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(54) **PROMOTION SERVER USING VIDEO ON DEMAND CHANNEL**

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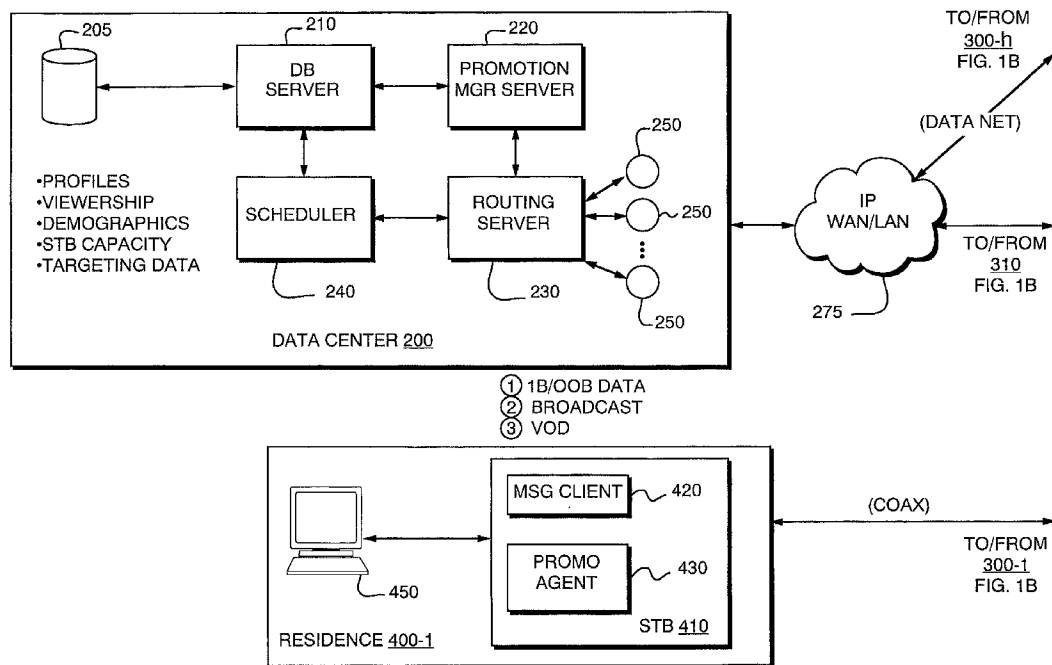
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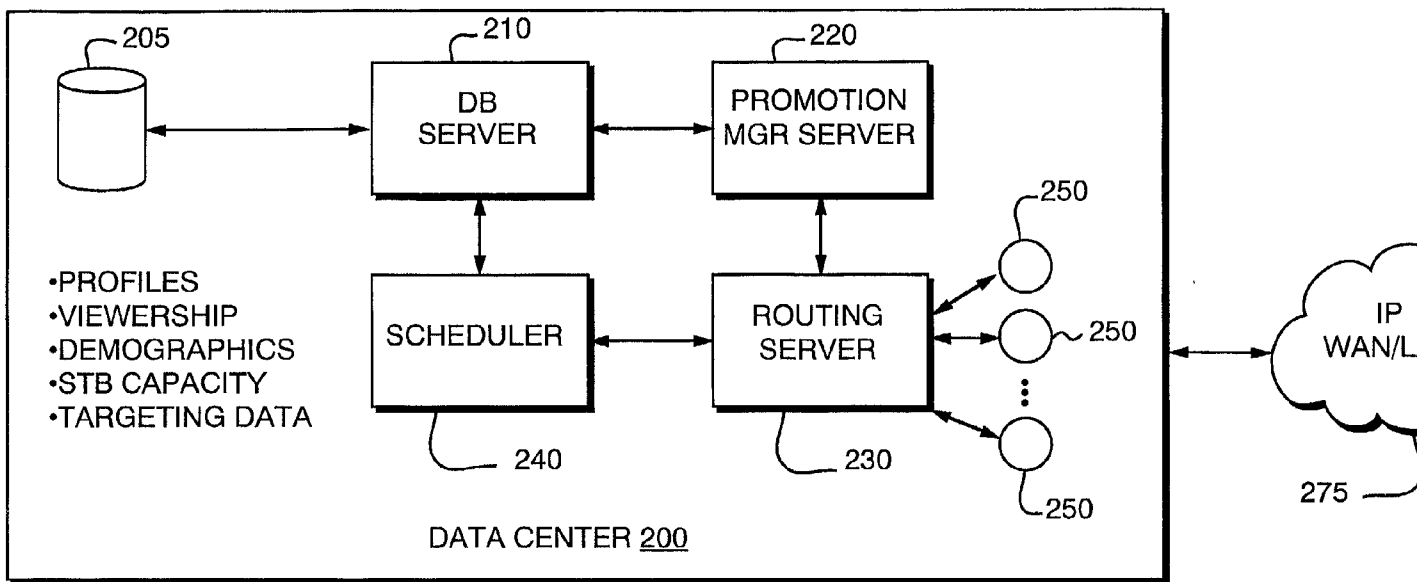
(57) **ABSTRACT**

Idle Video-On-Demand (VOD) channel capacity is used to deliver promotional content to selected set-top boxes (STBs)

in a cable television network. Commercial segment cues are used to instruct a set-top box to switch away from a broadcast program to the VOD channel during a commercial segment, and then switch back again to the original broadcast program at the end of the segment.

More particularly, a promotion server determines an asset to be distributed such as a targeted promotion item (e.g., a commercial), and a list of STBs that are to receive it. The promotion server causes the video promotion content to be stored in VOD servers located at the head ends. A scheduler process then delivers schedule messages to head end message servers which identify each promotion asset, and an STB which is to receive it. The head end message server notifies its associated VOD server which then cues the asset by loading the asset, starting the asset, but pausing it. Prior to the occurrence of a commercial slot in a broadcast program, an asset trigger is inserted into the broadcast stream at the head end. This asset trigger contains general information concerning the asset to be sent, and an idle VOD channel number. The STB receives the asset trigger and readies itself to tune to the VOD channel when cued for at the beginning of a commercial segment, but does not yet tune to the VOD channel. Upon detection of a commercial cue tone in the broadcast channel, the head end message server sends a tune away trigger to the STB, and also instructs the VOD server to start playing the cued promotion. When the STB receives a tune away trigger, it switches from the broadcast channel being played to the selected idle VOD channel, and the promotion is viewed.





- PROFILES
- VIEWERSHIP
- DEMOGRAPHICS
- STB CAPACITY
- TARGETING DATA

- ① 1B/OOB DATA
- ② BROADCAST
- ③ VOD

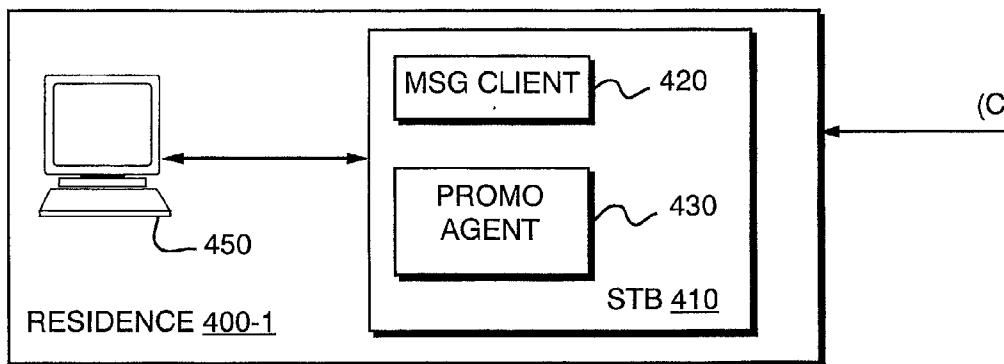


FIG. 1A

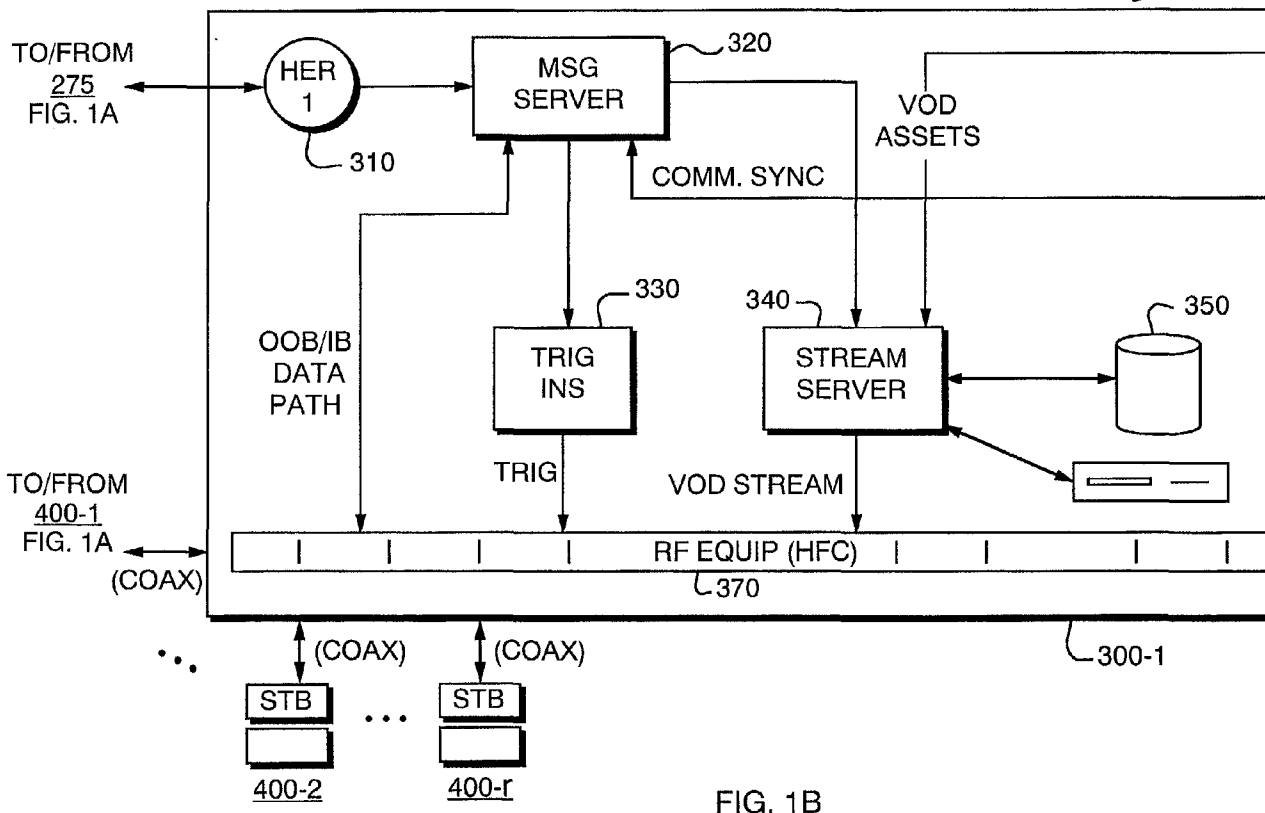
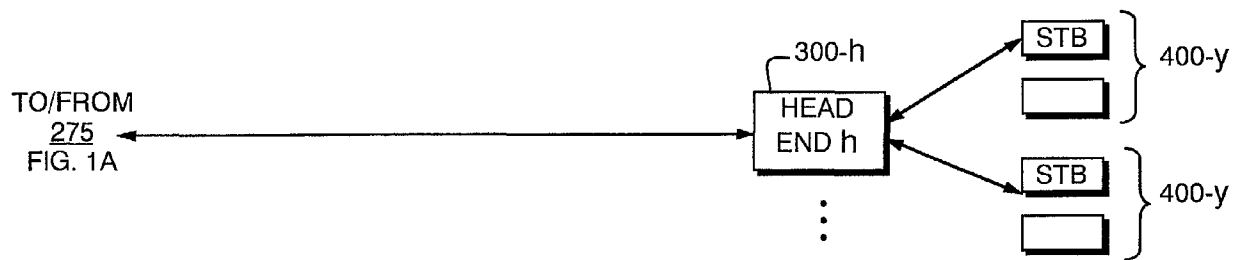


FIG. 1B

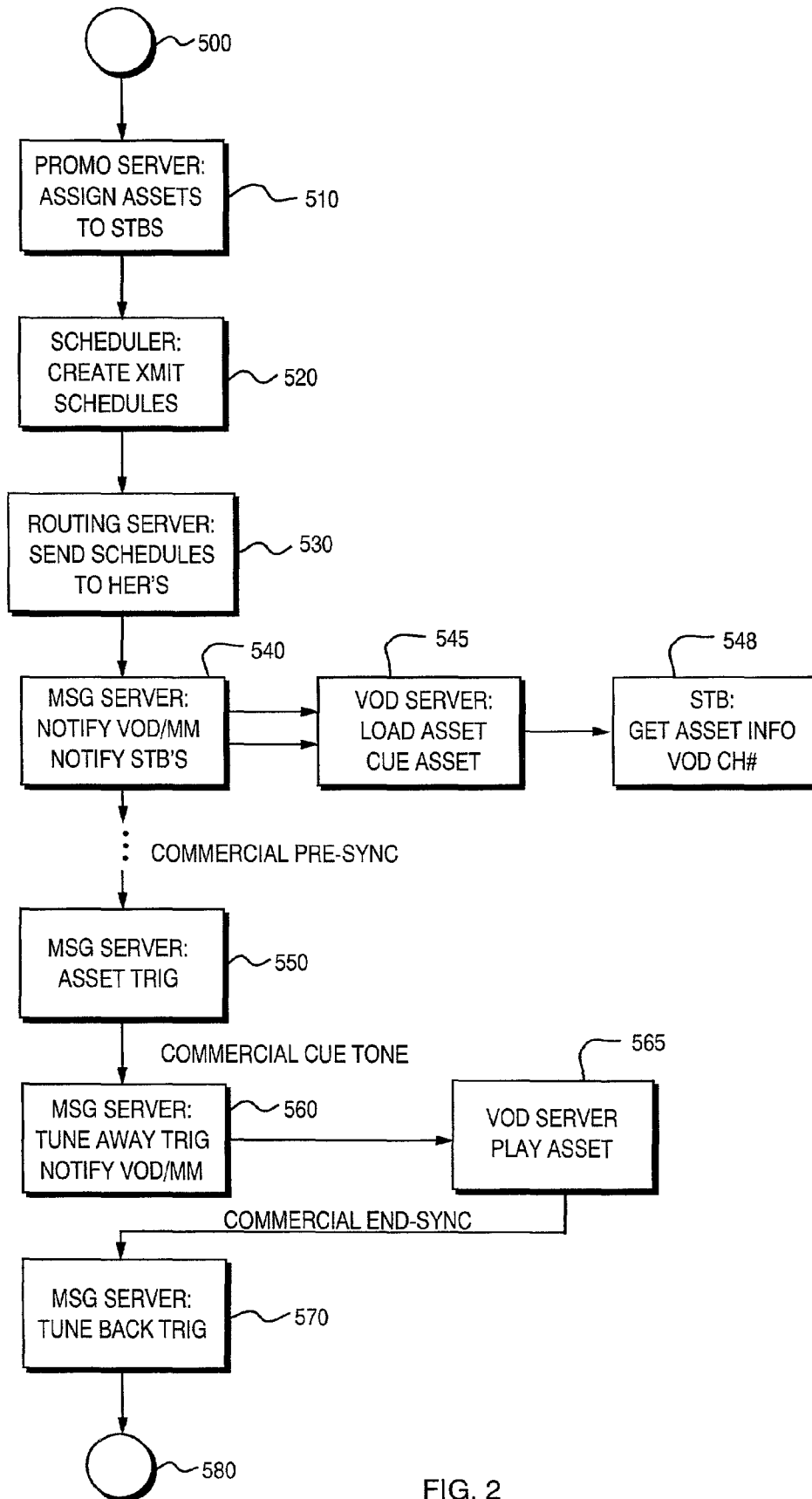


FIG. 2

PROMOTION SERVER USING VIDEO ON DEMAND CHANNEL

RELATED APPLICATION(S)

[0001] This application claims the benefit of U.S. Provisional Application No. 60/253,350 filed on Nov. 28, 2000, the entire teachings of which are incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] This invention relates generally to broadcast systems such as cable television networks and more particularly to a technique for coordinating the insertion of specific video content, including targeted commercial or other promotional video content, over idle video-on-demand channels.

[0003] For many years it has been realized that cable television (CATV) systems provide numerous advantages as compared to over-the-air broadcast systems. First, these cable systems were valued for their ability to provide for reception of signals in remote rural locations, or where radio signals may be blocked, such as in dense high rise apartment buildings. Later, it was realized that by incorporating long distance communications equipment, such as orbital satellite transponder equipment, centralized distribution networks could be built that not only could route local channels more reliably, but also distribute program content on a nationwide basis. This gave rise to broadcast program content which is available strictly for the cable television subscriber, and the now widely familiar movie, news, weather, music, childrens, sports, family and other program-gendre-specific cable channels.

[0004] The present trend is towards a model where the reception devices in the home will include embedded computer systems designed for a particular function or purpose. Today, for example, set-top boxes typically have limited data communication capabilities. The main function of these devices is to handle channel access between residential users and a head end or server on the cable TV network. For example, these systems are typically deployed to offer certain types of premium services, such as video-on-demand. This service allows a viewer to use a menu system to select from a variety of typically pre-recorded premium programs that may be available, such as movies or sporting events. The selected program content is then immediately delivered to the viewer over channels dedicated to delivery of the video-on-demand content.

[0005] In the future, the functionality offered by these set-top boxes or other embedded platforms will be expanded even further. For example, they may offer Internet browsing capabilities and e-commerce serving capabilities. Moreover, it is anticipated that common-household appliances will also have computer network functionality, in which case the set-top boxes may be used to remotely control and automate various tasks in the home.

[0006] Indeed, millions of digital set-top boxes have already been deployed in the United States. It is estimated that the worldwide market for Internet appliances such as digital set-top boxes and other Internet-connected terminals will reach \$17.8 billion in 2004. Increasingly, advertisers and content providers therefore view the cable set-top as the first platform of choice for widespread delivery of a suite of intelligent content management and distribution services.

SUMMARY OF THE INVENTION

[0007] The present invention is a system for delivery of targeted content such as promotional video content to a cable television viewer, where the specific content is under control of the a central operator and the viewer is not necessarily aware of the targeted nature of the content.

[0008] Consider that the digital set-top box provides interesting functionalities, including the ability to collect data such as a log of the channels watched over time. The set top box can thus be designed to report this information to a central location. At the central location, this data can be aggregated for many hundreds of thousands of users. This information, when coupled with other information, such as viewer demographics, can then be used by advertisers to blanket defined market segments with promotional content. The delivery of promotions to specific target segments can thus allow for impulse responses yielding immediate increases in product revenues.

[0009] However, a nationwide cable television network may have hundreds of thousands, if not millions of set-top boxes, each tuned to a different channel. An efficient scheme for routing the targeted content to specific set-top boxes is therefore not as straightforward as it might appear at first glance.

[0010] Some have proposed systems in which the targeted content is digitized and sent to the set-top boxes in compressed form, well prior to its display. However, even a single promotion may require several hundred megabytes of storage. These techniques therefore require each set-top box to have a fairly large storage capacity, the cost of which might be prohibitive. And if such a distribution network were built using strictly standard data network protocols such as TCP/IP, the sheer number of require connections could overload a central data servers and routers.

[0011] The present invention seeks to overcome these limitations by making use of idle video-on-demand channel capacity to deliver promotional content to selected set-top boxes in the network. The set-top boxes are then enabled to switch away during a commercial segment from the broadcast program to the available video-on-demand channel. The set-top boxes then switch back to the previously selected broadcast program at the end of the segment.

[0012] More specifically, a network configured in accordance with the invention includes a promotion server, a scheduler process, and a message router located and/or controlled at a central location, head end locations that include message servers, VOD servers, and trigger insertion equipment, and set-top boxes (STBs) located at subscriber premises that include at least a message client process and a promotion agent process.

[0013] The promotion server determines an asset to be distributed such as a targeted promotion item (e.g., a commercial), and a list of STBs that are to receive it. The promotion server causes the video promotion to be sent to a VOD service so that it is available at the VOD servers at the head ends.

[0014] The scheduler process then delivers schedule messages to the head end message servers which identify the promotion and an STB which is to receive it. Receipt of a schedule message by the head end message server causes its

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