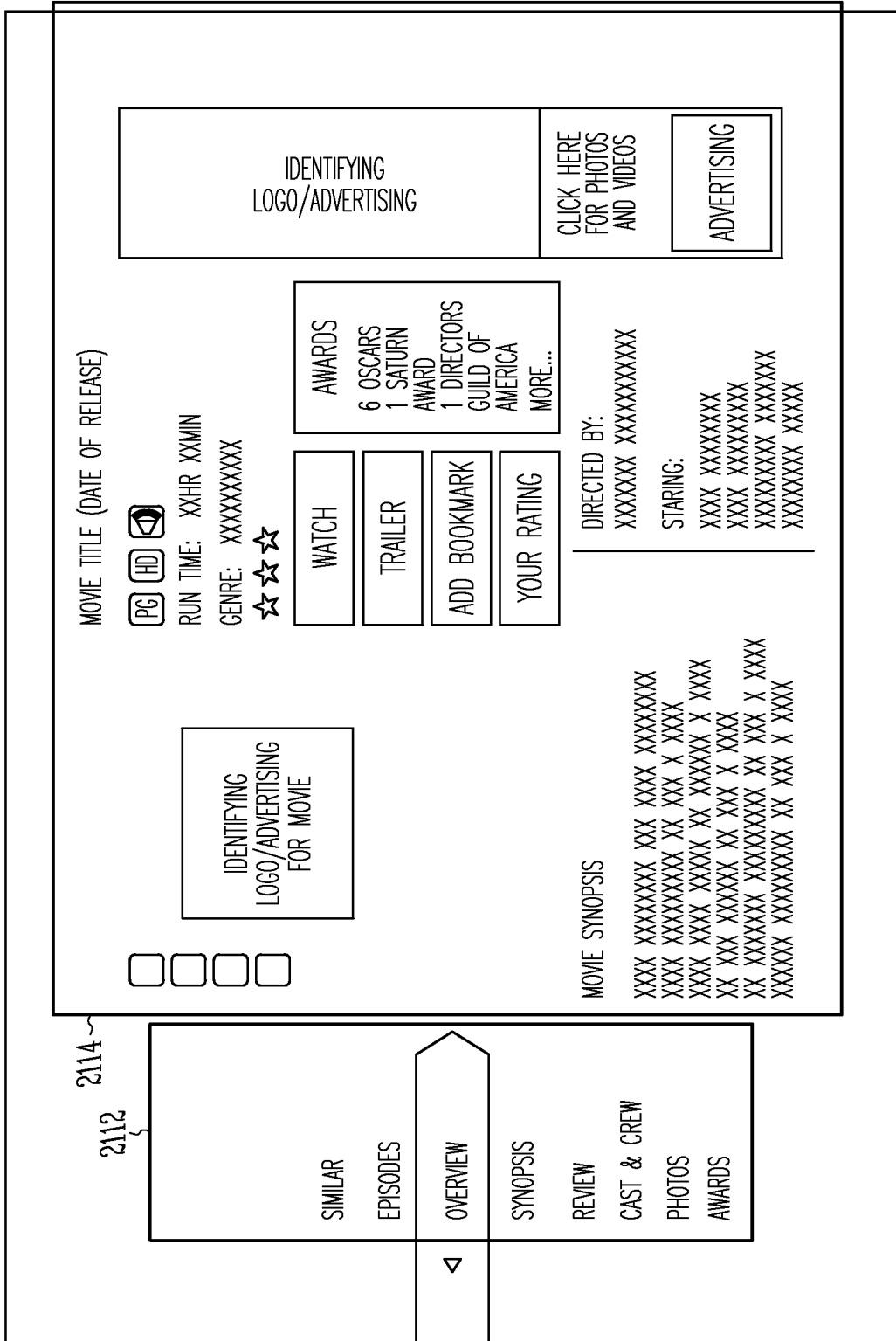
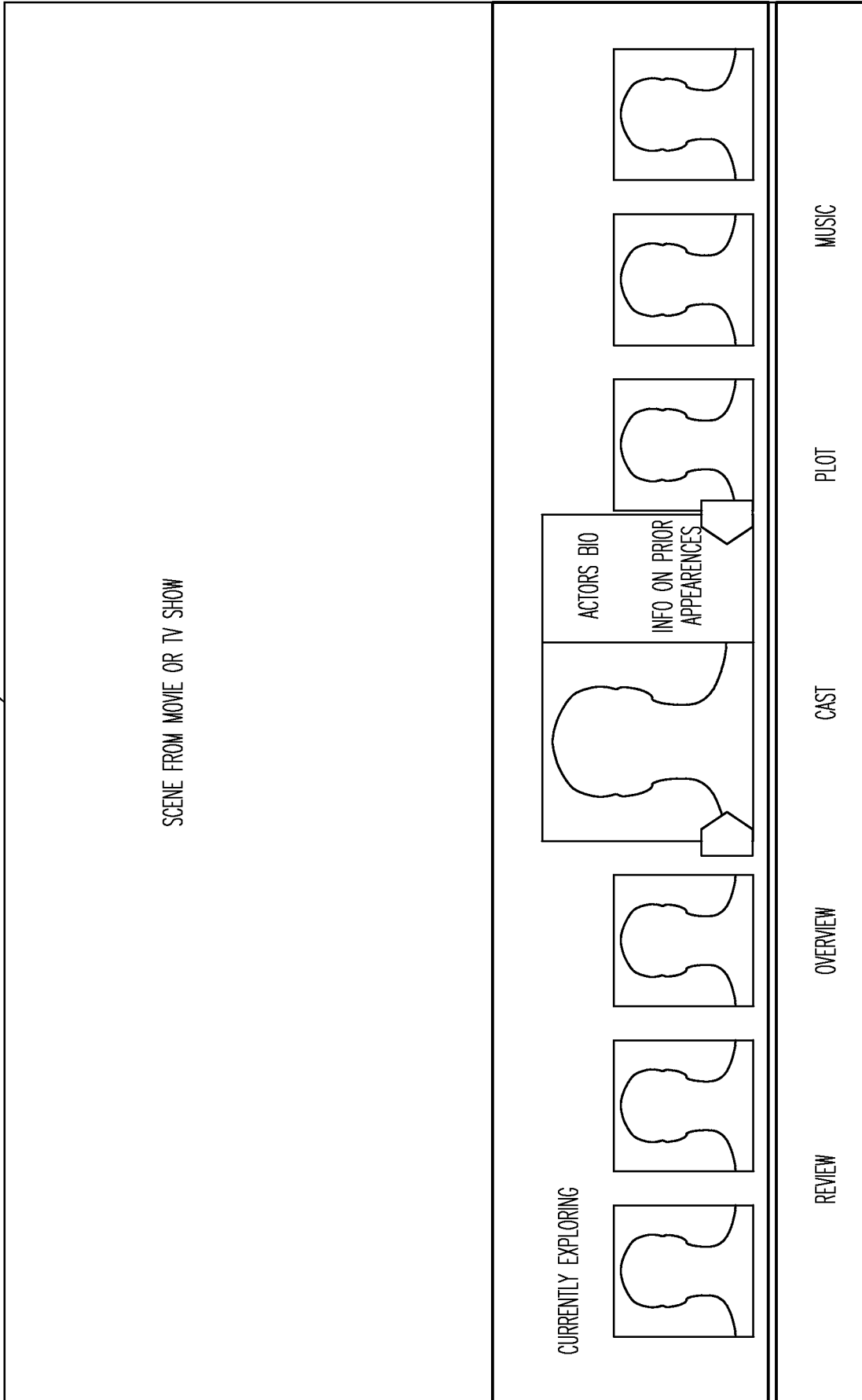


Fig. 21

1700

SCENE FROM MOVIE OR TV SHOW



2212

2214

Fig. 22

1800

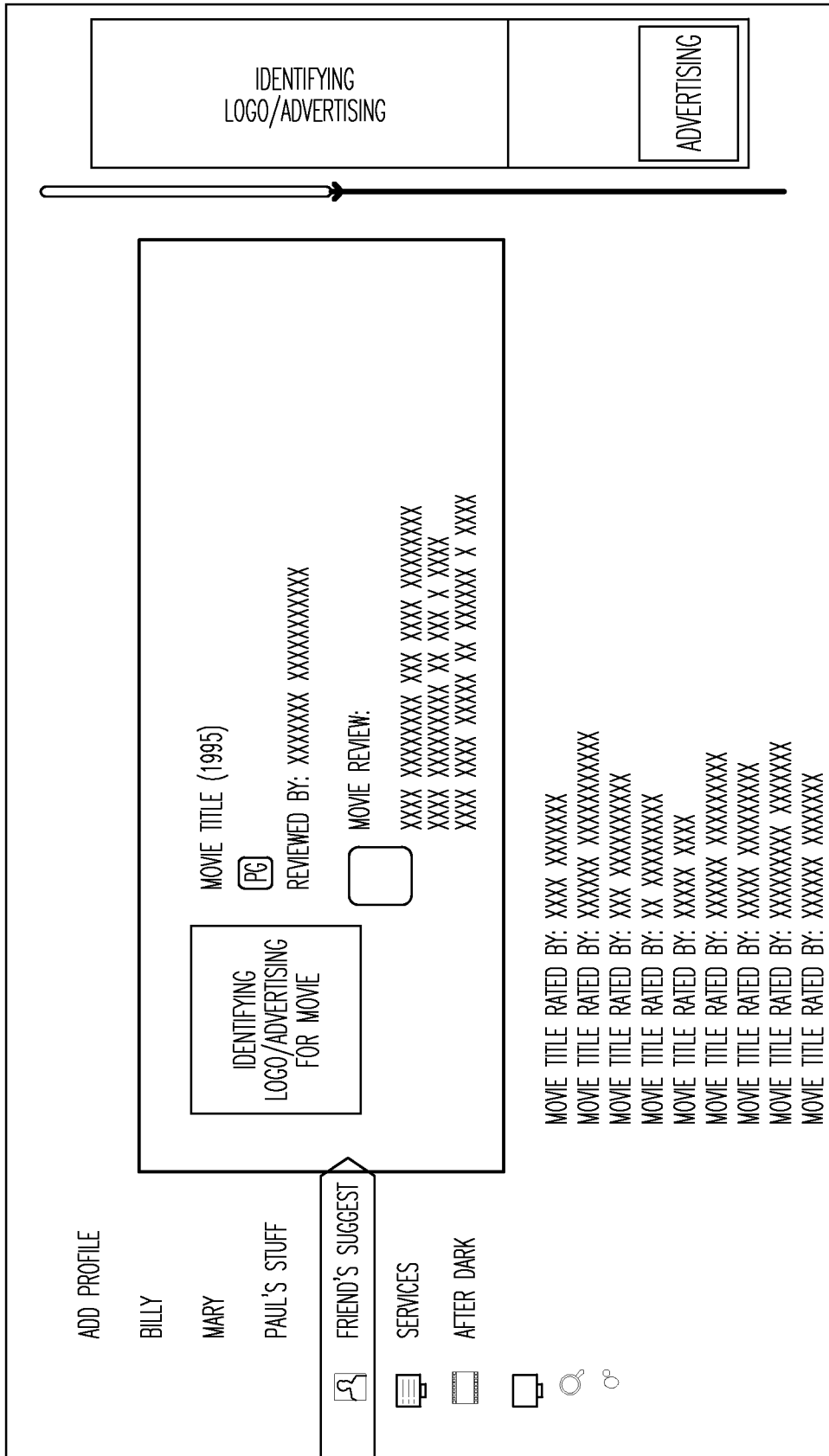


Fig. 23

24/26

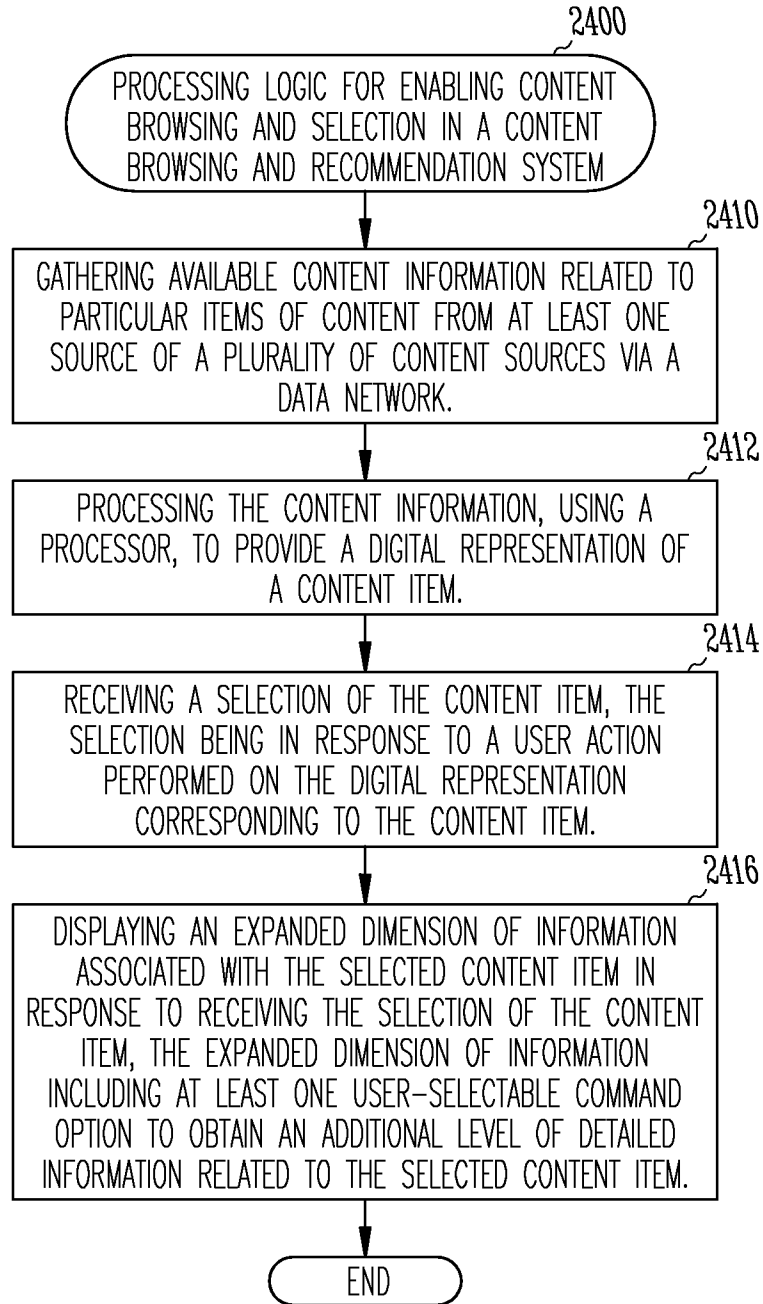


Fig. 24

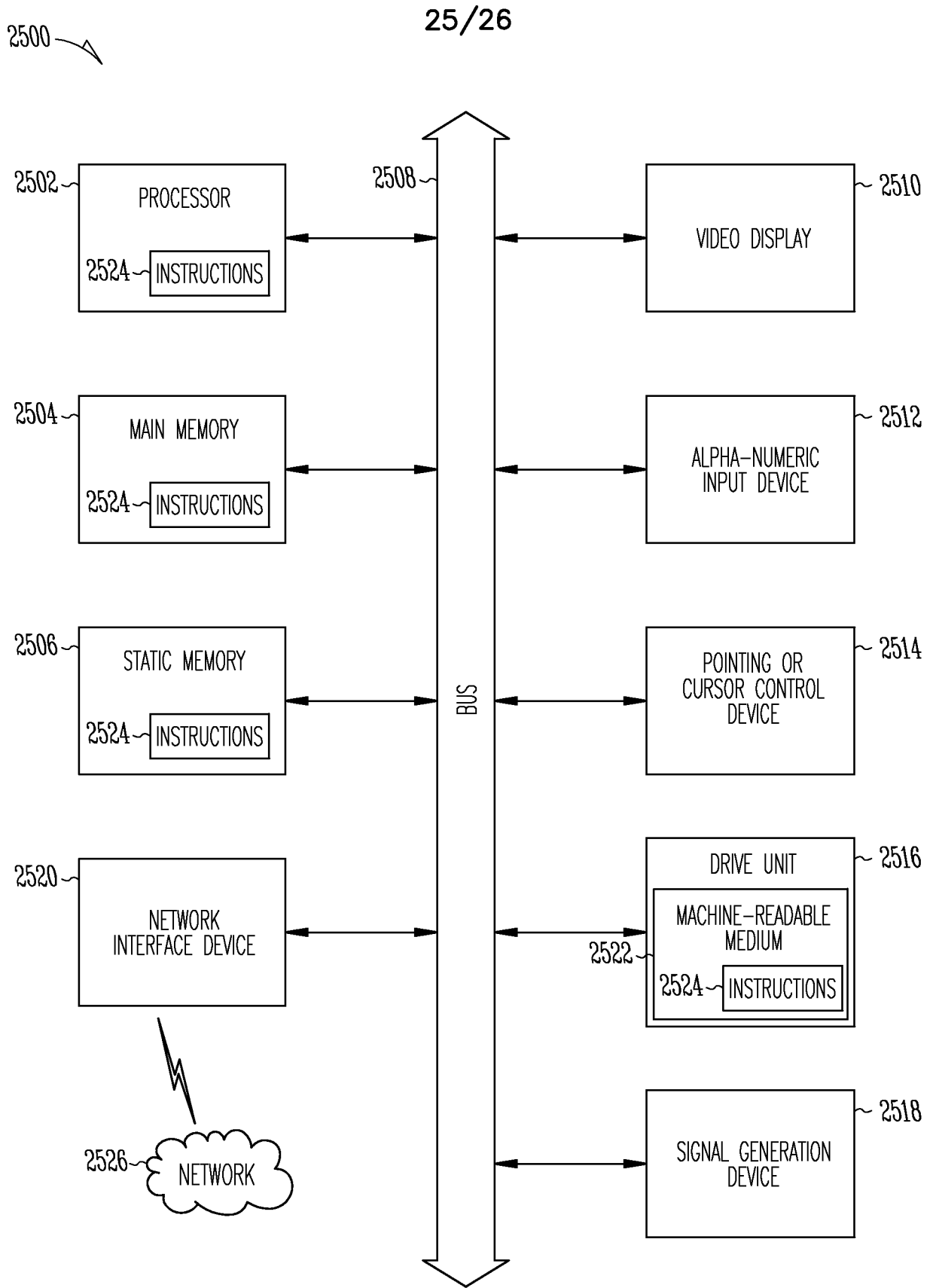


Fig. 25

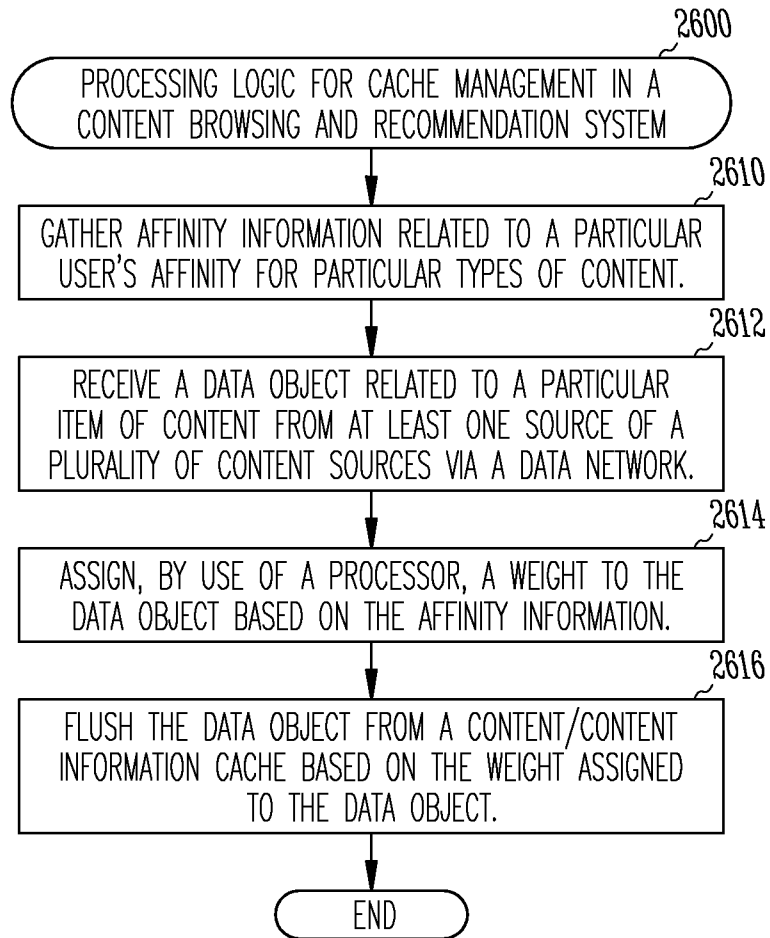


Fig. 26

INTERNATIONAL SEARCH REPORT

International application No PCT/US2012/027126

A. CLASSIFICATION OF SUBJECT MATTER INV. H04N21/442 H04N21/45 H04N21/84 H04N21/433 H04N21/466 H04N21/482 ADD. 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) H04N Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, WPI Data				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	EP 1 503 303 A2 (MICROSOFT CORP [US]) 2 February 2005 (2005-02-02) abstract paragraphs [0004] - [0006], [0008], [1318], [0020] - [0022], [0025], [0029], [0033] - [0041] claims 1-5, 10, 11, 15, 16, 20, 21, 24, 25, 29-35 figures 2-7 -----	1-14		
X	US 2009/172290 A1 (WANG JASON H [US] ET AL) 2 July 2009 (2009-07-02) abstract figures 1-2 paragraphs [0010] - [0012], [0015] - [0017], [0020] - [0023], [0025] - [0033] claims 1-20 ----- -/--	1-10, 12-14		
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"><input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.</td> <td style="width: 50%; border: none;"><input checked="" type="checkbox"/> See patent family annex.</td> </tr> </table>			<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.	<input checked="" type="checkbox"/> See patent family annex.
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.	<input checked="" type="checkbox"/> See patent family annex.			
* Special categories of cited documents : <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> "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 "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) "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 </td> <td style="width: 50%; border: none;"> "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 "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 "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 "&" document member of the same patent family </td> </tr> </table>			"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 "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) "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	"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 "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 "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 "&" document member of the same patent family
"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 "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) "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	"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 "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 "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 "&" document member of the same patent family			
Date of the actual completion of the international search		Date of mailing of the international search report		
16 May 2012		25/05/2012		
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Beudet, J		

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/027126

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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