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(71) Applicant and
(72) Inventor: **HABERMAN, Seth** [US/US]; 1 West 85th Street, Apt. 11C, New York, NY 10024 (US).

(74) Agents: **LOWRY, David, D.** et al.; Brown Rudnick Berlack Israels LLP, One Financial Center, Boston, MA 02111 (US).

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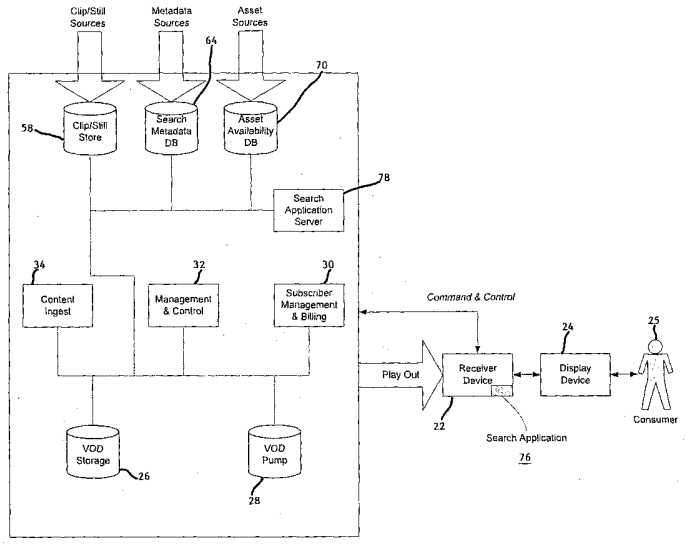

(57) Abstract: A system and method for presenting video asset information to a viewer to assist the view in selecting a video asset for viewing. The video assets can be available from a plurality of different video asset sources, such as VOD (video on demand), PVR (personal video recorders) and broadcast (including over the air, cable, and satellite). Images from the video assets are displayed in a uniform manner, along with information about the video assets. The information includes data in a metadata category. The view can select one of the video assets for viewing, but also can navigate using metadata categories such as genre, actors, director etc. This allows a much easier and natural navigating and selection process for viewers.

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SYSTEM AND METHOD FOR ENHANCED VIDEO SELECTION

RELATED APPLICATION

This application claims priority from U.S. Patent Application No. 11/081,009 filed on March 15, 2005, which claims the benefit of U.S. Provisional Application No. 60/560,146 filed on April 7, 2004, which are incorporated herein by reference.

FIELD OF THE INVENTION

This invention is directed towards multi-channel video environments, and more particularly towards a system for navigating through video assets are broadcasted, available on a server for play out.

BACKGROUND

With the introduction of multi-channel video, Electronic Program Guides (EPGs) were developed to assist the consumer with navigating the '500 Channel' universe. These allowed features such as grouping of similarly themed programming, look ahead (and often marking for recording), navigating by Favorite Channels, etc. EPGs typically give access to currently showing, and shortly upcoming linear television programming.

With the rise of Video-On-Demand (VOD), EPGs have needed to toggle between VOD offerings and linear offerings. These have been somewhat of a compromise because prerecorded material offered through a VOD service cannot be selected directly through the EPG listings for linear channels. In addition to this, the VOD selection mechanisms are often modeled as hierarchical menu selection structures, and with the steady increase of content available through VOD servers, this makes it increasingly difficult for consumers to navigate all available content.

Personal Video Recorders (PVRs) have had a similar effect: programming available on PVR is typically presented separate from the linear programming and even from the programming available on VOD, so in order to browse all available programming consumers effectively "toggle" between linear programming, VOD programming, and PVR programming.

Accordingly, there is a need to be able to tie these technologies together to enable the consumer to browse and search available programming content using metadata values in a consistent manner, and to represent the metadata in an intuitive way so that it is easy to

relate them to the programming content. The invention is meant as an extension to current EPG capabilities, to make it easier to find relevant content.

SUMMARY

Advantageously, technologies have been developed to enable topically linked searches across multiple databases, meta data descriptors have been developed to more fully capture characteristics of such content as well as sub-sections of such content, and technologies have been developed where video scenes can have part of the screen with hot links to meta data objects.

An illustrative embodiment of the present invention include a system for gathering video asset information for a user to assist the user in selecting a video asset for viewing, wherein the video assets are available from a plurality of different video asset sources. It includes a metadata component, to store data regarding the video assets available from the plurality of different video asset sources, the data grouped into at least one metadata category. Examples of metadata categories include actor, director, genre, sport, league, team, player, or school. At least some of the data is presented to the user to allow the user to select and view video assets irrespective of the video asset source. The system also includes a clip/still component to obtain and store at least one image associated with each video asset available from the plurality of different video asset sources. This image or images are displayed to the user along with the data. The system can also include an asset availability component to determine available video assets from said plurality of video asset sources. The user may select which video asset sources are available for video assets. This system can be ancillary to a first system assisting the user in selecting a video asset on a particular video asset source.

The illustrative embodiment also includes a feature where when some data is presented to the user, the user may request a search for other video assets available from the plurality of different video asset sources which have associated data that substantially matches the presented at least some data, in the metadata category. This allows the user to easily navigate through video assets. The user may select other video asset sources while requesting the search for other video assets based on the presented at least some data.

Examples of video asset sources include VOD, PVR, or contemporaneous or future broadcast video. The system also handles details for dealing with video assets from different sources, for example if the user selects for viewing a video asset from a future

broadcast video source, the system provides the user with an option of setting an alert to remind the viewer at a time proximate when the video asset can be viewed. Further the system can alert the user if a selected video asset for viewing requires a format conversion in order to be viewed. Also, if a same video asset is available from a plurality of video asset sources, the system includes a selection setting to determine from which video asset source the same video asset will be made available for viewing.

An embodiment of the present invention includes a method for gathering video asset information to assist a user in selecting a video asset for viewing, wherein the video assets are available from a plurality of different video asset sources. It includes obtaining data regarding the video assets available from the plurality of different video asset sources, wherein the data is grouped into at least one metadata category; and presenting at least some of the data to the user to allow the user to select and view video assets irrespective of the video asset source. It also includes obtaining at least one image associated with each video asset available from the plurality of different video asset sources, and presenting the at least one image in conjunction with the data to the user.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features of the present invention will be better understood in view of the following detailed description taken in conjunction with the drawings, in which:

Figure 1 is a block diagram illustrating components of a typical VOD system;

Figure 2 illustrates a typical set of traversal steps through a VOD menu system to select a movie for viewing;

Figure 3 illustrates video viewing screen for an illustrative embodiment of the present invention;

Figure 4 illustrates interactive information banner for an illustrative embodiment;

Figure 5 illustrates a metadata browsing screen for the illustrative embodiment;

Figure 6 illustrates a preview / trailer screen for the illustrative embodiment;

Figure 7 illustrates a second interactive information banner for an illustrative embodiment;

Figure 8 illustrates a second preview / trailer screen for the illustrative embodiment;

Figure 9 illustrates a third preview / trailer screen for the illustrative embodiment;

Figure 10 illustrates a fourth preview / trailer screen for the illustrative embodiment;

Figure 11 illustrates a flow chart according to an illustrative embodiment;

Figure 12 illustrates a system diagram for an implementation of the illustrative embodiment;

Figure 13 illustrates an implementation of a Clip / Still Store component;

Figure 14 illustrates an implementation of a Search Metadata Database component;

Figure 15 illustrates an implementation of a Asset Availability Database component;

Figure 16 illustrates a possible mapping of user inputs commands to an existing remote control;

Figure 17 illustrates an implementation of the Personalization Database component;

Figure 18A-D illustrate example screen views of an embodiment;

Figure 19A-B illustrate other example screen views for the embodiment of Fig. 18;

Figure 20 illustrates another example screen view for the embodiment of Fig. 18; and

Figure 21 illustrates another example screen view for the embodiment of Fig. 18.

DETAILED DESCRIPTION

A schematic overview of a prior art VOD system is shown in Figure 1. The system consists of a VOD Back-End component 20 (residing in a cable head-end) and a Receiver Device 22 and Display Device 24 at the consumer's home. The Receiver Device 22 may be a digital set-top box, or any other receiving device including computers or media processors. The Display Device 24 can be a TV set, or any other display or monitoring system. Further, the Receiver device 22 and Display Device 24 may also be combined into one physical device, e.g. a "Digital Cable Ready" TV set, or computer/media center. The backend component 20 may comprise several modules, such as one or more VOD Storage servers 26 (used to store the programming that is available to the consumers), one or more VOD Pumps 28 (used to play out the programming as requested by the various consumers that are actually using the system at any point in time), a Subscriber Management & Billing module 30 (used to interface with the subscriber database, and for authentication and billing services), a Management & Control module 32 (used to overall manage the system, assets, and resources), and a Content Ingest module 34 (used to load new programming content onto the system).

In a typical usage scenario, the consumer 25 would "toggle" to VOD (e.g. by pressing a special button on their Received Device remote control. This causes the Receiver Device to send an initiation signal to the VOD Back-End over the Command & Control

channel, and then typically tune to a VOD channel, which gives the consumer a menu of available VOD assets from which to select. This menu is typically implemented as a hierarchical text-oriented menu system, where the user can select sub-menus and order VOD assets with key presses from their remote control. This is illustrated in the menu chain 36 of Figure 2, where the consumer selects "Movies" from the main menu, then selects "Action Movies" from Sub Menu 1, then selects "Hannibal" from Sub Menu 2, then confirms the transaction to buy Hannibal at Sub Menu 3. Once all this is done, the VOD Back-End system 20 will allocate Hannibal in the VOD Storage system 26, allocate an available VOD Pump 28, and instruct the VOD Pump 28 to start playing out Hannibal on an available bandwidth slot (frequency) in the network. The Receiver Device 22 will then tune itself to this slot, and starts displaying the asset on the Display Device 24 so that the consumer 25 will begin viewing the asset. During the viewing process the consumer 25 typically has the ability to Pause, Rewind, Fast-Forward the movie by pressing buttons on their remote control. For example when the consumer 25 presses the Pause button, the Receiver Device will send a Pause message (via Command & Control channel 27) to the VOD Back-End 20 to pause the movie. A VOD session can end because the movie viewing has ended, or because the consumer 25 decided to terminate the session by pressing one or more special buttons on the remote control, in both cases the system will go back to regular television viewing mode.

Current interfaces and systems for searching and browsing VOD assets are often problematic and not always effective. The systems are often implemented as hierarchical menu systems, are not very flexible, and not very intuitive. As a result it is not always possible for a consumer to find a VOD asset for viewing, unless they know the exact title and properties of the asset they are looking for. This problem gets even worse if the number of available VOD assets on VOD systems increases.

The present invention provides a new paradigm for browsing and searching video assets available on VOD and from other sources. The present invention takes advantage of metadata for the assets (e.g. "lead actor", "director", "year of release", etc.), and in one embodiment uses it to let the consumer search for certain assets (e.g. "find all assets starring or associated with Clint Eastwood"). It also provides powerful associative search capabilities (e.g. "I like movie X, so find me all assets that have the same lead actor"). Also, the present invention presents the consumer with an intuitive user interface (pictures instead

of text) that can be easily navigated with traditional remote controls (no need for keyboards).

Further features of the present invention are described in co-pending U.S. Patent Application No. 11/080,389 filed on March 15, 2005 and entitled METHOD AND SYSTEM FOR DISPLAY GUIDE FOR VIDEO SELECTION, which is incorporated herein by reference.

An illustrative implementation of the present invention in a digital cable system will now be described, first in terms of functionality to the consumer, then in terms of implementation in a cable system or environment.

Consider a consumer in a digital cable system, who has access to VOD service, and also has a digital receiver device that includes PVR (personal video recorder) service. To start off with, the consumer will be watching a movie, so his display may show full screen video as depicted in Figure 3. At any point in time during the movie, the consumer can initiate (by pressing a specific button on his remote control) an interactive information banner 38 to be displayed on his display, as illustrated in Figure 4. In this example the banner 38 contains the channel logo 40 on the left, and some textual description 42 of the current movie to the right. The description contains a number of "linked fields" 44, which are marked by some visual effect (in this example they are underlined). The fields 44 represent associative searches for assets with the same attribute (so the "Will Smith" field represents all assets that feature Will Smith as an actor).

The consumer can navigate between the linked field with buttons on the remote control (current selection may be indicated by highlighting it), and then activate one of the links by pressing yet another button on the remote control. For this example, assume the consumer activates the "Will Smith" field. This will lead into a metadata browsing screen (in this case for "Will Smith") as illustrated in Figure 5. This screen provides the results of a search for all assets that share the same metadata (in this case "Starring Will Smith"). In this example the screen holds nine assets, and each asset is shown as a combination of a still picture 46 (clipped from the asset or from an alternate source) and the title 48 of the asset along with other information such as the release year 50 of the asset and a symbol 52 indicating where the asset is available. Possible values for this symbol are: VOD (available in the VOD archive) 52a, Showing (currently showing) 52b, PVR (available on PVR) 52c, and Guide (shows up in the Guide, so available in the future) 52d. Other possible values for this symbol 52, as well as alternative sources of the assets, such as DVD jukeboxes, tape

jukeboxes, and media delivered by IP networks (including Ethernet, fiber, carrier current, wireless, etc.), are also within the scope of the invention.

Typically, one of the assets is highlighted 54 (indicating current selection, in this case the "Wild Wild West" asset). Other methods of drawing attention to the presently selected asset (including but not limited to blinking, ghosting, color changes, alternate borders, etc.) are within the scope of the present invention. The consumer can change current selection using keys on the remote control. In case there are more assets than fit on the screen, the consumer can move to previous and next pages using remote control buttons. The consumer can activate the currently selected asset by pressing a specific button on the remote control. This will take the consumer to a preview / trailer session for the selected asset. For this example, assume the consumer has selected "I Robot", the resulting preview / trailer screen is illustrated in Figure 6. The preview can be any length theatrical preview, during the preview the consumer has the ability to purchase for viewing the VOD asset by pressing a button on the remote control (in this case the "Select" button). The consumer also has the option of viewing the purchased asset immediately, or potentially selecting a later time to view the VOD asset, allowing for example a parent to make a purchase with password protected purchase option, for the children to view later in the evening. Further, if the VOD asset may be downloaded to a PVR, thereby allowing the consumer to then view the asset from the PVR. The consumer may also pause, fast forward, rewind the contents of the preview. Also, the consumer may press the remote control button for the interactive information banner, which will result in the interactive banner 42 as illustrated in Figure 7. As discussed before, the consumer may now navigate the links in the banner, etc.

The preview / trailer may look slightly different for assets that are available through other means than VOD. Figure 8 shows the preview screen when a currently showing asset is selected (in this example Ali), Figure 9 shows the preview screen when an asset is selected that is available on PVR (in this example Enemy of the State), Figure 10 shows the preview screen when an asset is selected that is available in the Guide (in this example Men In Black). The application logic for this illustrative embodiment is further shown and summarized in the process flow 56 in Figure 11. Depending on the type of asset, different actions are taken that are appropriate for that asset, as previously discussed with Figures 6 and 8-10.

An implementation of this illustrative embodiment in a cable head end will now be discussed. This implementation is illustrated in Figure 12. The Clip/Still Store component

58 is illustrated in greater detail in Figure 13. It stores and manages previews, trailers, and still pictures that are associated with assets that are available to the consumer. It provides a unified database of various trailers and stills that are associated with an asset. It gets its information from various sources. First, whenever new content enters the VOD system, the Content Ingest module 34 notifies the Clip/Still Store component 58. If the new content already has associated clips/stills for preview, the Clip/Still Store component 58 simple administers and stores it for later use. If no clips/stills are associated with it, the Clip/Still Store component 58 may automatically extract appropriate clips/stills from it. Information supplied with the asset or obtained separately may provide one or more appropriate time/frame references for clips or stills from that asset. Second, the Clip/Still Store 58 may be connected to a variety of internal and external sources of clips and stills 60. Examples of these sources are online Internet Movie Databases (www.imdb.com), or libraries of VOD and other content. Third the Clip/Still Store 58 may have a user interface 62 that allows operators to manually extract clips and stills from an asset.

Another main system component is the Search Metadata Database (DB) 64, Figure 12, as detailed in Figure 14. This component 64 provides unified metadata for all assets that are available to the consumer. It also provides interfaces to search for assets based on metadata values. The Search Metadata Database 64 gets its information from various sources. First, whenever new content enters the VOD system it will typically come with metadata (for example, see the Cablelabs Metadata Specification, ...), so the Content Ingest module 58 will notify the Search Metadata Database who then administers and stores the metadata. Second, the Search Metadata Database is connected to a variety of internal and external metadata sources 66. These can be public sources (such as IMDB described below), or libraries of VOD or other content. Third, the Search Metadata Database 64 may have a system 68 for automatically extracting metadata from the content. Some examples of this include inspecting closed captioning information, image analysis for finding words for the opening and/or closing credits, comparison and matching to databases of actors and directors etc. and any combination thereof. For example the present invention may use a combination of scanning of closed captioning data, combined with pattern recognition software to establish the genre of a movie. Also there may be scene detection algorithms to locate the opening and closing credits of a movie, and then the use of character recognition algorithms to determine actors and directors automatically. Also, audio (music) may be

analyzed to determine genre of a movie, or even recognize specific movies. Further, voice recognition systems may be used to determine actors.

Fourth, the Search Metadata Database 64 may have a user interface 62 whereby operators can attach metadata to content.

Another main component is the Asset Availability Database 70 Figure 12, as detailed in Figure 15. This database 70 keeps track of which assets are available to the consumer at any point in time. It gets its information from a variety of sources. First, whenever new content enters the VOD system, the Content Ingest module 34 will notify the Asset Availability Database 70 to record and administer the presence of the asset (or delete it if the asset has been removed from the VOD system). Second, the Asset Availability Database 70 is connected to an electronic source of Program Information 72 (this information is typically supplied to cable operators to populate the Electronic Program Guides in the digital set-top boxes, an example of a supplier of electronic program information in the US is Tribune Data Services). The Asset Availability Database 70 uses this information to keep track of which assets / programs are available for viewing or recording on the various networks in the coming weeks. Third, the Asset Availability Database 70 periodically collects data from all digital receivers 74 that have PVR capability, this information specifies which assets each individual receiver has currently stored and available on its local hard disk drive or other storage medium. This information is typically collected in the background, to not disrupt cable system behavior (e.g. at night). The Asset Availability Database 70 normalizes all this data, and can generate a list of all assets that are available to a specific digital receiver 74 according to the following formula:

```
Assets_available_to_receiver =
        IF (receiver_has_PVR)
        THEN (assets_available_on_VOD + assets_present_in_program_information)
        ELSE (assets_available_on_VOD + assets_present_in_program_information +
        assets_on_PVR)
        END
```

Another main component of the system is the Search Application 76, Figure 12. This application resides in the Receiver Device 22 at the consumer's premise. It can be an embedded application, a downloadable application, or a built-in feature of another Receiver

Device application (such as the Electronic Program Guide). The Search Application 76 has two major functions. First, whenever the consumer initiates enhanced search mode, it will set up a connection with the Search Application Server 78 in the back-end, and handle the user interface to the consumer (according to flow chart in Figure 11), it will request all metadata, stills, and video play out functions from the Search Application Server 78. Second, in case the Receiver Device 22 includes a PVR, it will periodically send a list of assets available on PVR back to the Asset Availability Database 70 in the back-end. A final main component of the system is the Search Application Server 78. This server acts as the engine of the application, whenever a consumer initiates enhanced search mode, the Search Application Server 78 receives a request to open a search session, and inside that session it will continue to get requests for metadata, stills, or video play outs. The Search Application Server 78 in turn will interact with the Clip/Still Store 58 to retrieve clips or stills, to the Search Metadata Database 64 to retrieve metadata, the Asset Availability Database 70 to find lists of available assets, and the VOD Storage and/or VOD Pump components to play out trailers and/or VOD assets.

One of the advantages of the present invention is that the required user input from the consumer can easily be mapped on an existing remote control device, thus avoiding the need for more complex input devices such as remote keyboards. In other words, it is straightforward to map all required user inputs on existing keys on existing remote controls. A sample mapping on remote control 80 keys is shown in Figure 16 (note: this is only one of the possible mappings, also note that only the keys associated with this application are shown, in reality there will be plenty of other keys as well).

The implementation describes only one possible embodiment of the present invention. It should be clear to anyone skilled in the art that the invention can also be implemented in alternative embodiments and implementations. Without attempting to be comprehensive, alternative embodiments will now be disclosed

One major enhancement to the previously described embodiment is to add personalization to the system. This would further refine the user interface to the personal preferences or history of the consumer. For example if a consumer is presented with all Will Smith movies, the system may take into account that the consumer is interested in Sci-Fi movies, and it would present the Will Smith movies from the Sci-Fi category first. Also the stills and clips could be personalized. For example different aspects of the movie may be highlighted to appeal to different personal profiles (the movie "Pearl Harbor" may be

presented as a love story to someone interested in romantic movies, and as a war movie for someone interested in war movies, this would result in different clips and stills to be shown to represent the same movie). Such a feature could be implemented by adding a Personalization Server 82 to the back-end 20 infrastructure. This Personalization Server 82 is illustrated in Figure 17. The purpose of this server 82 is to maintain personal profile information for each potential user of the system (consumer). The personalization server 82 builds and maintains these profiles from various inputs. First, it may get subscriber information from the cable operator's subscriber database 84. This information may include some basic demographics (gender), past VOD buying behavior, etc. Second, it may get information from other (external) demographic databases 86 with more detailed demographics (income, etc.). Examples of such database providers in the US include Axiom, InfoUSA. Third, it may collect viewing behavior from the various client devices 74. This may include information on what programs are watched most frequently, etc. The Personalization Database 82 will normalize all this information, and then apply it to the Clips / Stills collection 58 that is available, and to the metadata collection 64 that is available, and it will select the most appropriate Clips / Stills for a given consumer and/or customize the descriptive text or metadata towards a specific consumer.

Figs. 18A-18D show example screen shots according to an embodiment of the invention. The images of television shows in these figures (and the subsequent figures) are for exemplary purposes only, and no claim is made to any rights for the shows displayed. All trademark, trade name, publicity rights and copyrights for the exemplary shows are the property of their respective owners. Fig. 18A shows a display for video assets which for this example are broadcast shows arranged by viewing time. The broadcast shows are displayed with a still or moving image of the broadcast show, also a network logo is included as part of the image, superimposed or combined with the image. A user can use a remote control to highlight a selected broadcast show for viewing or to interactively obtain further information about the highlighted broadcast show. The user is not required to deal with channels or other underlying details of video asset delivery, but can simply navigate by more familiar terms, in this case by network. Further, the user may selectively add or remove entities (and arrange the order of the displayed networks) from the display, to personalize the display for that user. Figs. 18B-D show different displays based on selected time slots as shown on the bottom of the image.

Fig. 19A shows another screen shot from this embodiment, in this case the user is viewing video assets for a particular show, where the video assets are available from a source such as video on demand, library, or other delivery service. The user can easily select a certain episode for viewing, or to obtain further information, for example as shown in Fig. 19B. As previously described, a user can have the ability to search for other video assets based on information and meta-data categories that are displayed with the image.

Fig. 20 shows another screen shot from this embodiment, wherein a user may navigate using tabs positioned along a top of the display, and select different categories of video assets. In the present example, the user has selected a category of "My Favorites", and is shown a selection of video assets for viewing. As shown in this figure, the video assets are available from a wide variety of sources, including DVD, broadcast, and pay per view broadcast. The user is able to select a video asset (through highlighting interactivity with a remote, or otherwise) for viewing from a vast number of video asset sources. Further, the user can navigate to other similar video assets (based on the meta-data categories) using the video assets presently listed in this favorite category.

Fig. 21 shows another screen shot from this embodiment, which shows the ability to provide advertisements, interactive shopping experiences or special offers to users. As shown in the image, selection of advertising assets are presented to the user, to allow the user to interact by selection and thereby view and/or receive special offers from such advertisers. A visual indication on an image can alert the user to a special offer or interactive opportunity for certain advertisements. The user has the ability to use meta-data categories to search for other advertisers or suppliers of goods and services, for example to search for other amusements parks based on a meta-data category for one image and advertisement for an amusement park.

Another implementation variation is to selectively use still pictures instead of video previews / trailers. This has a number of advantages: first still pictures may be more readily available than previews / trailers, especially for content that is available through other means than VOD (e.g. content that shows up in the Guide for two weeks from now), second this could limit the bandwidth consumption (still pictures take considerably less bandwidth and storage than moving video). Bandwidth use can be further limited by sending the still pictures in so-called broadcast carrousels and to have them stored at each client device 74 when needed (as opposite to sending them to the client device on request when needed). Broadcast carrousels are a well known bandwidth saving technique in the digital video

industry (an example is the DSM-CC Data Carrousel). It is within the scope of the invention to modify the system in such a way that it detects shortage of bandwidth, and then switches over to more bandwidth friendly techniques (stills), and switch back to using motion video when bandwidth is more available again.

Another implementation variation is to "auto cue" additional previews / trailers after the consumer is finished watching a preview. In other words: if a user previews the "Ali" preview and does not decide to buy the movie, or exit the application, the system may automatically start playing the next relevant preview (instead of going back to the Browsing Screen). It is possible to enhance the system in such a way as to effectively create an interactive movie barker channel (continuously playing relevant trailers).

Another implementation variation is to load trailers to hard disks of PVR-enabled Receiver Devices. This would allow these trailers to be played out from local hard disk (even if they refer to a movie asset that is available on VOD, or as linear programming). The trailers could be downloaded when bandwidth is available (e.g. at night), and this would also make the system much more bandwidth efficient.

Another implementation variation is to use the system to represent assets from additional sources (in addition to, or instead of, VOD and PVR and linear programming). Examples would include: assets that are available via Broadband IP networks, assets that are available on DVD or DVD-Recorder, assets that are available via Digital Terrestrial networks, assets that are available via Direct-To-Home (DTH) satellite, assets that are available on Near-Video-On-Demand (NVOD) channels, assets that are available via Subscription-Video-On-Demand (SVOD), etc. Further, assets can be downloaded from a network or path that does not provide enough bandwidth for real-time viewing. The asset may be downloaded to the PVR, and the consumer can be alerted when the asset is fully downloaded, or alternatively, when enough of the asset is downloaded to allow the consumer to begin viewing from the PVR while downloading continues in parallel (in effect using the PVR as a buffering system).

Another implementation variation is to change the User Interface Look & Feel to accommodate different flavors of interfaces. The system may easily be modified to provide different views or representations of the video (either as still picture or as moving video) in combination with a representation of metadata. Also different input devices can easily be supported (more advanced remote controls, keyboards, media control center counsels, etc.).

Another implementation variation is to give viewers more control / preview capabilities by presenting them with a screen that shows them the various parts of the movie that they are (about to) see. This screen can look very similar to the metadata browsing screen (or the scene selection screen typically used in many DVD titles today), and allow the viewer to get a better understanding of the flow of the movie, and give the viewer control to navigate the movie in a more user friendly manner.

Another implementation variation is to use moving video in the metadata browsing screen (instead of still pictures). The various assets can be shown as moving pictures, and only the audio of the currently selected asset would be rendered. In order to make implementation easier, the moving pictures can be low-quality, or even animated still pictures.

Although the invention has been shown and described with respect to illustrative embodiments thereof, various other changes, omissions and additions in the form and detail thereof may be made therein without departing from the spirit and scope of the invention.

What is claimed is:

CLAIMS

1. A system for gathering video asset information for a user to assist said user in selecting a video asset for viewing, wherein said video assets are available from a plurality of different video asset sources, said system comprising:

a metadata component, to store data regarding said video assets available from said plurality of different video asset sources, said data grouped into at least one metadata category;

wherein at least some of said data is presented to said user to allow said user to select and view video assets irrespective of said video asset source.

2. The system of Claim 1 further including:

a clip/still component to obtain and store at least one image associated with each video asset available from said plurality of different video asset sources.

3. The system of Claim 1 wherein said user may select which video asset sources are available for video assets.

4. The system of Claim 1 wherein when said at least some data is presented to said user, said user may request a search for other video assets available from said plurality of different video asset sources which have associated data that substantially matches said presented at least some data, in said metadata category.

5. The system of Claim 4 wherein said user may select other video asset sources while requesting said search for other video assets based on said presented at least some data.

6. The system of Claim 1 wherein said at least one image associated with a video asset is displayed to said user along with said at least some data.

7. The system of Claim 1 wherein said metadata categories include actor, director, genre, sport, league, team, player, or school.

8. The system of Claim 1 wherein said video asset sources include VOD, PVR, or contemporaneous or future broadcast video.

9. The system of Claim 8 wherein if said user selects for viewing a video asset from a future broadcast video source, said system provides said user with an option of setting an alert to remind said viewer at a time proximate when said video asset can be viewed.

10. The system of Claim 1 wherein said at least one image includes still clips, video clips, or trailers.

11. The system of Claim 1 wherein said system is ancillary to a first system assisting said user in selecting a video asset on a particular video asset source.

12. The system of Claim 1 wherein said system alerts said user if a selected video asset for viewing requires a format conversion in order to be viewed.

13. The system of Claim 1 wherein if a same video asset is available from a plurality of video asset sources, said system includes a selection setting to determine from which video asset source said same video asset will be made available for viewing.

14. A method for gathering video asset information to assist a user in selecting a video asset for viewing, wherein said video assets are available from a plurality of different video asset sources, said method comprising:

obtaining data regarding said video assets available from said plurality of different video asset sources, wherein said data is grouped into at least one metadata category; and

presenting at least some of said data to said user to allow said user to select and view video assets irrespective of said video asset source.

15. The method of Claim 14 further including:

obtaining at least one image associated with each video asset available from said plurality of different video asset sources, and presenting said at least one image in conjunction with said data to said user.

16. The method of Claim 14 wherein said user may select which video asset sources are available for video assets.

17. The method of Claim 14 further including:

receiving a request from said user for other video assets available from said plurality of different video asset sources which have associated data that substantially matches said presented at least some data, in said metadata category.

18. The method of Claim 14 wherein said metadata categories include actor, director, genre, sport, league, team, player, or school.

19. The method of Claim 14 wherein said video asset sources include VOD, PVR, or contemporaneous or future broadcast video.

20. A system for gathering video asset information for a user to assist said user in selecting a video asset for viewing, wherein said video assets are available from a plurality of different video asset sources, said system comprising:

an asset availability component to determine available video assets from said plurality of video asset sources;

a clip/still component to obtain and store at least one image associated with each video asset available from said plurality of different video asset sources;

a metadata component, to store data regarding said video assets available from said plurality of different video asset sources, said data grouped into at least one metadata category;

wherein at least some of said data is presented to said user along with at least one image associated with a video asset, to allow said user to select and view video assets irrespective of said video asset source;

wherein when said at least some data is presented to said user, said user may interact and request a search for other video assets available from said plurality of different video asset sources which have associated data that substantially matches said presented at least some data, in said metadata category.

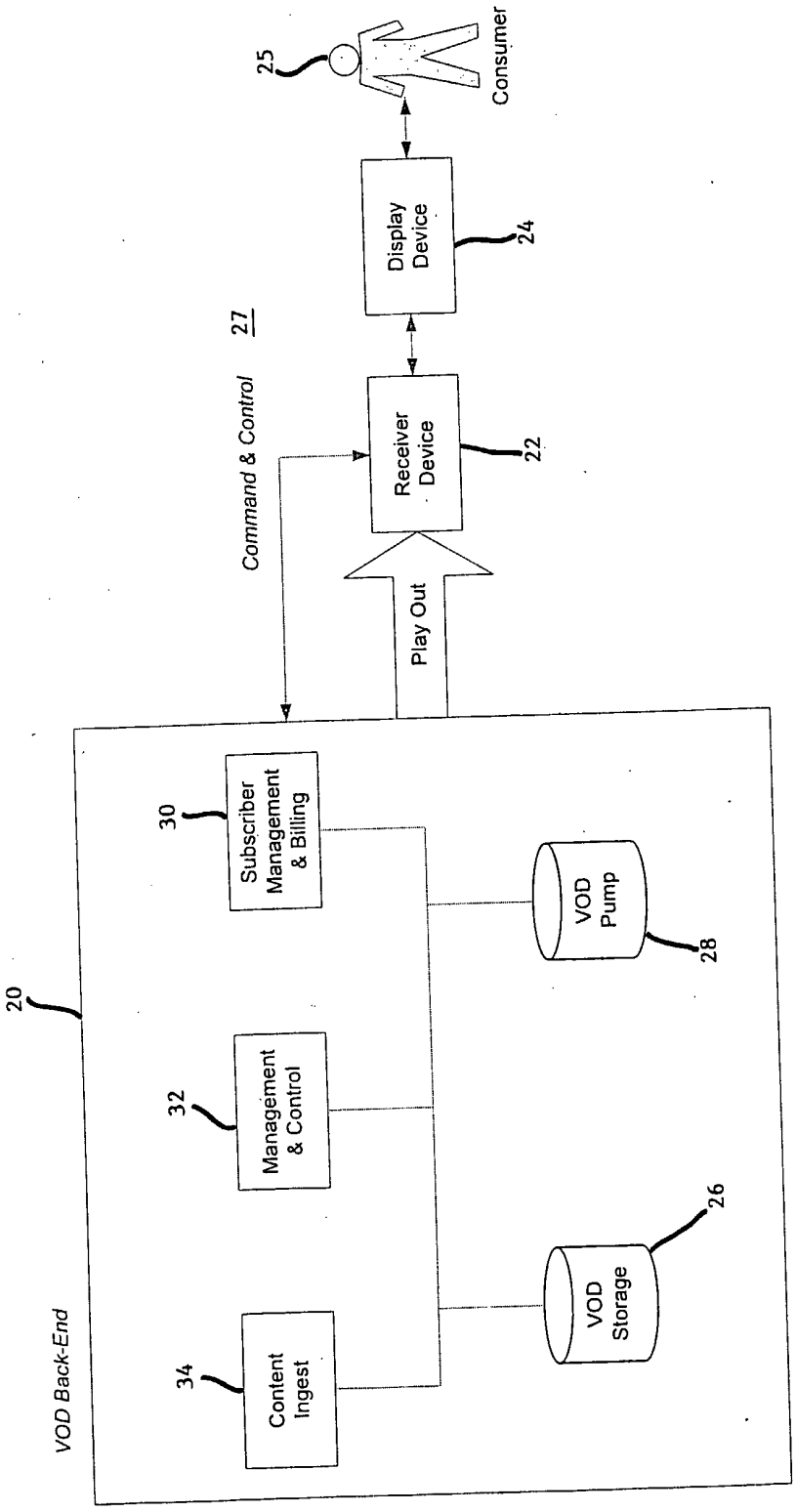
25
Consumer
Display Device
24
27
Command & Control
Receiver Device
22
Play Out
20
VOD Back-End
30
Subscriber Management & Billing
VOD Pump
28
32
Management & Control
26
VOD Storage
34
Content Ingest

Figure 1

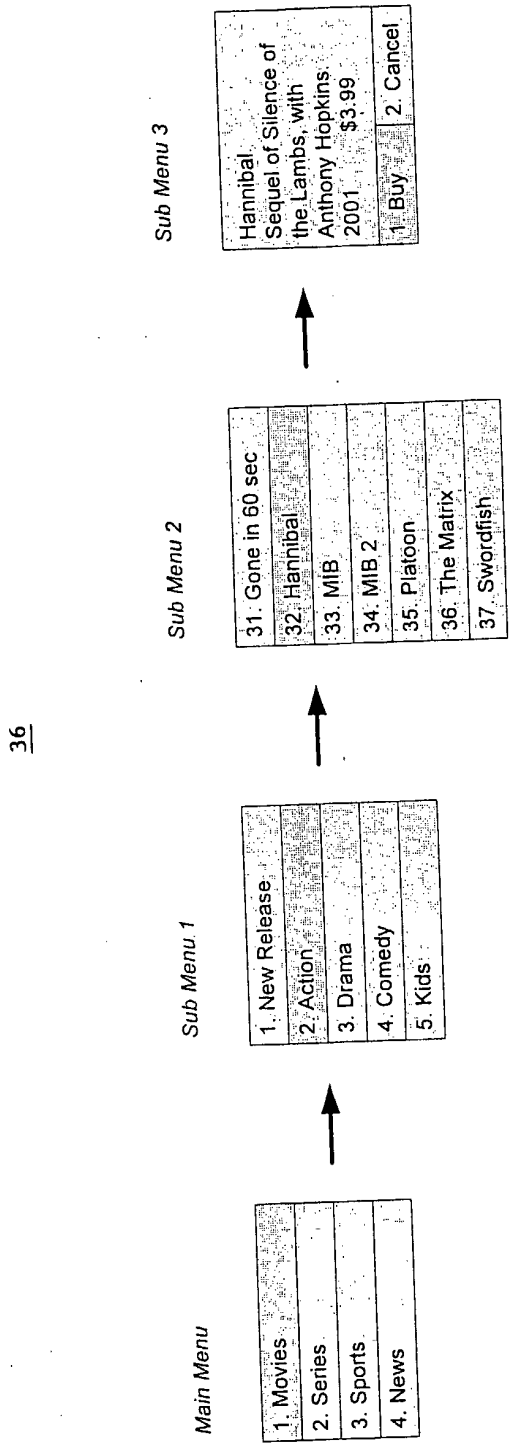
36
Main Menu
1. Movies
2. Series
3. Sports
4. News
Sub Menu 1
1. New Release
2. Action
3. Drama
4. Comedy
5. Kids
Sub Menu 2
31. Gone in 60 sec
32. Hannibal
33. MIB
34. MIB 2
35. Platoon
36. The Matrix
37. Swordfish
Sub Menu 3
Hannibal
Sequel of Silence of the Lambs, with Anthony Hopkins
2001
$3.99
1. Buy
2. Cancel

Figure 2

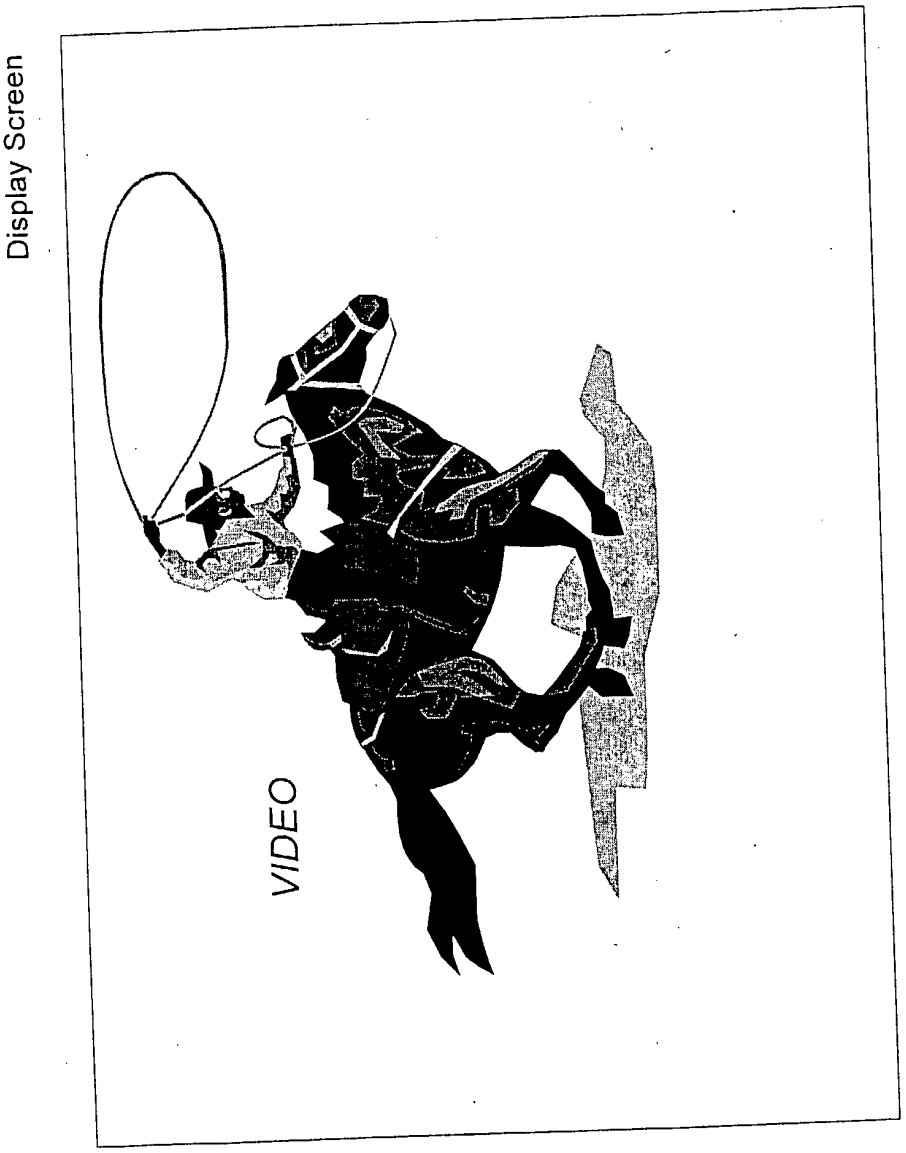

Figure 3

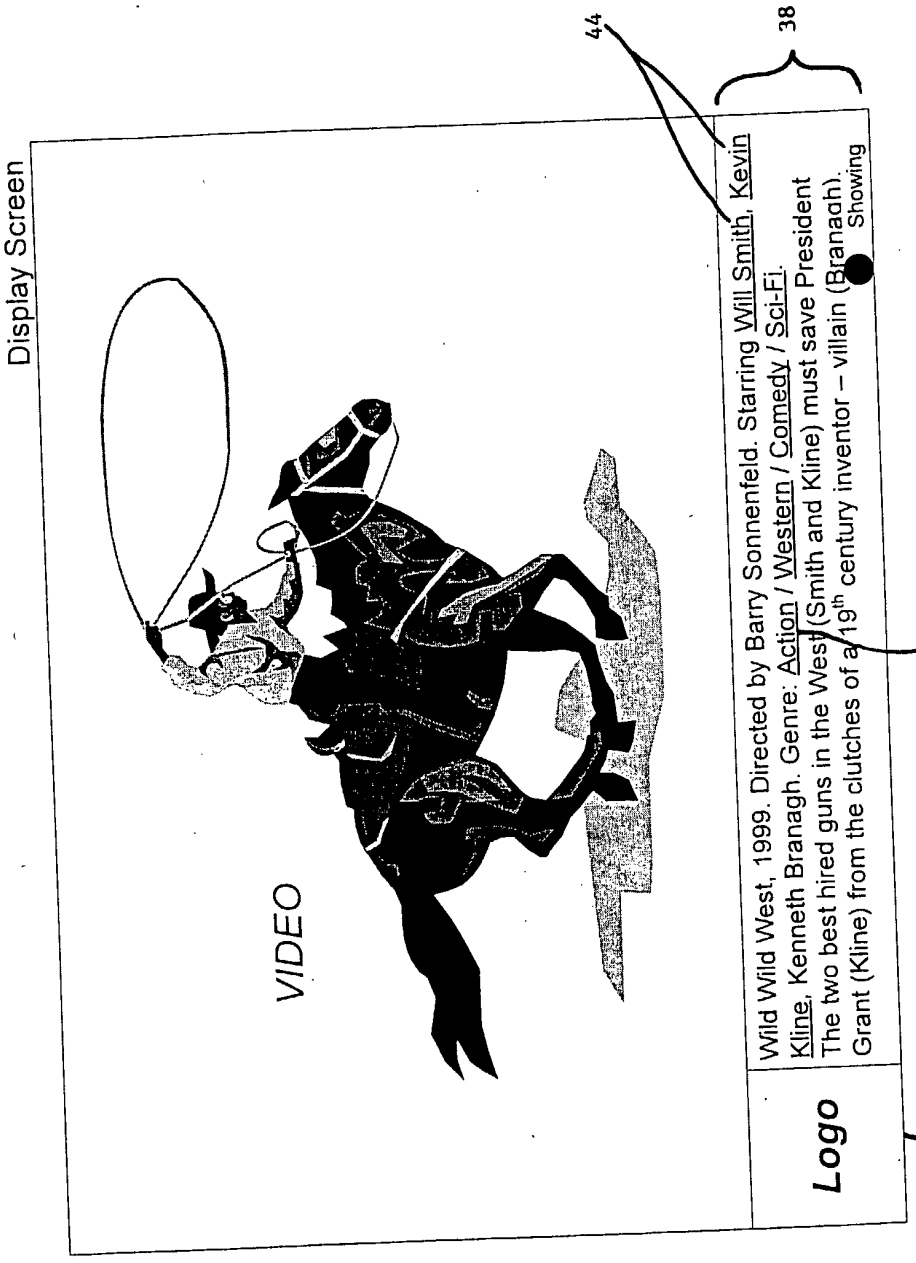
Display Screen
VIDEO
Logo
Wild Wild West, 1999. Directed by Barry Sonnenfeld. Starring Will Smith, Kevin Kline, Kenneth Branagh. Genre: Action / Western / Comedy / Sci-Fi.
The two best hired guns in the West (Smith and Kline) must save President Grant (Kline) from the clutches of a 19th century inventor – villain (Branagh).
Showing
44
38
44
42
40

Figure 4

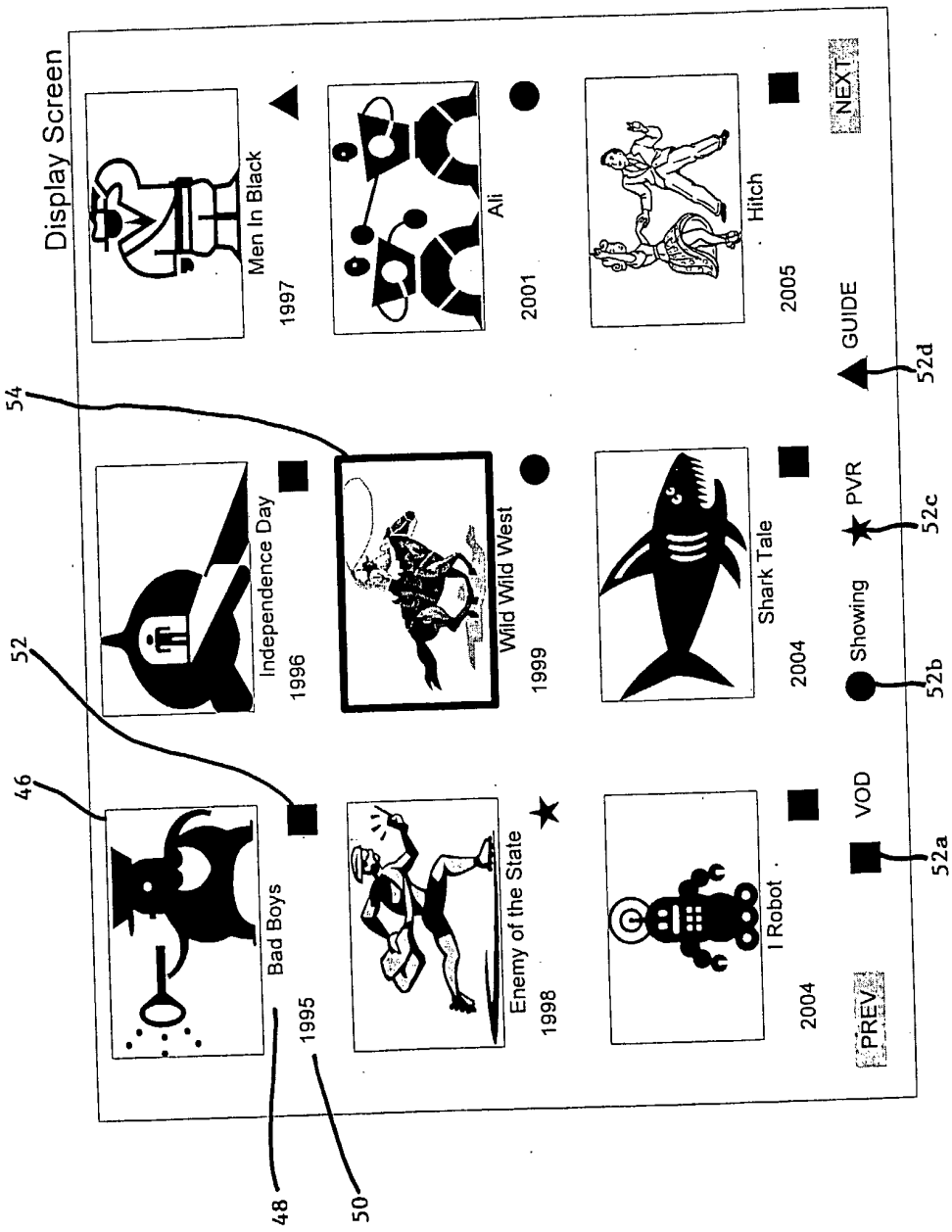
Display Screen
Bad Boys
1995
Independence Day
1996
Enemy of the State
1998
Wild Wild West
1999
I Robot
2004
Shark Tale
2004
Men In Black
1997
Ali
2001
Hitch
2005
PREV
VOD
Showing
PVR
GUIDE
NEXT
46
48
50
52
52a
52b
52c
52d
54

Figure 5

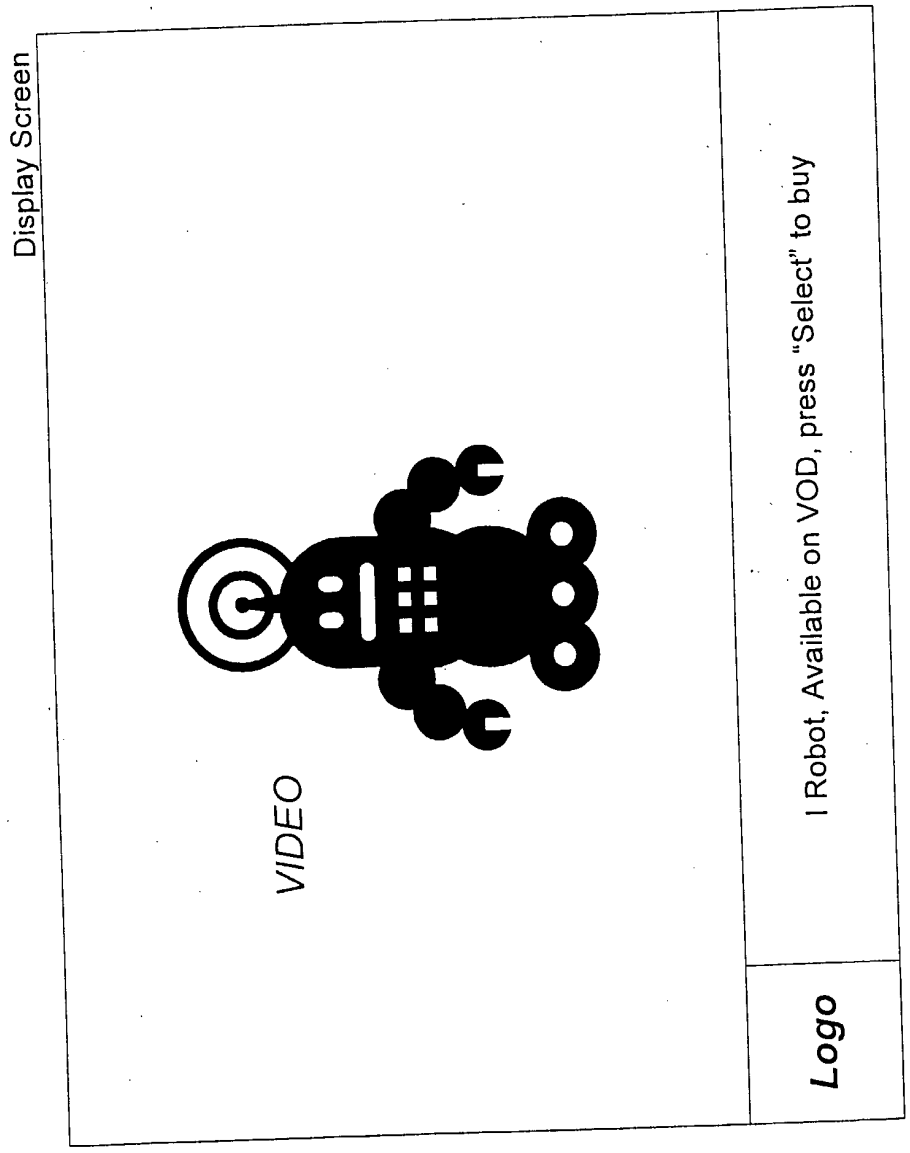
Display Screen
VIDEO
Logo
I Robot, Available on VOD, press "Select" to buy

Figure 6

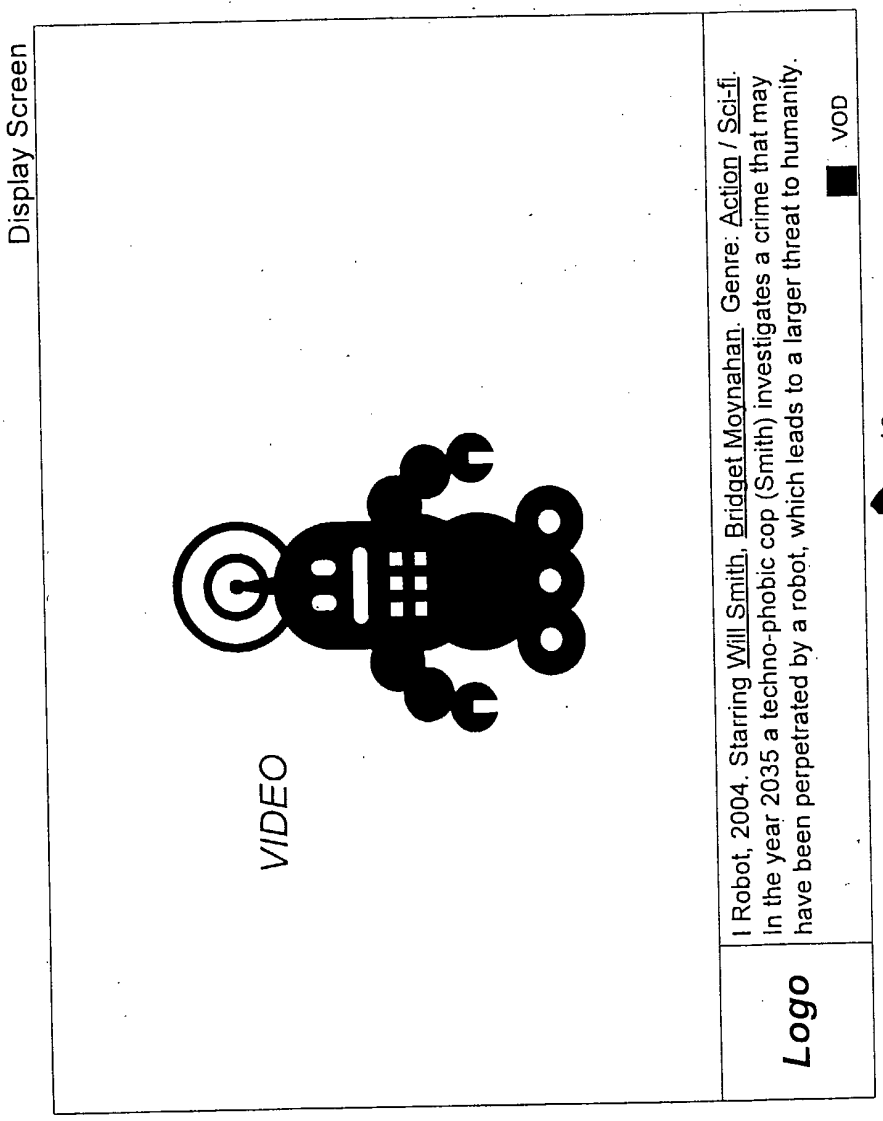
Display Screen
VIDEO
Logo
I Robot, 2004. Starring Will Smith, Bridget Moynahan. Genre: Action / Sci-fi.
In the year 2035 a techno-phobic cop (Smith) investigates a crime that may have been perpetrated by a robot, which leads to a larger threat to humanity.
VOD
42

Figure 7

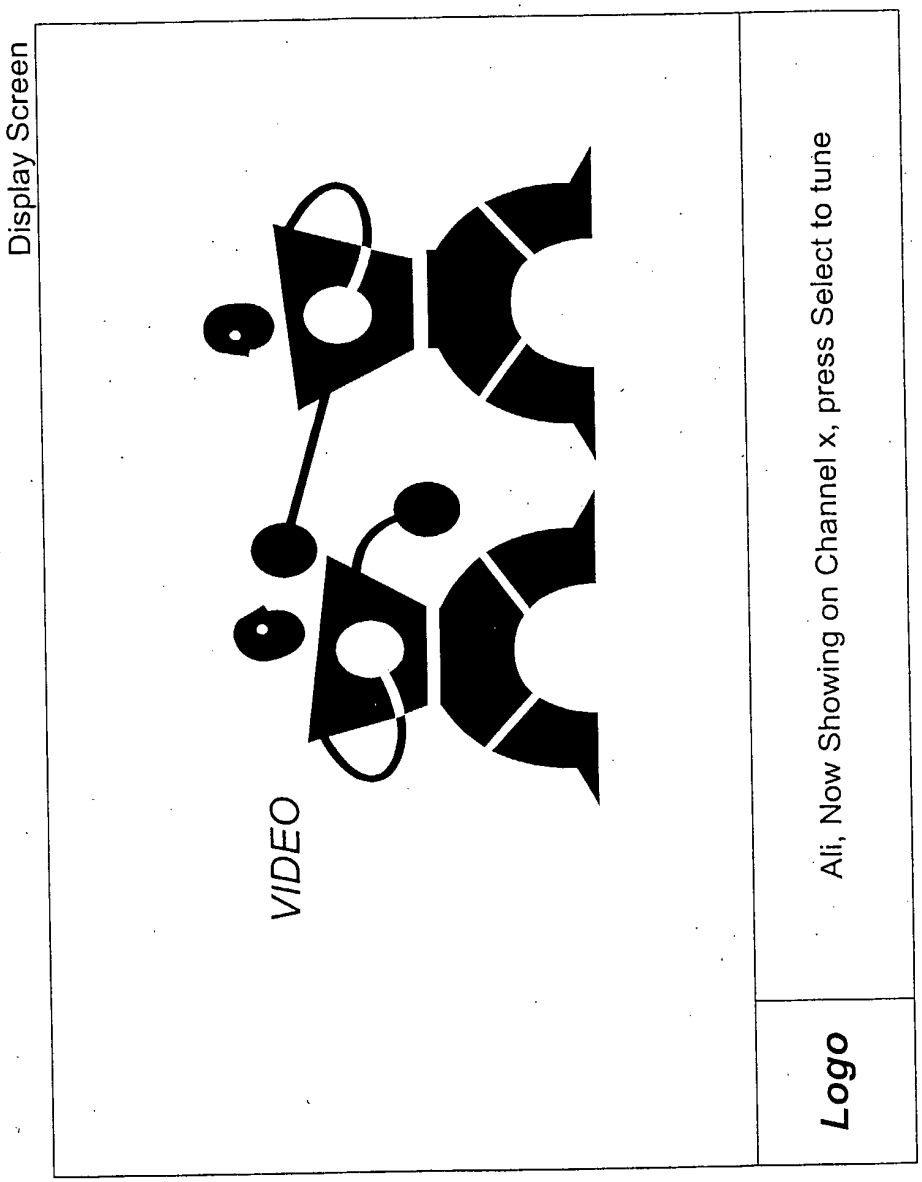
Display Screen
VIDEO
Logo
Ali, Now Showing on Channel x, press Select to tune

Figure 8

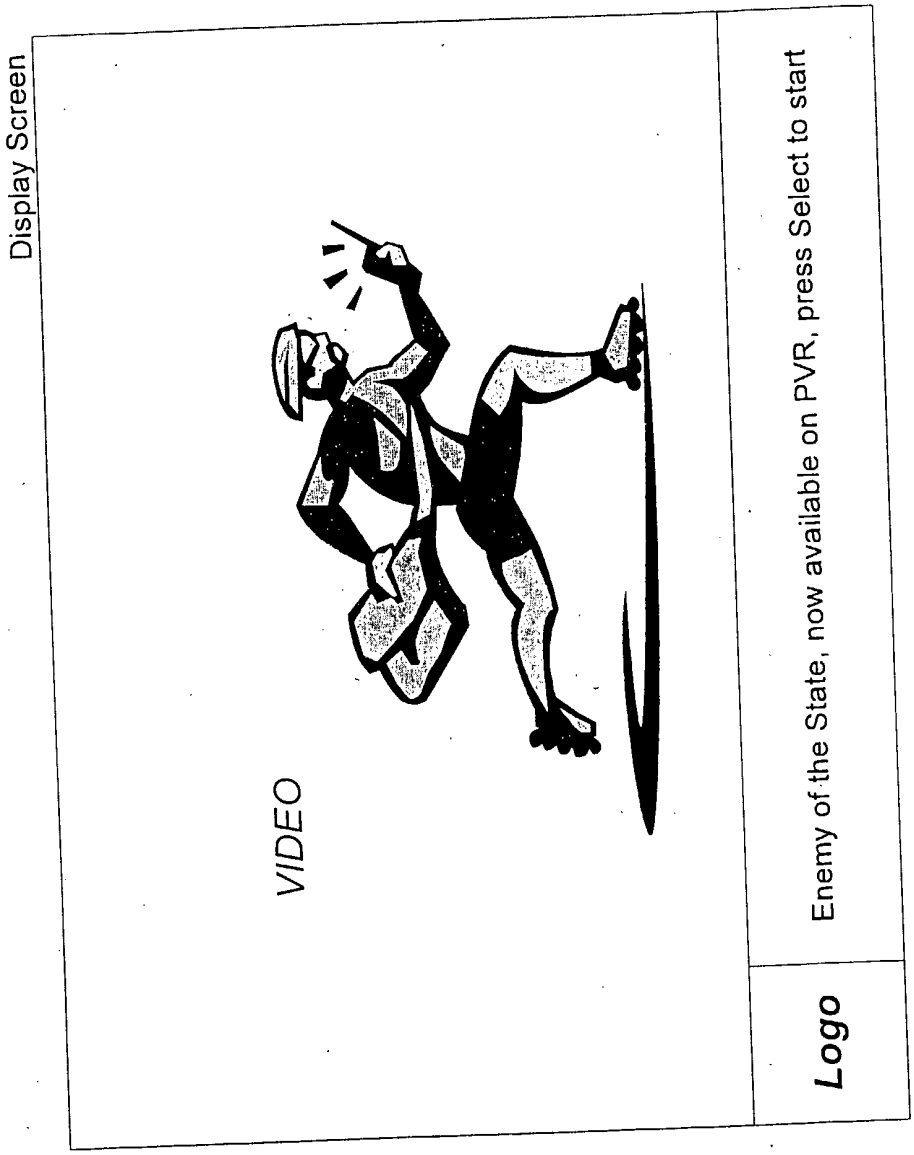
Display Screen
VIDEO
Logo
Enemy of the State, now available on PVR, press Select to start

Figure 9

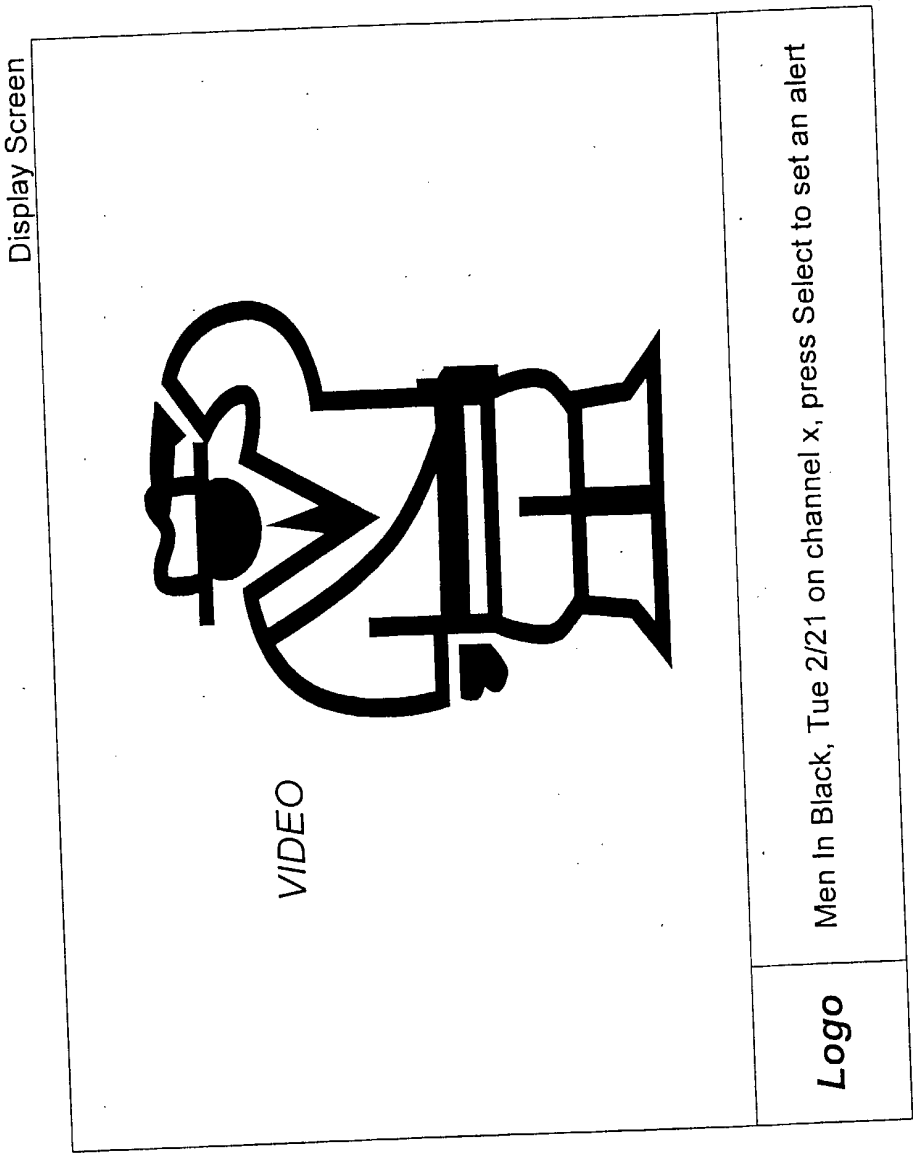
Display Screen
VIDEO
Logo
Men In Black, Tue 2/21 on channel x, press Select to set an alert

Figure 10

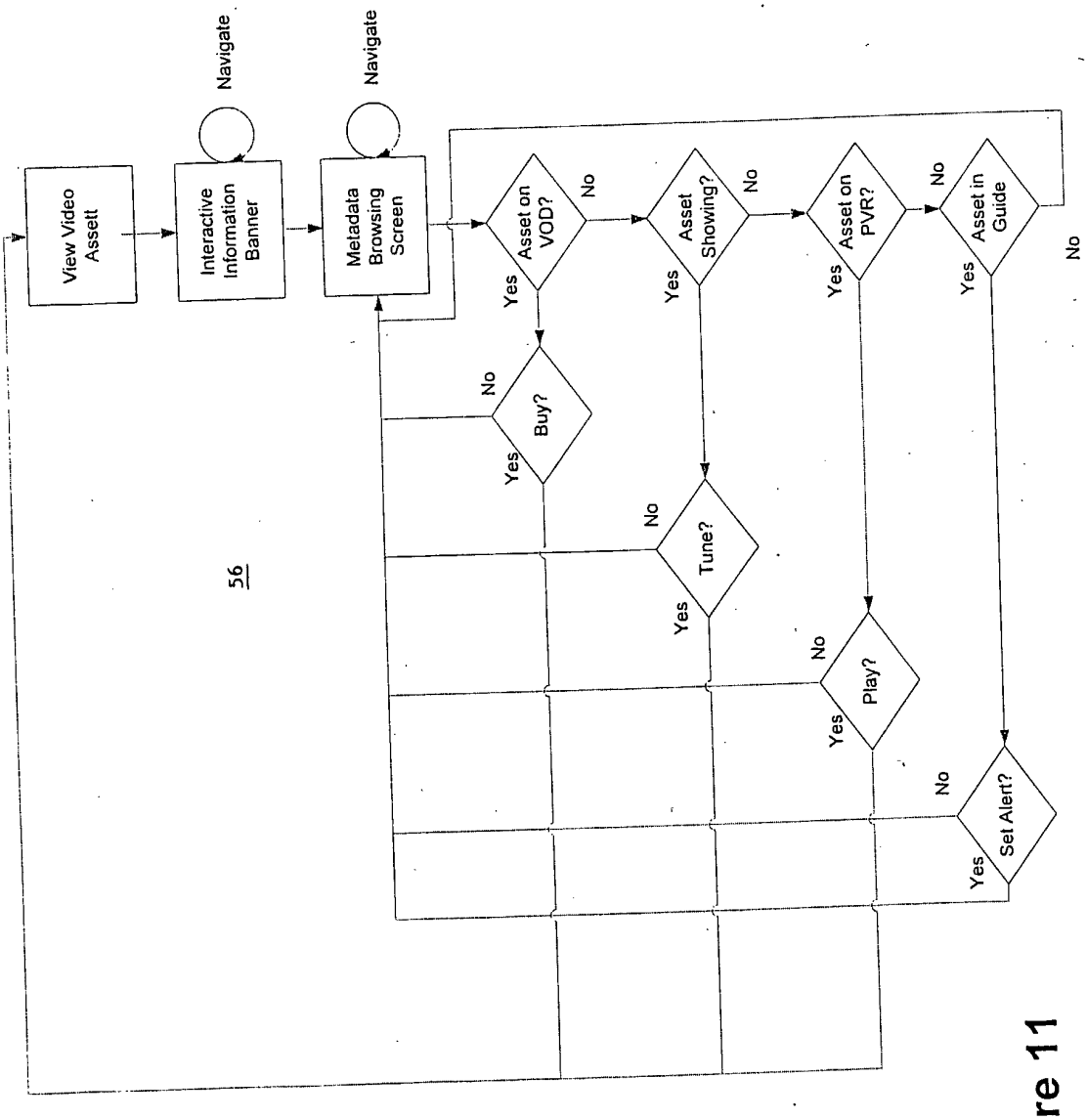
View Video Asset
Interactive Information Banner
Navigate
Metadata Browsing Screen
Navigate
Asset on VOD?
Yes
No
Asset Showing?
Yes
No
Asset on PVR?
Yes
No
Asset in Guide
Yes
No
Buy?
No
Yes
Tune?
No
Yes
Play?
No
Yes
Set Alert?
No
Yes
56

Figure 11

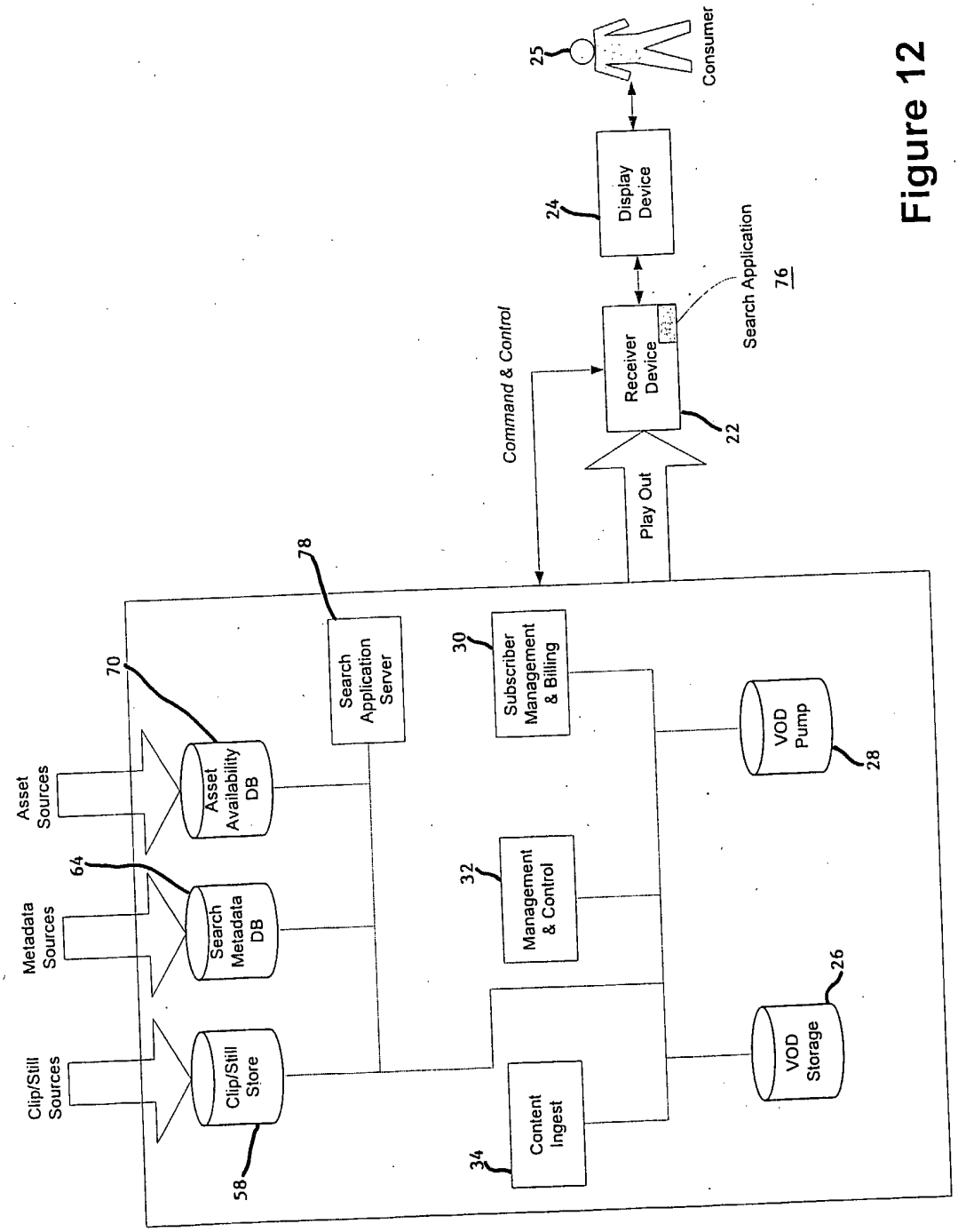
Consumer
25
Display Device
24
Search Application
76
Receiver Device
22
Command & Control
Play Out
78
Search Application Server
30
Subscriber Management & Billing
70
Asset Availability DB
Asset Sources
64
Search Metadata DB
Metadata Sources
32
Management & Control
VOD Pump
28
Clip/Still Sources
Clip/Still Store
58
Content Ingest
34
VOD Storage
26

Figure 12

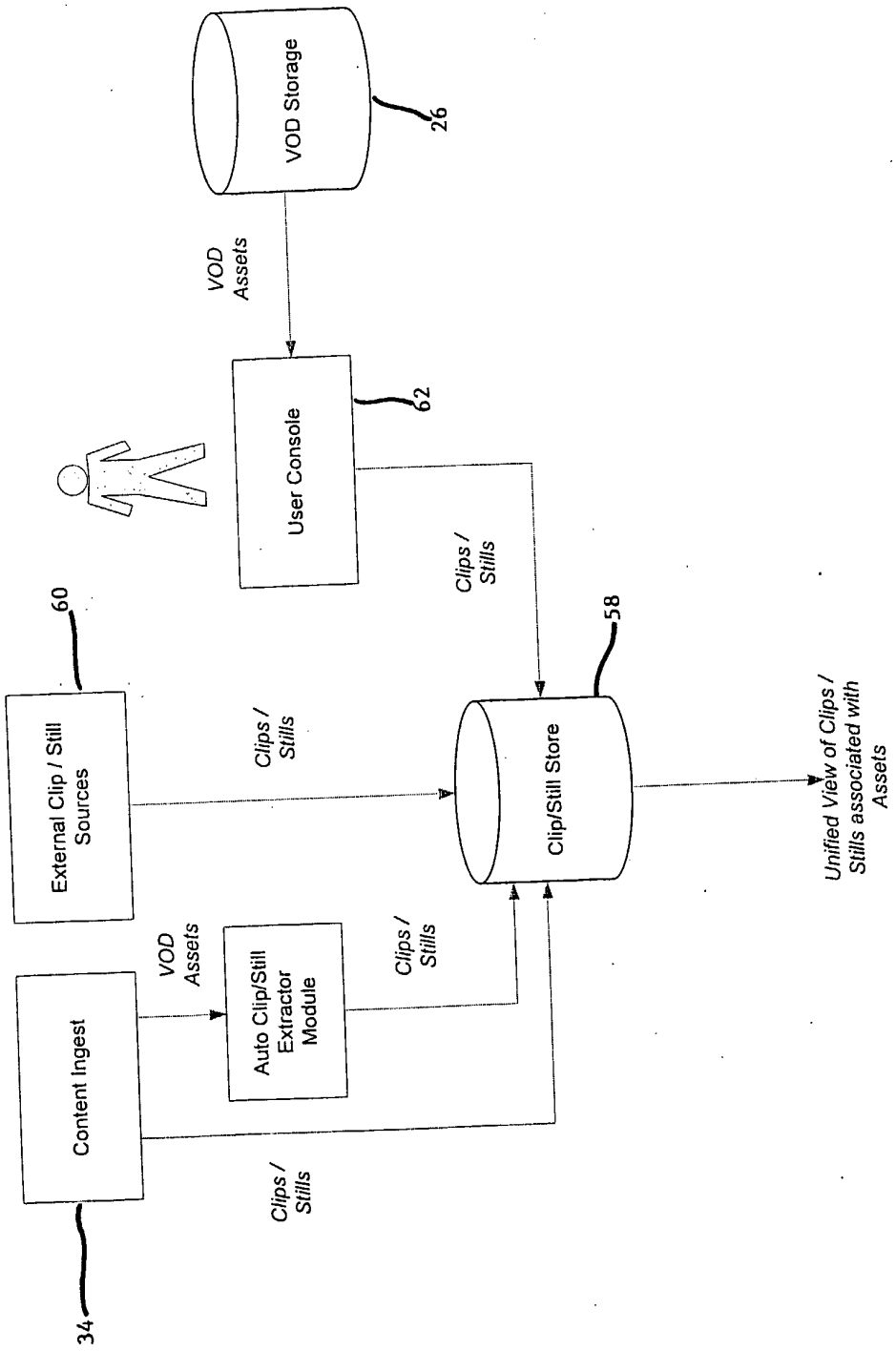
VOD Storage
26
VOD Assets
User Console
62
Clips / Stills
60
External Clip / Still Sources
Clips / Stills
58
Clip/Still Store
Unified View of Clips / Stills associated with Assets
VOD Assets
Auto Clip/Still Extractor Module
Clips / Stills
Content Ingest
Clips / Stills
34

Figure 13

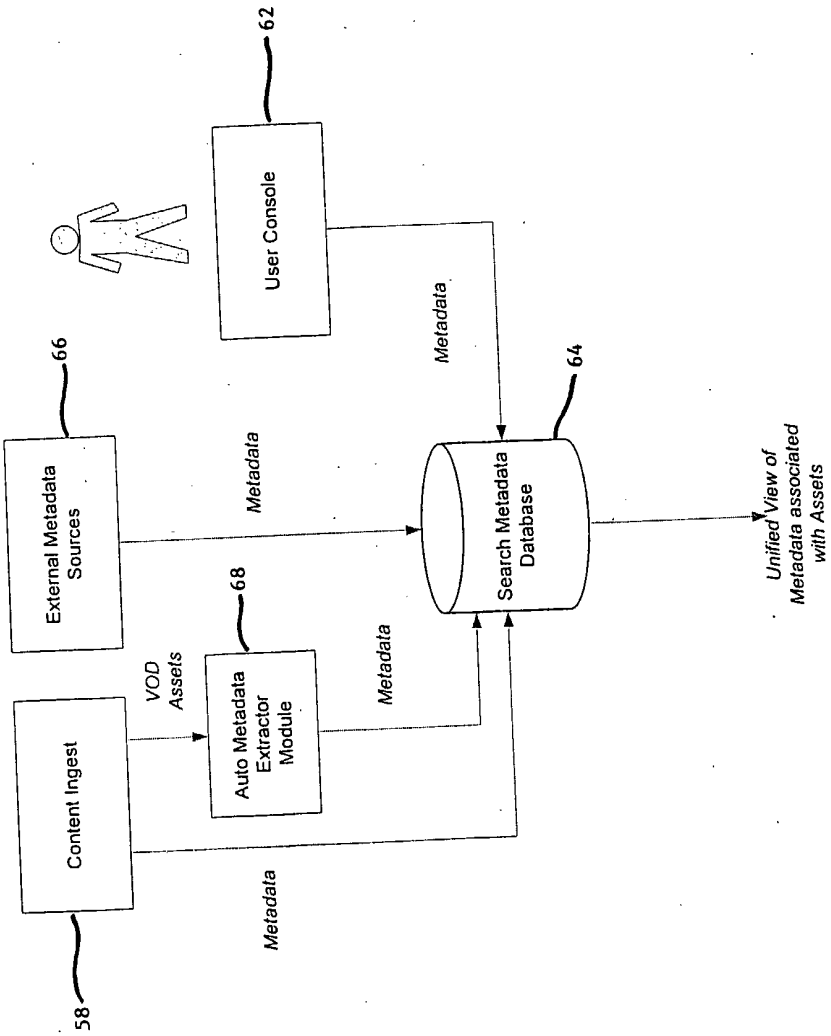
62
User Console
Metadata
66
External Metadata Sources
Metadata
64
Search Metadata Database
Unified View of Metadata associated with Assets
68
VOD Assets
Auto Metadata Extractor Module
Metadata
Content Ingest
Metadata
58

Figure 14

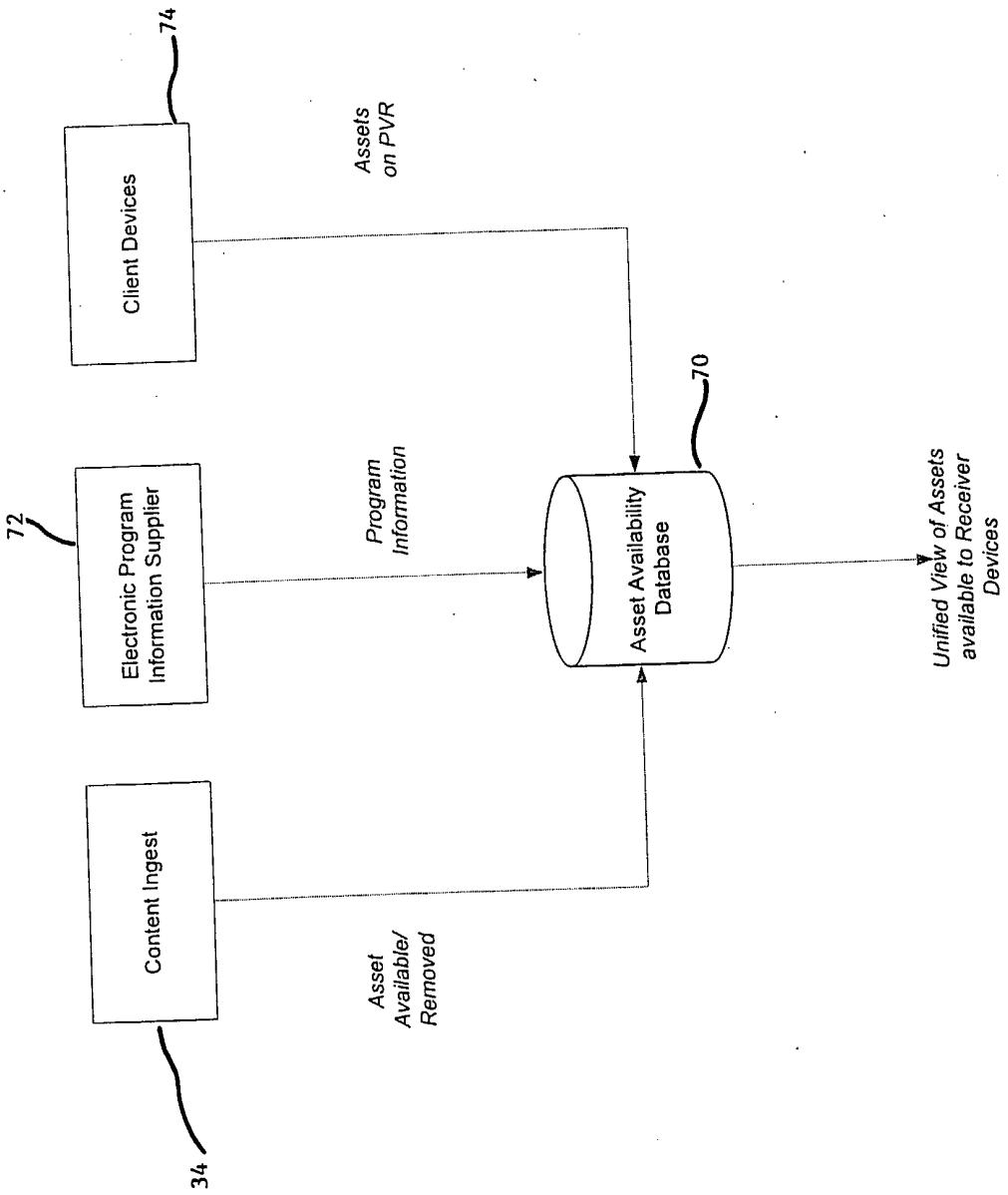
74
Client Devices
Assets on PVR
72
Electronic Program Information Supplier
Program Information
70
Asset Availability Database
Unified View of Assets available to Receiver Devices
Content Ingest
Asset Available/ Removed
34

Figure 15

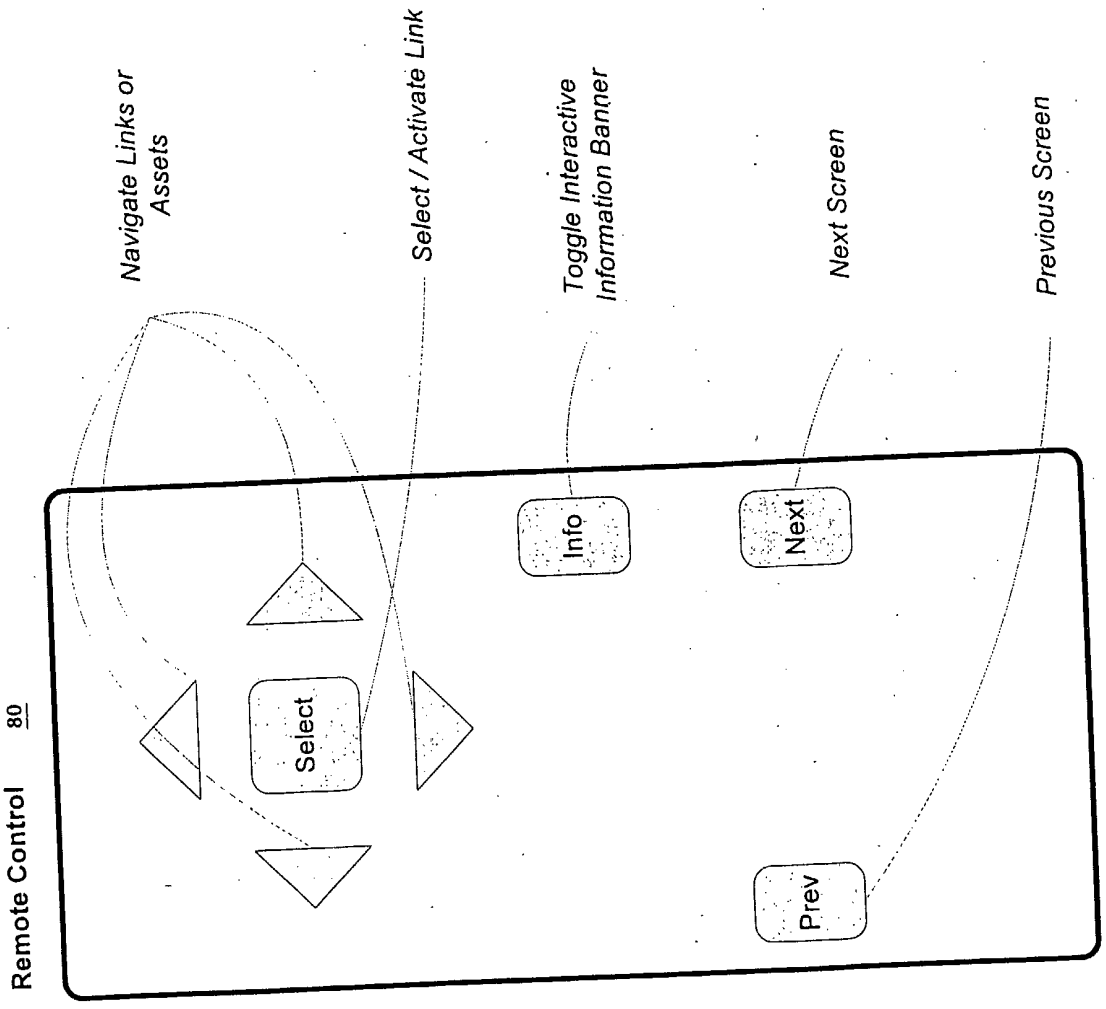
Remote Control 80
Select
Info
Next
Prev
Navigate Links or Assets
Select / Activate Link
Toggle Interactive Information Banner
Next Screen
Previous Screen

Figure 16

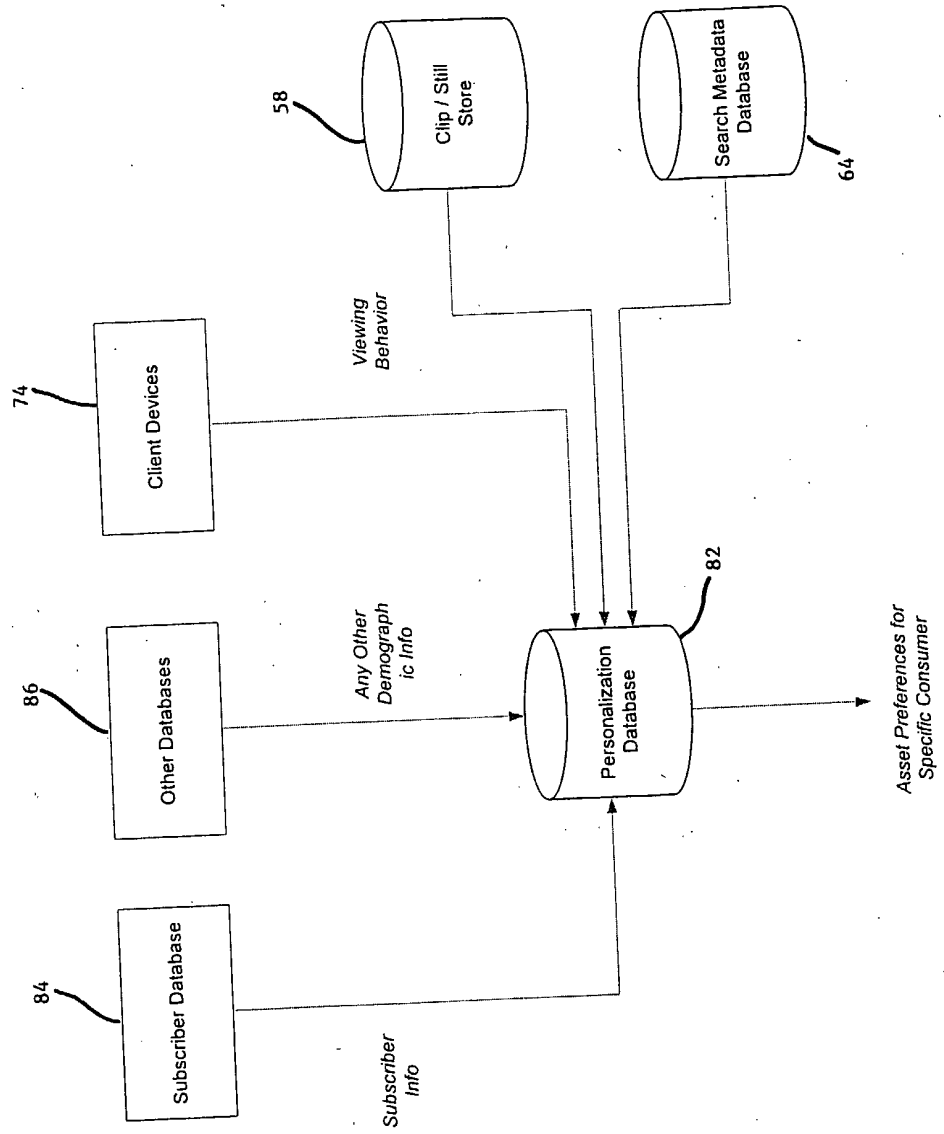
58
Clip / Still Store
Search Metadata Database
64
Viewing Behavior
74
Client Devices
Any Other Demographic Info
86
Other Databases
82
Personalization Database
Asset Preferences for Specific Consumer
84
Subscriber Database
Subscriber Info

Figure 17

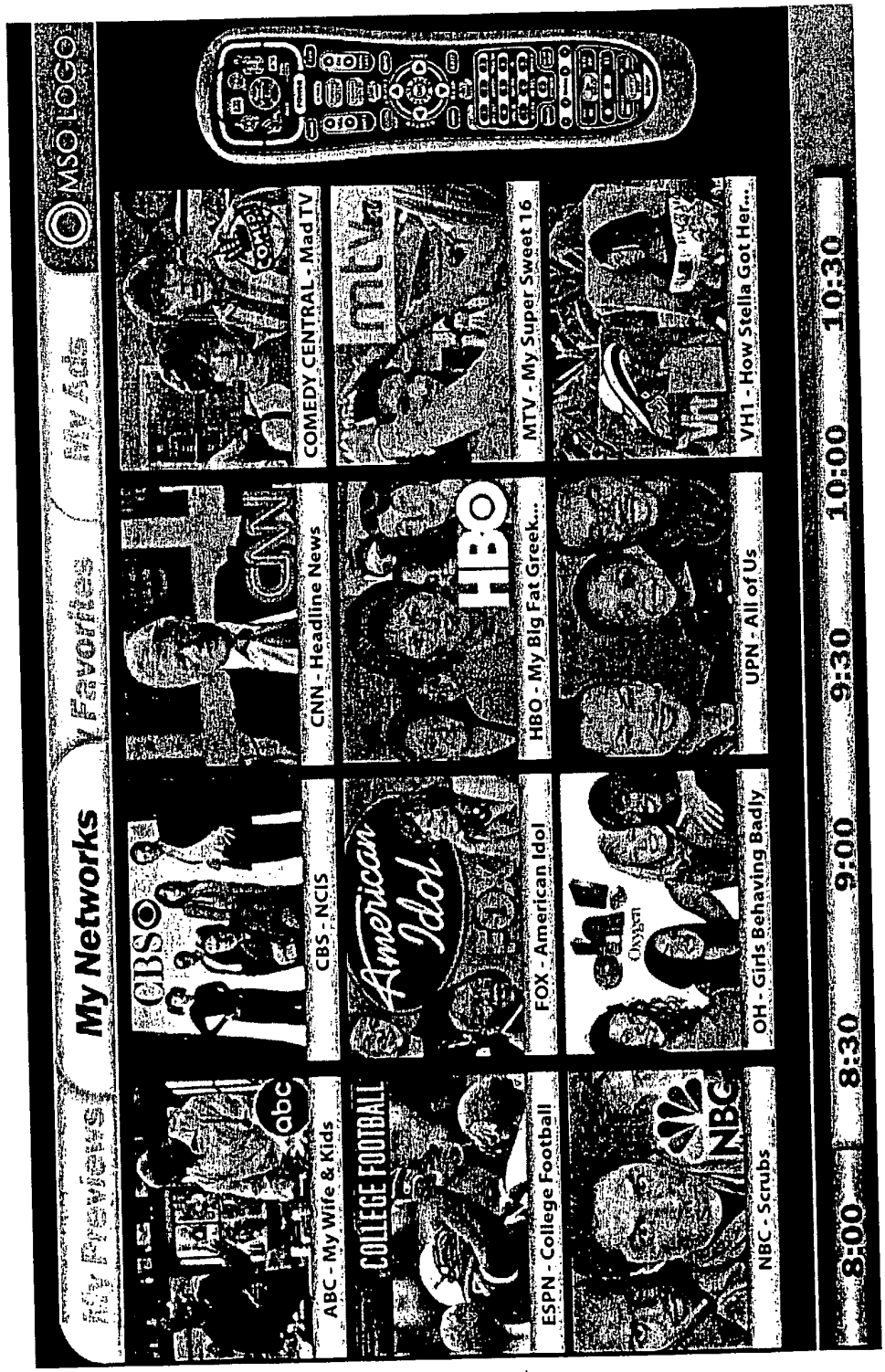
My Previews
My Networks
My Favorites
My Ads
MSO LOGO
ABC - My Wife & Kids
CBS - NCIS
CNN - Headline News
COMEDY CENTRAL - Mad TV
ESPN - College Football
FOX - American Idol
HBO - My Big Fat Greek...
MTV - My Super Sweet 16
NBC - Scrubs
OH - Girls Behaving Badly
UPN - All of Us
VH1 - How Stella Got Her...
8:00
8:30
9:00
9:30
10:00
10:30

Figure 18A

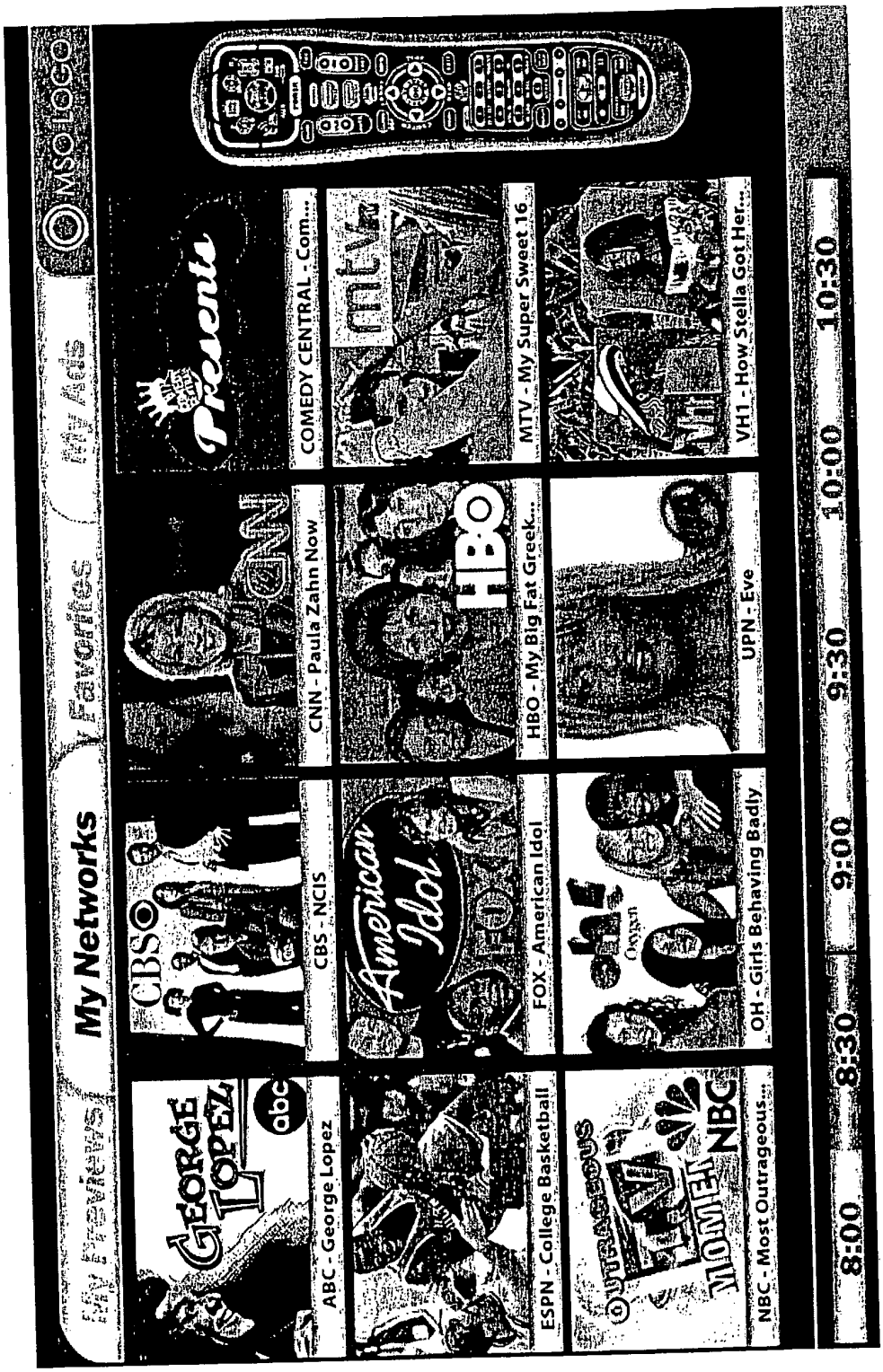
MSO LOGO
My Networks
Favorites
My Ads
8:00
8:30
9:00
9:30
10:00
10:30
ABC - George Lopez
CBS - NCIS
CNN - Paula Zahn Now
COMEDY CENTRAL - Com...
ESPN - College Basketball
FOX - American Idol
HBO - My Big Fat Greek...
MTV - My Super Sweet 16
NBC - Most Outrageous...
OH - Girls Behaving Badly
UPN - Eve
VH1 - How Stella Got Her...

Figure 18B

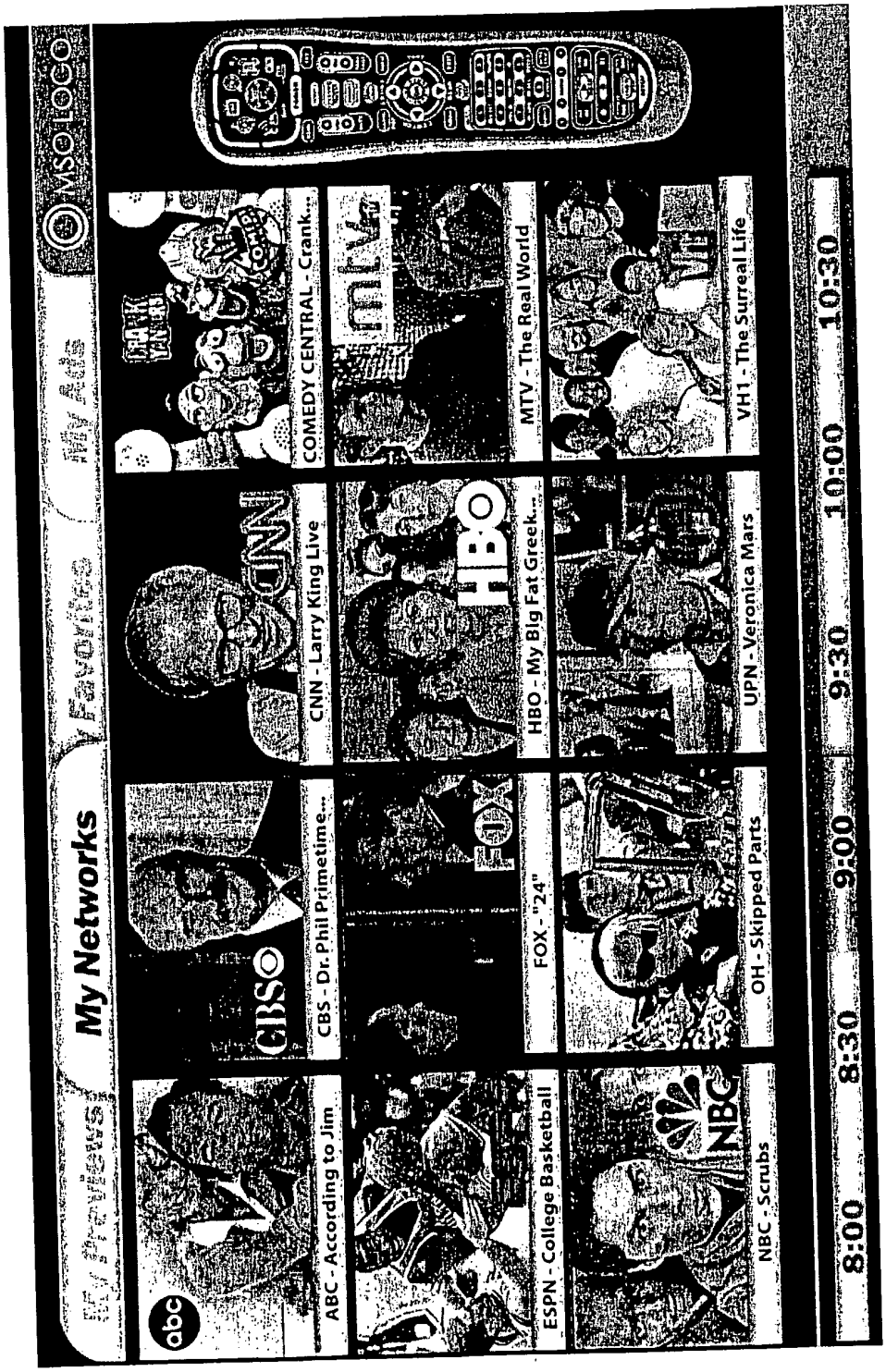
My Previews
My Networks
Favorites
My Ads
MSO LOGO
ABC - According to Jim
CBS - Dr. Phil Primetime...
CNN - Larry King Live
COMEDY CENTRAL - Crank...
ESPN - College Basketball
FOX - "24"
HBO - My Big Fat Greek...
MTV - The Real World
NBC - Scrubs
OH - Skipped Parts
UPN - Veronica Mars
VH1 - The Surreal Life
8:00
8:30
9:00
9:30
10:00
10:30

Figure 18C

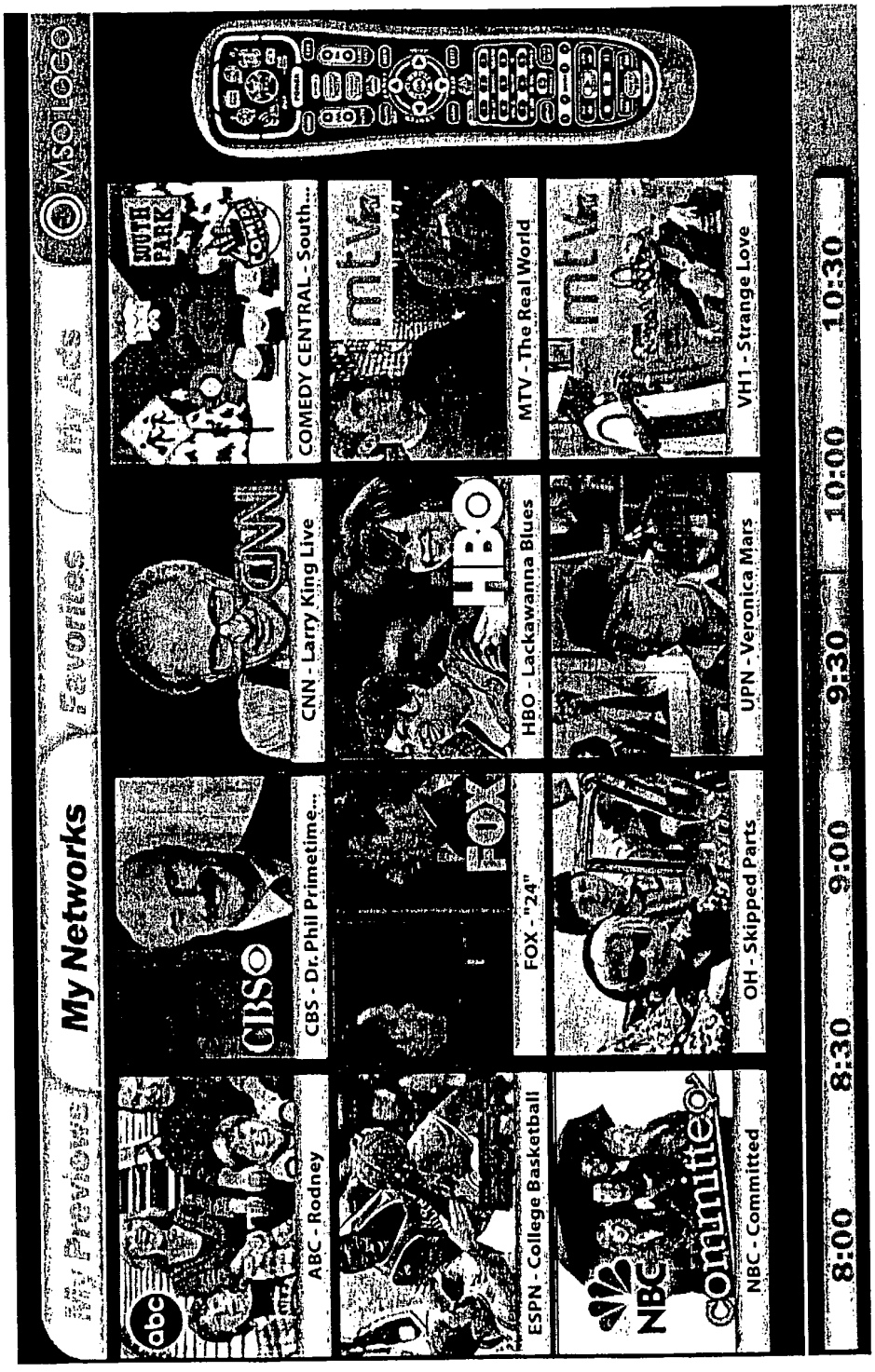
My Networks
Favorites
My Ads
MSO LOGO
ABC - Rodney
CBS - Dr. Phil Primetime...
CNN - Larry King Live
COMEDY CENTRAL - South...
ESPN - College Basketball
FOX - "24"
HBO - Lackawanna Blues
MTV - The Real World
NBC - Committed
OH - Skipped Parts
UPN - Veronica Mars
VH1 - Strange Love
8:00
8:30
9:00
9:30
10:00
10:30

Figure 18D

My Networks
Favorites
My Arts
Season 3 Episode 5
Season 3 Episode 6
Season 3 Episode 7
Season 3 Episode 8
Season 3 Episode 13
Season 3 Episode 14
Season 3 Episode 15
Season 3 Episode 16
FOX "24"

Figure 19A

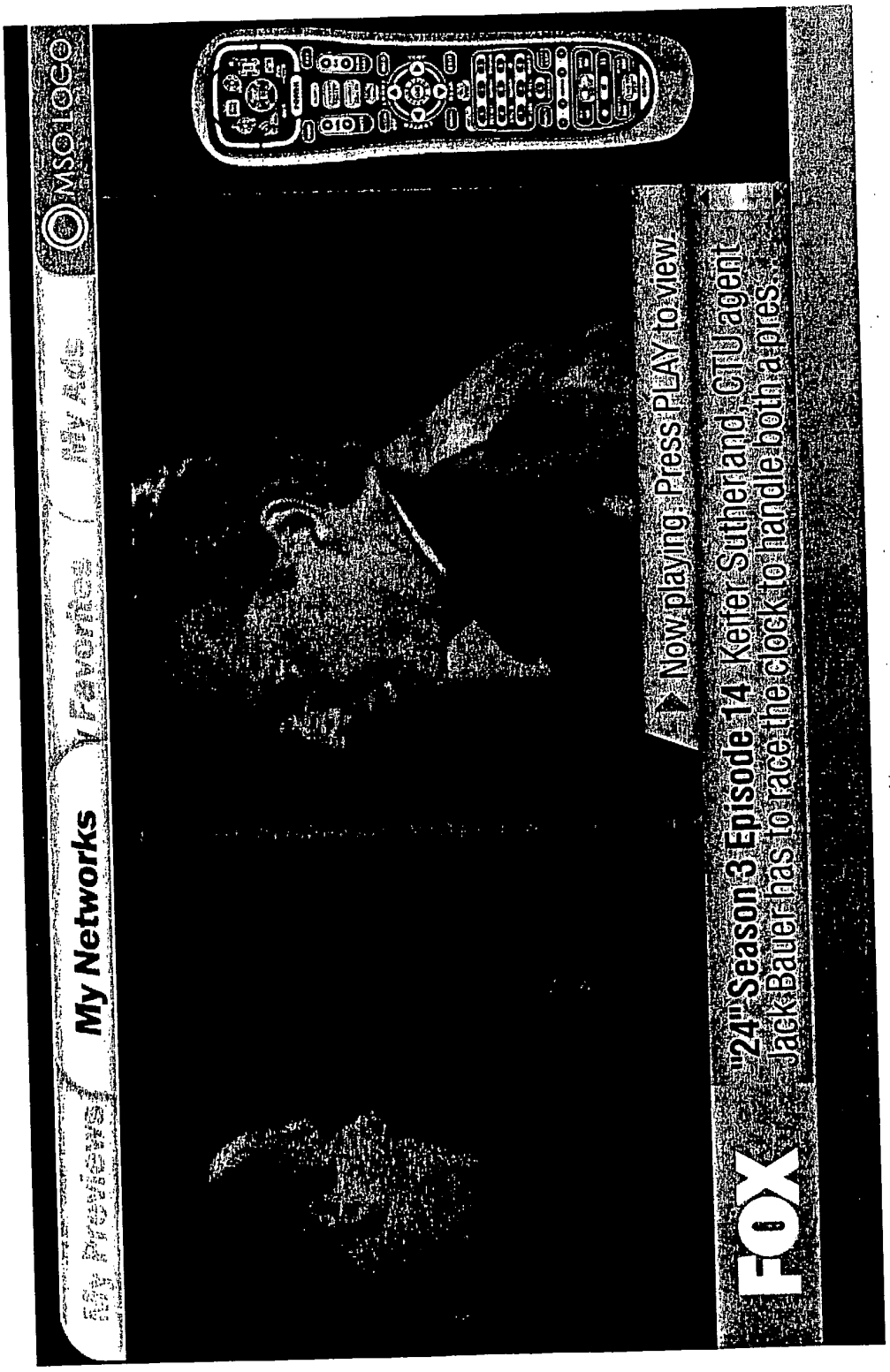
My Previews
My Networks
Favorites
My Ads
MSO LOGO
Now playing. Press PLAY to view.
FOX
"24" Season 3 Episode 14. Keifer Sutherland, CTU agent
Jack Bauer has to race the clock to handle both a pres...

Figure 19B

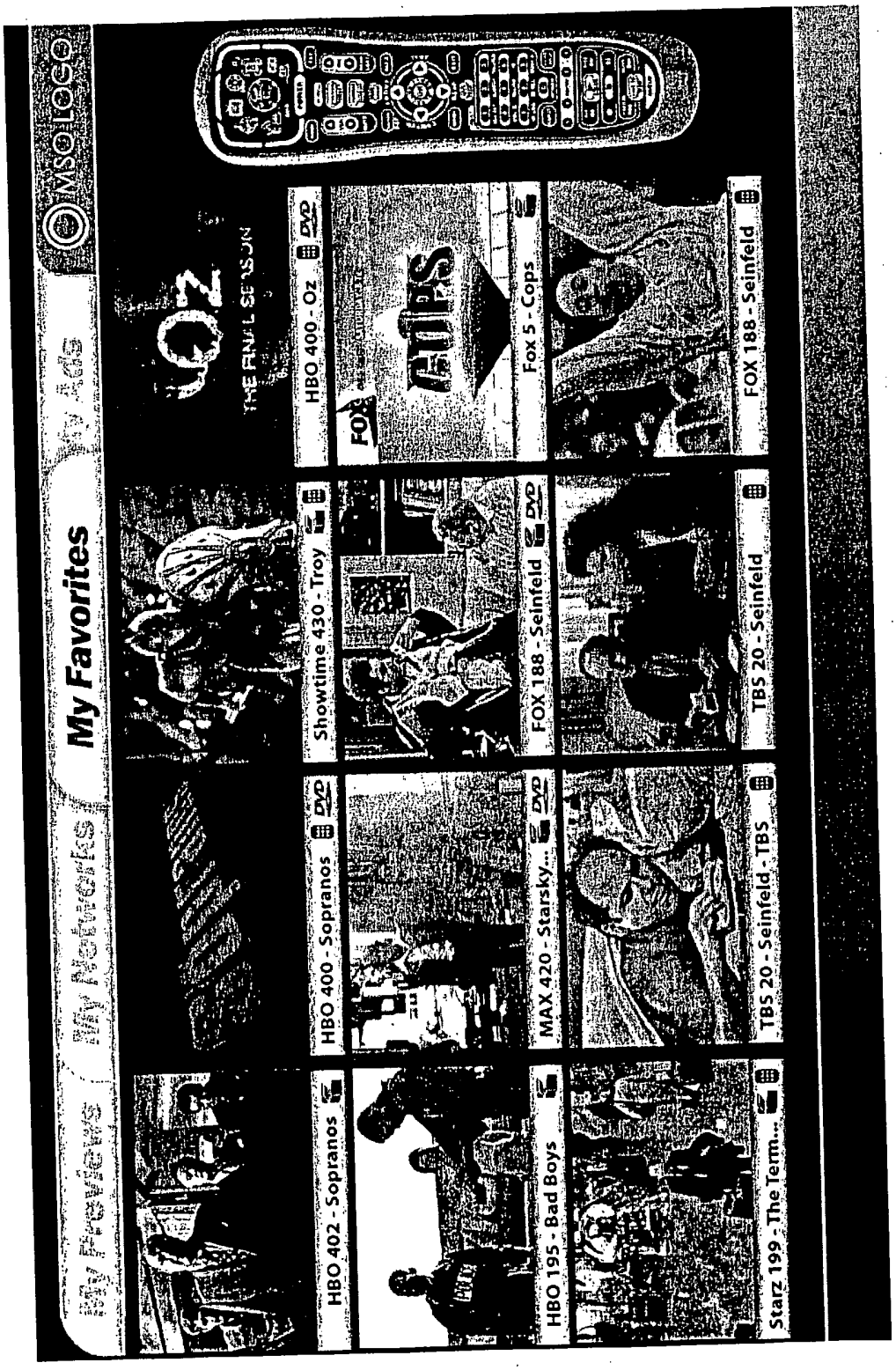
My Favorites
HBO 402 - Sopranos
HBO 400 - Sopranos
Showtime 430 - Troy
HBO 400 - Oz
HBO 195 - Bad Boys
MAX 420 - Starsky...
FOX 188 - Seinfeld
Fox 5 - Cops
Starz 199 - The Term...
TBS 20 - Seinfeld - TBS
TBS 20 - Seinfeld
FOX 188 - Seinfeld

Figure 20

My Previews
My Networks
My Favorit
My Ads
MSO-LOGO
Budweiser
0% financing
CHERRY HILL KIA
Cherry Hill, NJ
(856) 663-1500
KIA
RadioShack
1-800-Flowers
Six Flags
NO INTEREST
NO PAYMENTS TIL
JANUARY 2005
Wickes Furniture
LOWE'S
Improving Home Improvement
Lowe's
United Ted
Qwest
Kohl's
15%-50% off
Safeway
BMW

Figure 21