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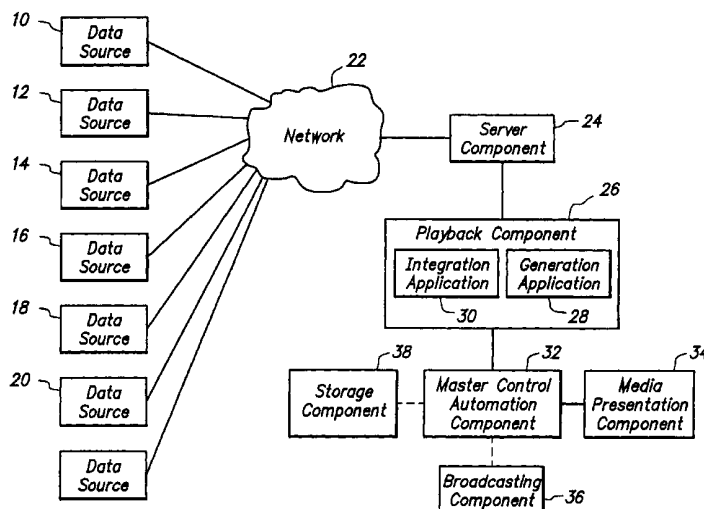
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- (71) Applicant (for all designated States except US): ZDTV, LLC [US/US]; 650 Townsend Street, San Francisco, CA 94103 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): SEEDALL, David [US/US]; 466 Funston, San Francisco, CA 94118 (US).
- (74) Agent: PETERSON, James, W.; Burns, Doane, Swecker & Mathis, LLP, P.O. Box 1404, Alexandria, VA 22313-1404 (US).
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(54) Title: SYSTEM AND METHOD FOR COMBINING COMPUTER-GENERATED MEDIA DATA WITH PRE-RECORDED MEDIA DATA TO FORM HYBRID BROADCAST DATA



(57) Abstract: A pre-recorded media presentation is combined with near-real-time media data to form hybrid broadcast data that is readily updatable and customizable. A playback component which contains a generation application for interpreting near-real-time media data received from a remote data source forms computer-generated media data. An integration application provides a timing control link between the generation application and the master control automation component. A server component connected to the playback component and to a remote data source receives the near-real-time media data.



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**SYSTEM AND METHOD FOR COMBINING COMPUTER-GENERATED MEDIA DATA
WITH PRE-RECORDED MEDIA DATA TO FORM HYBRID BROADCAST DATA**

FIELD OF THE INVENTION

The present invention relates to media presentations, such as television
5 broadcasts, and more particularly to combining pre-recorded broadcast data with
computer-generated media data in preparation for transmitting combined or hybrid
media presentations.

BACKGROUND OF THE INVENTION

Traditional broadcast media such as radio, television (including cable
10 television and satellite television), and other established types of broadcast media
have specific standards and formats, according to which a media presentation is
prepared for transmission via various broadcasting methods. The methods
employed for conventional broadcast media are often costly and time consuming.
Consequently, producing broadcast data for the various broadcasting methods may
15 require a significant investment of time and money.

In television, for example, to produce an advertisement requires expensive
equipment. High quality cameras, high quality recording devices, audio and video
mixing capabilities, and special effects capabilities may all be required for
producing a television advertisement. Each of the various components required to
20 produce a television advertisement, studio time, and special effects generation is
expensive.

Also, production of a television quality advertisement requires a significant
investment of time, and the advertisement must be pre-recorded, creating a fixed
presentation that is not readily changeable. Currently, about four to six weeks are
25 required from the time the production of a television advertisement is begun until
the advertisement is broadcast. Because of this delay between the beginning of

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production of television advertisement and the actual airing time of the advertisement, event-specific advertising must be planned far in advance. Changes in the event being advertised near the time at which the advertisement is scheduled to air are impossible to incorporate in a standard television
5 advertisement. Because of the significant delay from the time a television advertisement is produced to the time when it is aired, it is difficult to update or change the content of the advertisement.

A particular limitation associated with the conventional method of television advertising is that it is difficult to customize advertisements. Some
10 parameters by which it may be desirable to customize advertisements include: region, time frame, demographic information, and psychographic information. Using the conventional methods currently employed to create pre-recorded television advertisements, to customize an advertisement for any of the parameters
15 which may be desirable would require producing multiple, complete television advertising segments for each of the various parameters desired. For example, in order to produce a television advertisement for an airline that advertises special fares that differ according to geographic region, it is currently necessary to produce a separate television advertisement for each geographic region. Producing
20 numerous advertisements for the same promotion, in this manner, is expensive and requires an inordinate amount of time. Likewise, if a company wishes to target its advertisement to various demographic groups by changing the content of the advertisement according to airing time, it is currently necessary to produce television advertisements for each of the desired target demographic groups. Producing these multiple advertisements, while achieving the object of reaching
25 various demographic groups, is neither time- nor cost-efficient.

SUMMARY OF THE INVENTION

It is the object of the present invention, therefore, to provide a system and method network for combining a pre-recorded media presentation with near real-time media data to form hybrid broadcast data that is readily updatable and customizable. The system of the present invention utilizes a master control automation component for combining pre-recorded media data with computer-generated media data to achieve hybrid broadcast data to be broadcast in appropriate formats; a playback component which contains a generation application for interpreting near real-time media data received from a remote data source to form computer-generated media data and an integration application which is able to provide a timing control link between the generation application and the master control automation component; and a server component connected to the playback component and to a remote data source from which it may receive near real-time media data.

The present invention has several advantages over approaches which have been used in the past. One such advantage is that data which is to be broadcast in the form of hybrid broadcast data is changeable and may be altered within a short period of time prior to the broadcast of the data. For example, computer-generated media data which is mixed with conventional television broadcast data may be altered up to five minutes before transmission of the data, which is a vast improvement over the four to six weeks necessary with systems of the past. The present invention is further advantageous over the systems of the past in that the data transmitted by the present invention is readily customizable by region, by time frame, by demographic information, psychographic information, or any other desired customization parameter. The present invention provides the ability to react to the market because of the decreased time from production to broadcast of the data. In an advertising embodiment, for example, this short feedback loop from the market to the producers of the broadcast information may allow for

advertisers to sell items before they arrive, thereby cutting warehousing and storage costs, or may allow for special promotions available for a short time only. Generally, through the use of the present invention, the cost and time necessary to produce broadcast-quality data are dramatically reduced.

5 Further features of the invention, and the advantages offered thereby, are explained in greater detail hereinafter with reference to specific embodiments illustrated in the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is an exemplary computer system in which the system and method
10 of the present invention may be employed;

Figure 2 is a flow chart of the method performed by one embodiment of the present invention;

Figure 3 is a diagram of data produced by one embodiment of the present invention.

15 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

To facilitate an understanding of the principles and features of the present invention, it is explained hereinafter with reference to its implementation in an illustrative embodiment. In particular, the invention is described in the context of television advertising, specifically with regard to combining computer-generated
20 media data with pre-recorded media data to provide a hybrid broadcast data for use in broadcasting television advertisements. It will be appreciated, however, that this is not the only embodiment in which the invention can be implemented. Rather, it can find utility in a variety of broadcasting situations utilizing a variety of broadcast data, as will become apparent from an understanding of the principles
25 which underscore the invention.

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An exemplary system of the type in which the present invention can be employed is illustrated in block diagram form in Figure 1. Referring to Figure 1, various data sources 10, 12, 14, 16, 18, 20 are connected to a network 22 which is accessible by a server component 24. The data sources may include, for example, various devices which are able to transmit data over a network. One such example may be a client computer. The present invention allows for numerous data sources to be connected to the network 22 and need not be limited to any specific number of data sources, as shown in the drawings. In the embodiment of television advertising, the data sources may be client computers of various advertisers that contain data to be either retrieved by or sent to the server component 24 by way of the network 22.

Various types of networks are contemplated to be utilized as the network 22 for transmission of data from the data sources 10, 12, 14, 16, 18, 20 to the server component 24, such as the Internet, wide area networks (WAN), local area networks (LAN), Ethernet networks, wireless networks, satellite networks, and various other types of networks. Additionally, the network 22 may comprise multiple networks which may include any number of different types of interconnected networks. It will be appreciated by one of ordinary skill in the art, that the type of network does not change the functionality of the present invention, as long as data may be transmitted thereby, and new types of networks which are not yet in widespread use may be employed in the place of network 22 without significantly altering the function of the present invention. In one embodiment which utilizes the present invention for transmission of television advertising data, it is anticipated that the Internet will be the network 22 by which the server component 24 receives or retrieves data from remote data sources 10, 12, 14, 16, 18, 20. Using the Internet in this fashion will allow for inexpensive, effective transmission of data, without the need for special equipment.

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The server component 24 receives one or more files of media data from remote data sources 10, 12, 14, 16, 18, 20. It is contemplated that the server component may passively receive this data or it may actively retrieve the data from the remote data sources. The server component may be any suitable server device
5 or a combination of server devices that is operable to transmit and receive information to and from remote sources via a network. In one embodiment of the present invention, wherein data transmitted over the network 22 is to be used in television advertising, and the network 22 is anticipated to be the Internet, the server component 24 may be a proxy server. In this embodiment, the proxy server
10 may be the Internet or World Wide Web (WWW) interface to a client's site where media data is generated and/or stored. In this embodiment, it is anticipated that the proxy server can either receive updated data files from the client, or it can retrieve these files from the client's website. In this embodiment, it is also contemplated that transmission of data over the Internet may occur with or without
15 a website interface, as long as the format and protocol used to transmit the data is compatible with transmission over the Internet.

The server component 24 is connected via a local private network to a playback component 26 containing at least a generation application 28 and an integration application 30. A media data file received by the server component 24
20 is transferred to the playback component 26, wherein a generation application 28 interprets, and possibly reformats, media data files received from the remote data sources 10, 12, 14, 16, 18, 20. Once the generation application 28 interprets the media data communicated from the server component 24, the integration application 30, of the playback component 26, provides a timing control link
25 between the generation application 28 and a master control automation component 32. The timing control link provided by the integration application 30 is used by the master control automation component 32 to switch from pre-recorded media data to computer-generated media data generated by the generation application 28.

After the computer-generated media data has completed, e.g., after a pre-determined period of time or when the end of the data file is reached, the master control component 32 can switch back to the pre-recorded data. The pre-recorded media data may be retrieved from a conventional storage medium of a media presentation component 34 by a direct or wireless connection. The combined data forms hybrid broadcast data which may then optionally, as shown by the broken line in Figure 1, be transmitted to a broadcasting component 36. It is also contemplated that, rather than broadcasting immediately, the hybrid broadcast data may be transmitted to a storage component 38, where the hybrid broadcast data may be stored for future use. It is also contemplated that hybrid broadcast data may be sent to both the broadcasting component 36 and the storage component 38. The broadcasting component 36 may be any type of broadcasting equipment suitable for broadcasting the hybrid broadcast data in a manner such that it reaches its desired audience. The storage component 38 may be any suitable storage equipment for storing the hybrid broadcast data on any number of a variety of storage media that would provide the desired storage capacity and quality.

In the television advertisement embodiment, the playback component 26 may be a computer, or a group of computers. This playback component 26 utilizes a generation application 28 which may be an animation application such as MacroMedia Flash, or another animation application which interprets data in the files from the data sources. The generation application may also generate data in formats other than video, such as audio data. It is also anticipated that the playback component 26 may comprise broadcast video quality hardware equipment, such as FXDEKO from Pinnacle Systems, a commercially available character generator for text and graphic display.

In the television advertisement embodiment, the master control automation component 32 is capable of mixing conventional broadcast data with computer data generated by a generation application 28 such as an animation application. In this

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manner, the master control automation component 32 may, for example, combine audio of a traditional broadcast recording with video from an animation application, such as MacroMedia Flash by switching the computer animation video for the conventional broadcast video. Alternatively, the master control automation component 32 may combine video from a traditional broadcast with audio from an audio generation application. Additionally, traditional broadcast data may be intermingled with various computer data from generation application 28 of the playback component 26.

For example, a television advertisement may begin airing in the conventional manner utilizing traditional broadcasting techniques. When the advertisement reaches a specific trigger event, which may be a specific time elapsed from the beginning of the transmission of the advertisement, or another recognizable trigger event, then a video switch occurs to display information generated by an animation application. During this time, the audio of the original, conventional advertisement can continue to be broadcast. After a second trigger event, which may be a different time elapsed from the beginning of the transmission of the advertisement, a video switch may occur allowing for both the audio and the visual of the original, conventional broadcast data of the advertisement to be shown. In this manner, assuming the use of MacroMedia Flash, a client could update the data contained in a file to be read by the MacroMedia Flash animation application minutes before the time for the advertisement to be aired. With this approach, the pre-recorded advertisement can be supplemented with near-real-time media data that is retrieved from the advertiser. The proxy server or server component 24 downloads a MacroMedia Flash file from one of the client's data sources 10, 12, 14, 16, 18, 20 and transmits that information to the playback component 26. The generation application 28, in this case MacroMedia Flash, interprets the data in the file to produce an animation; and the integration application provides timing such that the

generation application displays the animation in a synchronous manner with the data being transmitted from the master control automation component 32.

Figure 2 shows a flow chart of a method performed by one embodiment of the present invention. With reference to the television advertising embodiment, the method of the present invention begins airing pre-recorded program content 202 and runs a predetermined portion of the program content from a pre-recorded audio-visual feed 204. A determination is made as to whether to use updated material 206 or not. For example, this determination might be made by checking the status of a flag that is set by an operator. If no updated material is to be used, then the pre-recorded audio-visual feed is played to completion 208. However, if updated material is to be used, then updated video material may be substituted for a predetermined portion of video of a pre-recorded audio visual feed 210, by switching from the pre-recorded feed to the playback component 26. After the substitution of updated video material for the predetermined portion of video of an audio-visual feed, the system returns to the pre-recorded audio-visual feed 212 and finishes playing this feed.

While Figure 2 describes this method with reference to a television advertising embodiment, wherein video information is substituted for a portion of a pre-recorded audio visual feed, it will be appreciated by those of ordinary skill in the art that any type of pre-recorded media information may be substituted with near-real-time media information generated by a generation application 28 from within a playback component 26. For example, rather than substituting video information, audio information may be substituted for the audio portion of a predetermined portion of audio in an audio-visual feed. Also, both audio and visual of a pre-recorded audio-visual feed could be substituted with computer data generated by a generation application 28 within a playback component 26. In this manner, any pre-recorded media data containing multiple channels of information could have one or more channels substituted by computer-generated media data

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from a generation application 28 from within a playback component 26, according to data received from remote data sources 10, 12, 14, 16, 18, 20 by a server component 24. This combination could be controlled by a master control automation component 32 and subsequently transmitted to a broadcasting component 34 or a storage component 36.

Figure 3 shows a diagram in which one channel of information from pre-recorded media data is substituted with computer information generated by a generation application 28 within a playback component while another channel contains audio information. In Figure 3, channels C1 and C2 are channels of information contained with broadcast data of a conventional type. A media stream C2' represents substitute media data generated by the generation application 28. Figure 3 illustrates how the data C2' may be substituted in the place of the original data on the channel C2 for a period of time, which may be determined by a variety of factors. In the television advertisement embodiment, channel C1 may represent an audio channel, and channel C2 may represent a video channel. In such an embodiment, the media stream C2' represents an animation generated by an animation generation application, which is substituted for the pre-recorded video on channel C2 of the pre-recorded media data. It will be appreciated by those of ordinary skill in the art that the channels used in either the pre-recorded media data or the computer-generated media data need not be limited in number to two channels, but may incorporate numerous channels. Each of these channels may be substituted with computer-generated media data.

In accordance with the present invention, numerous advantages may be obtained, such as flexibility in changing the information content to be broadcast using hybrid broadcast data, and customization. Because the computer-generated media data is readily changeable, it may be updated close to the time when data is to be broadcast. In an advertising environment, this allows for short market feedback to the advertisement producers, thereby allowing for quicker response to

the market. Furthermore, the timing of advertisements may be planned such that items may be sold before they arrive, thereby limiting storage expenses. Also, in the advertising environment, advertisements may be easily customized. For example, advertisements may be tailored according to geographic region, time of
5 airing, demographic information, customer profile information, or other information.

In allowing for customization according to geographic regions, airlines may be able to provide price updates each time an advertisement runs. Also, airlines may be able to conduct promotions to specific cities from different geographic
10 regions. For example, if an airline wishes to provide flights to a specific city, the price may be adjusted such that one price is shown on the West Coast, and another price is shown on the East Coast. Also, airlines may show promotions to various destination cities according to their desirability in the markets in which the advertisements are to be aired.

15 Tailoring advertisements to the time frame ensures that special promotions, such as auctions, may be shown to audiences in a timely fashion. For example, an item may be placed on sale for a brief period of time to encourage purchase before arrival of stock of that item, or to relieve inventories of over-stocked items. Also, purchases of certain items may be encouraged during specific business hours,
20 when business is slow for a particular company, for example. Demographic information may be used to tailor advertisements to various age or social groups. For example, advertisements targeted toward adults may be aired later at night, while advertisements directed toward children may be advertised at times immediately following school hours, while only changing the computer data
25 portion of the advertisement, with minimal change to the overall advertisement. One such example is an advertisement for a department store where, during the after school hours, items desirable for children are shown, and during the later

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hours, items desirable for adults are shown, all using the same audio track and pre-recorded broadcast data.

It will be appreciated by those of ordinary skill in the art that the present invention can be embodied in other specific forms without departing from the spirit
5 or essential characteristics thereof. For example, the invention has been described in the context of television advertising. However, the present invention could also be utilized in a variety of matters, including, but not limited to: radio advertising, radio programming, television programming, cable and satellite broadcasts, studio recording, video production, and movie production. In television programming,
10 for example, the computer-generated media data may be characters to be updated and displayed in connection with various shows, such as sports scores, stock quotes and airline fare lists. It will also be appreciated by those of ordinary skill in the art that the components of the system of the present invention may be implemented in both software and hardware. Various forms of virtual devices may
15 be substituted for actual hardware devices.

The presently disclosed embodiments are therefore considered in all respects to be illustrative and not restrictive. The scope of the invention is indicated by the appended claims, rather than the foregoing description, and all changes that come within the meaning and range of equivalents thereof are
20 intended to be embraced therein.

WHAT IS CLAIMED IS:

1. A system for combining pre-recorded media presentation data with near-real-time media data, comprising:
 - a master control automation component for combining pre-recorded media data with computer-generated media data to achieve hybrid broadcast data;
 - a playback component comprising:
 - a generation application for interpreting near-real-time media data received from at least one remote data source to form said computer-generated data, and
 - an integration application operable to provide a timing control link between said generation application and said master control automation component; and
 - a server component operably connected to said playback component and said remote data source for receiving near-real-time media data from said at least one remote data source.
2. The system of claim 1, further comprising: a broadcasting component for broadcasting said hybrid broadcast data.
3. The system of claim 1, further comprising a storage component for storing said hybrid broadcast data.
4. The system of claim 1, wherein said server component is connected to said playback component and said at least one remote data source via a network.
5. The system of claim 4, wherein said network comprises the Internet.

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6. The system of claim 5, wherein said server component comprises a proxy server, operable to receiving and retrieving data from said at least one remote data source via the Internet.

5 7. The system of claim 1, wherein said at least one remote data source comprises a client computer.

8. The system of claim 1, wherein said at least one remote data source comprises a plurality of remote data sources.

9. The system of claim 1, wherein said playback component comprises a playback computer.

10 10. The system of claim 1, wherein said playback component comprises multiple computers.

11. The system of claim 1, wherein said generation application comprises an animation application.

15 12. The system of claim 1, wherein said generation application comprises an audio application.

13. The system of claim 1, wherein said playback component comprises broadcast video quality hardware.

14. The system of claim 1, wherein said pre-recorded media data comprises video pre-recorded media data.

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15. The system of claim 14, wherein said video pre-recorded media data comprises television pre-recorded media data.

16. The system of claim 1, wherein said pre-recorded media data comprises audio pre-recorded media data.

5 17. The system of claim 16, wherein said audio pre-recorded media data comprises radio pre-recorded media data.

18. A method for combining a pre-recorded media presentation and near-real-time media data comprising steps of:
receiving near-real-time media data from at least one remote data source;
10 interpreting said data to form computer-generated media data; and
combining computer-generated media data with pre-recorded media data to form hybrid broadcast data.

19. The method of claim 18, further comprising the step of broadcasting said hybrid broadcast data.

15 20. The method of claim 18, further comprising the step of storing said hybrid broadcast data in a storage medium.

21. The method of claim 18, wherein said computer-generated media data comprises video data.

20 22. The method of claim 18, wherein said computer-generated media data comprises computer animation data.

23. The method of claim 18, wherein said computer-generated media data comprises audio data.
24. The method of claim 18, wherein said pre-recorded media data contains multiple data channels.
- 5 25. The method of claim 24, wherein said computer-generated media data is substituted for at least a portion of at least one of said channels.
26. The method of claim 25, wherein said computer-generated media data comprises video data which is substituted for a video channel of said pre-recorded media data.
- 10 27. The method of claim 25, wherein said computer-generated media data comprises computer animation data which is substituted for a video channel of said pre-recorded media data.
- 15 28. The method of claim 25, wherein said computer-generated media data comprises audio data which is substituted for an audio channel of said pre-recorded media data.

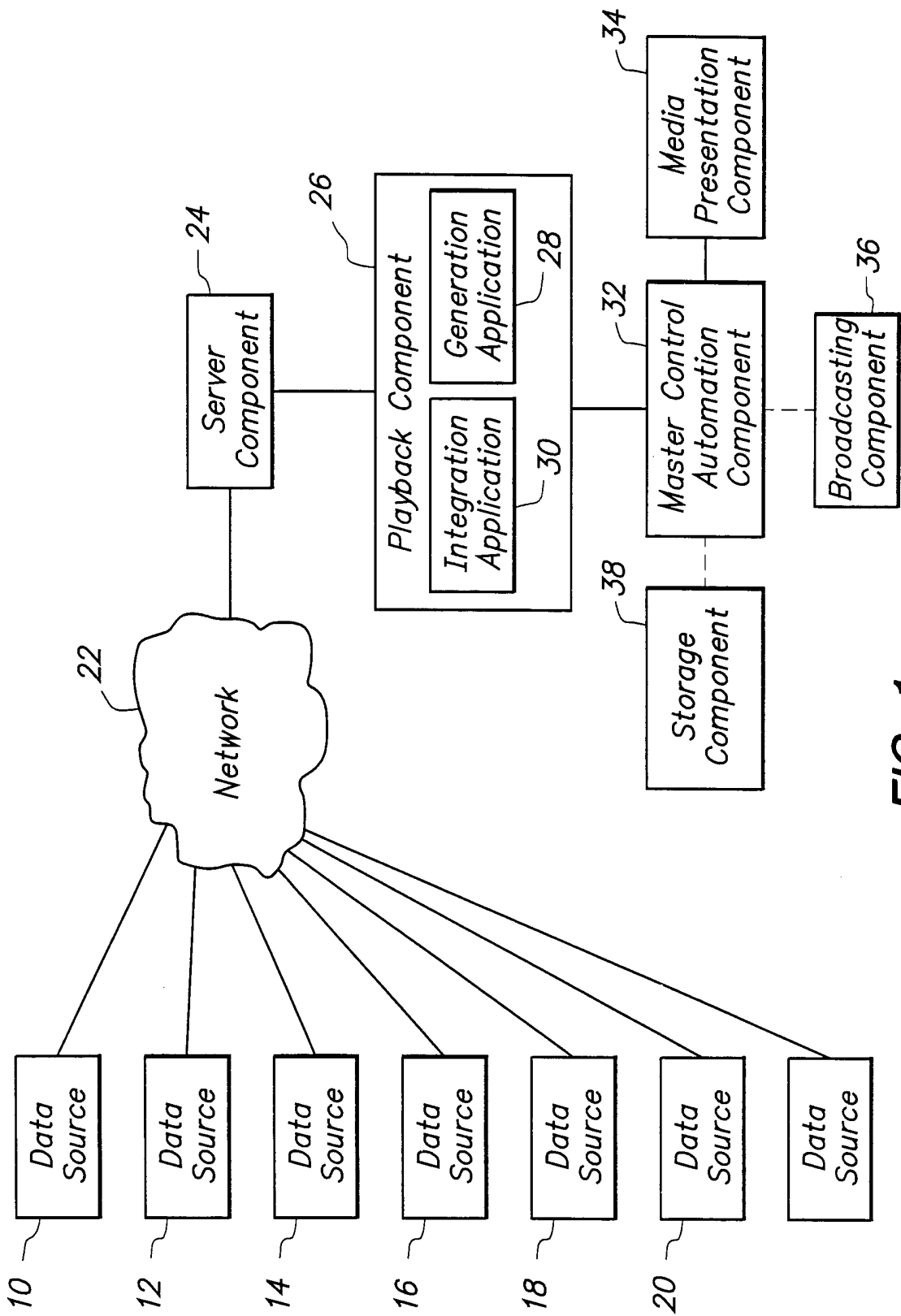


FIG. 1

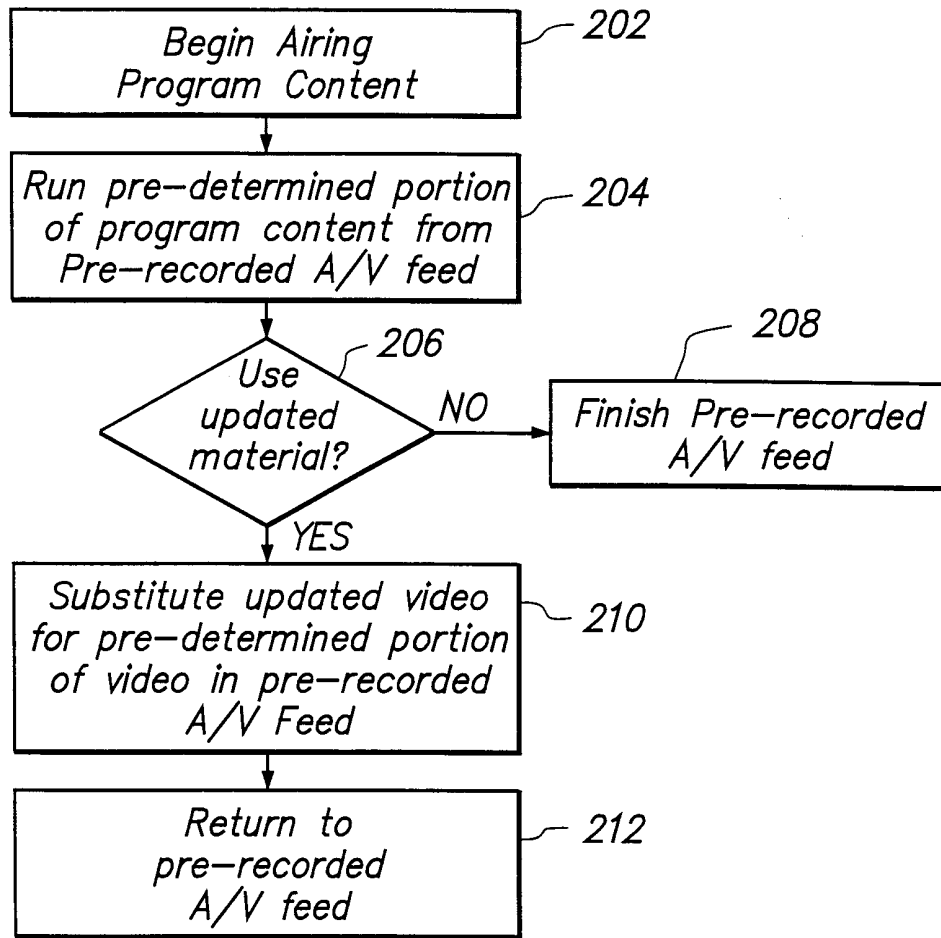


FIG. 2

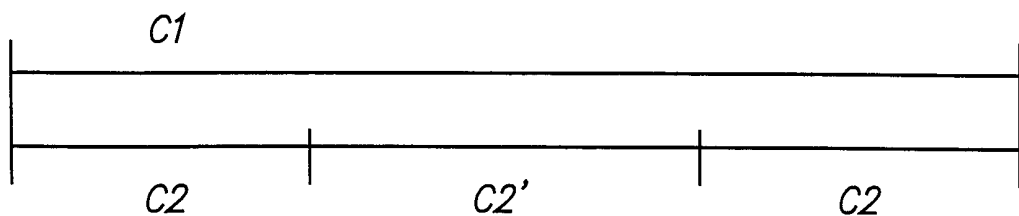


FIG. 3