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(54) ALTERNATIVE ADVERTISING IN PRERECORDED MEDIA

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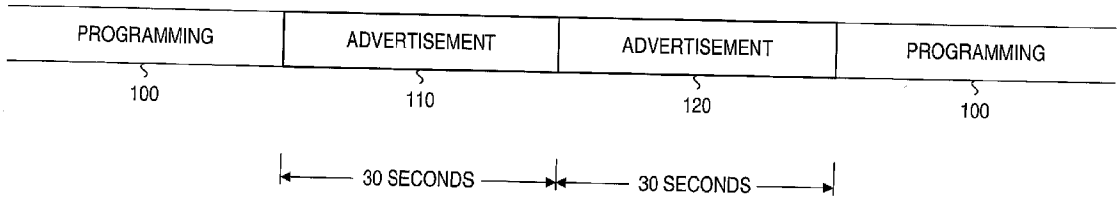
Publication Classification

(51) **Int. Cl.**[7] **H04N 7/025**; H04N 7/10; G06F 3/00; H04N 5/445; G06F 13/00

(52) **U.S. Cl.** **725/32**; 725/36; 725/42

(57) **ABSTRACT**

Presenting viewers with an alternative brief version of a recorded advertisement when they choose to fast-forward through or skip (or any other trick play event) the recorded advertisement. The alternative advertisement may be displayed instead of or in conjunction with the recorded advertisement (i.e., fast-forwarding advertisement is displayed in one portion of the screen (i.e., background or portion of a split screen) and the alternative brief version is displayed in another portion). The alternative brief version of the advertisement (trick play advertisement) may be a marketing message that is a static screen presenting a logo or a portion of the recorded advertisement, or may be a condensed version of the actual advertisement. The trick play advertisements may be targeted. An alternate or entirely unrelated advertisement can also be displayed as the trick play advertisement.



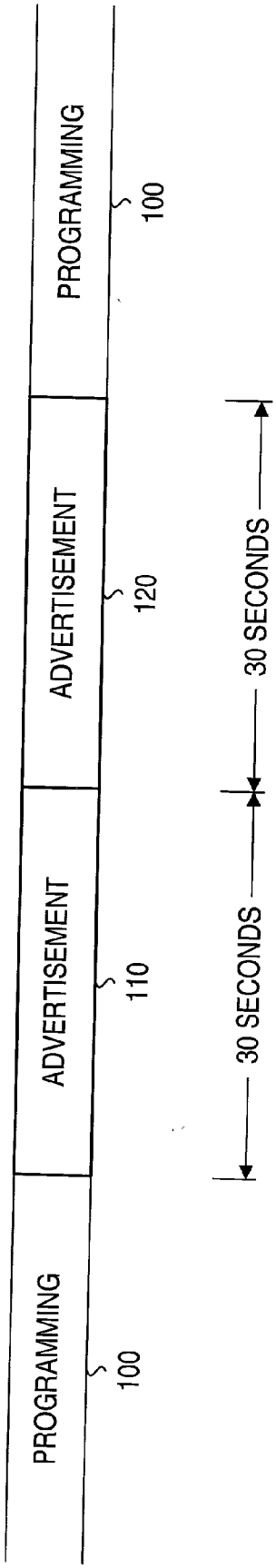

PROGRAMMING
100
ADVERTISEMENT
110
ADVERTISEMENT
120
PROGRAMMING
100
30 SECONDS
30 SECONDS

FIG. 1

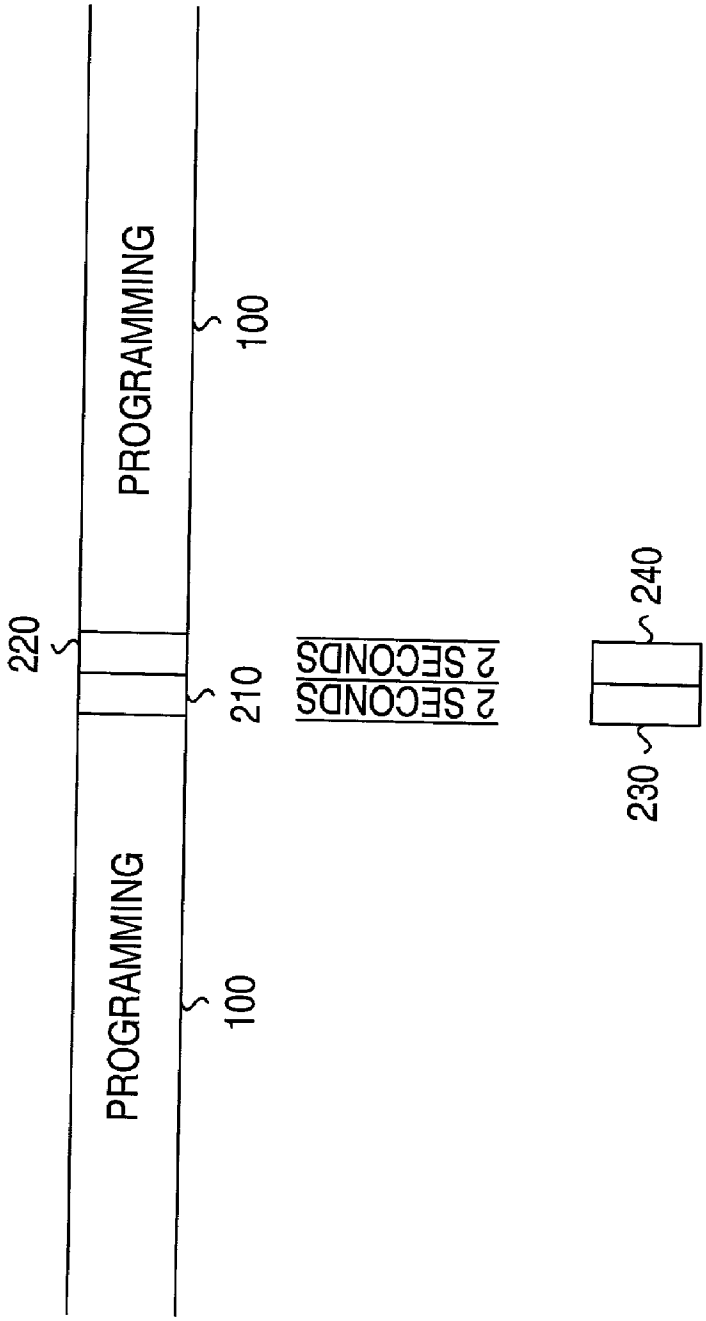

PROGRAMMING
100
220
210
2 SECONDS
2 SECONDS
240
230
PROGRAMMING
100

FIG. 2

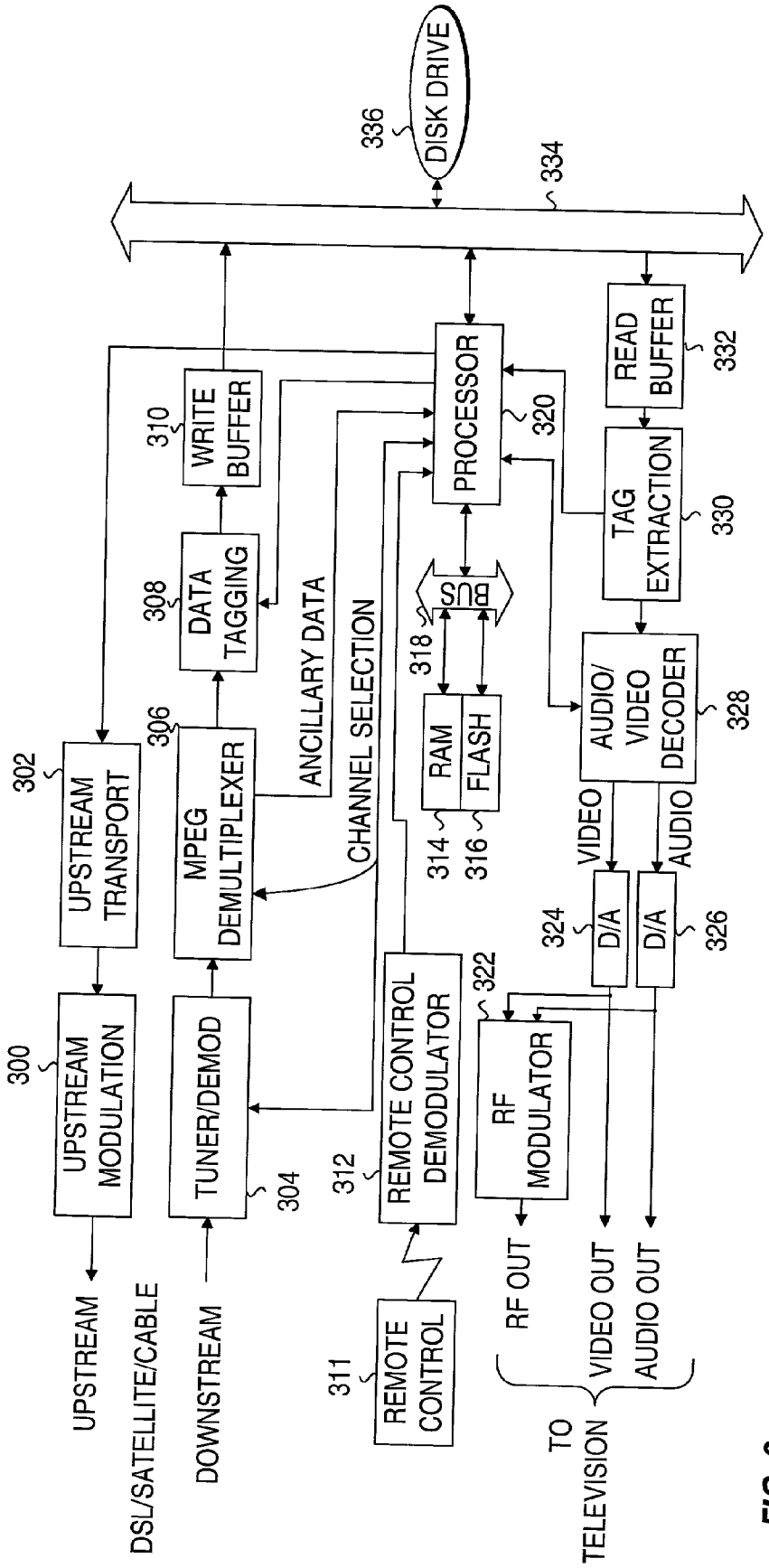

DISK DRIVE
336
334
READ BUFFER
332
PROCESSOR
320
WRITE BUFFER
310
TAG EXTRACTION
330
DATA TAGGING
308
BUS
318
ANCILLARY DATA
CHANNEL SELECTION
AUDIO/ VIDEO DECODER
328
UPSTREAM TRANSPORT
302
MPEG DEMULTIPLEXER
306
RAM
FLASH
314
316
VIDEO
AUDIO
D/A
324
D/A
326
UPSTREAM MODULATION
300
TUNER/DEMOD
304
REMOTE CONTROL DEMODULATOR
312
322
RF MODULATOR
UPSTREAM
DSL/SATELLITE/CABLE
DOWNSTREAM
REMOTE CONTROL
311
RF OUT
VIDEO OUT
AUDIO OUT
TO TELEVISION

FIG. 3

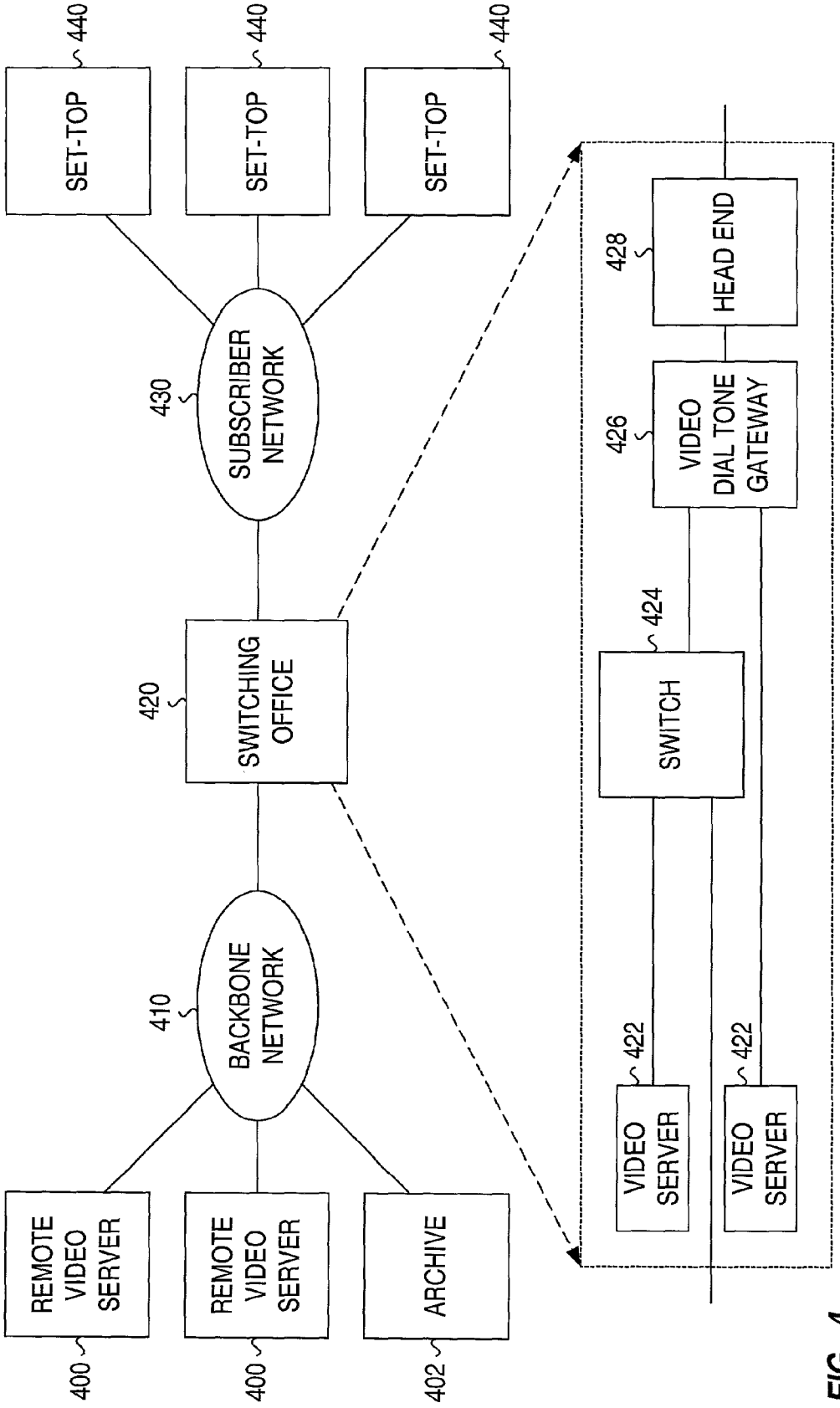

SET-TOP
440
SET-TOP
440
SET-TOP
440
SUBSCRIBER NETWORK
430
SWITCHING OFFICE
420
BACKBONE NETWORK
410
REMOTE VIDEO SERVER
400
REMOTE VIDEO SERVER
400
ARCHIVE
402
HEAD END
428
VIDEO DIAL TONE GATEWAY
426
SWITCH
424
VIDEO SERVER
422
VIDEO SERVER
422

FIG. 4

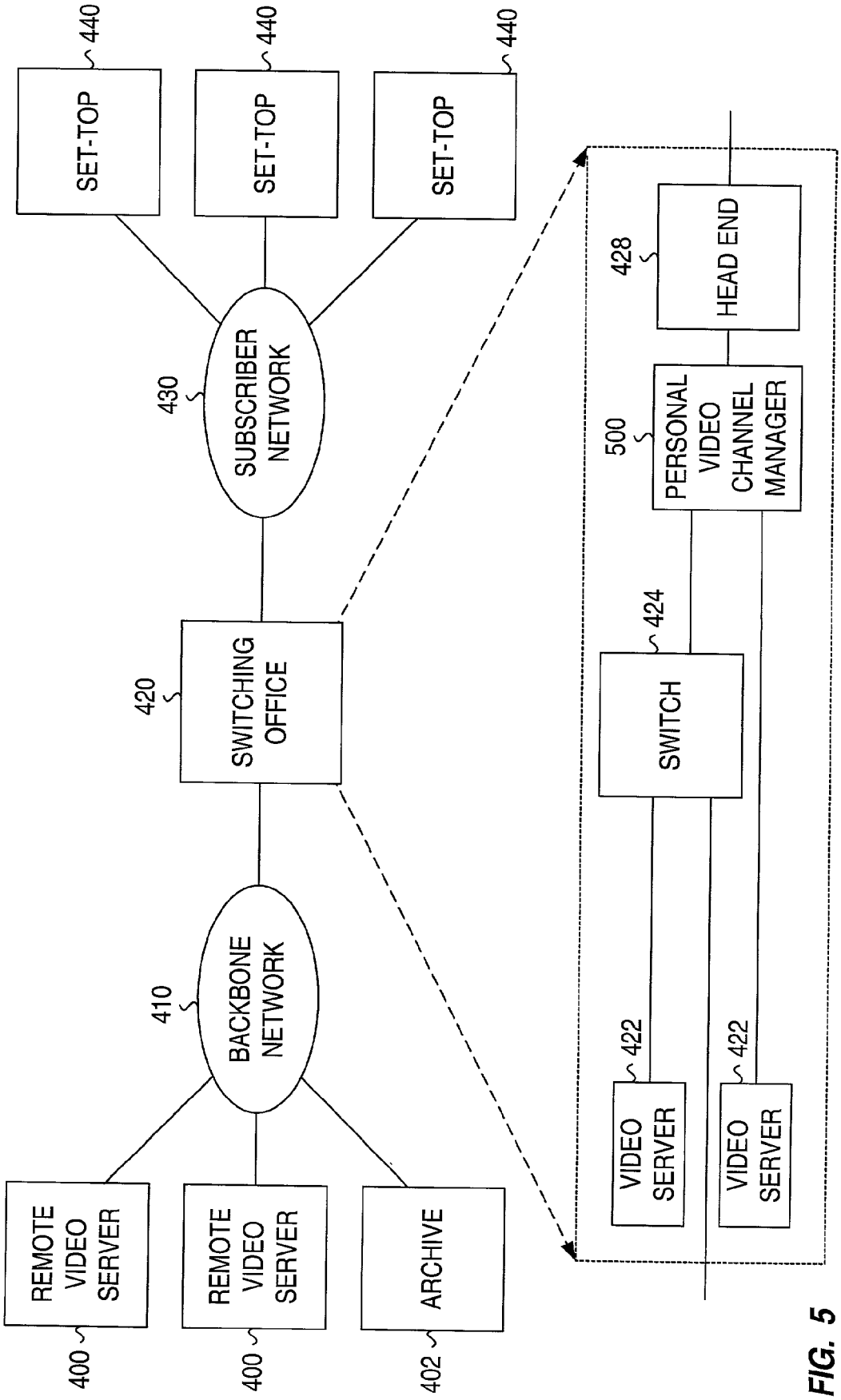

SET-TOP
440
SET-TOP
440
SET-TOP
440
SUBSCRIBER NETWORK
430
SWITCHING OFFICE
420
BACKBONE NETWORK
410
REMOTE VIDEO SERVER
400
REMOTE VIDEO SERVER
400
ARCHIVE
402
HEAD END
428
PERSONAL VIDEO CHANNEL MANAGER
500
SWITCH
424
VIDEO SERVER
422
VIDEO SERVER
422

FIG. 5

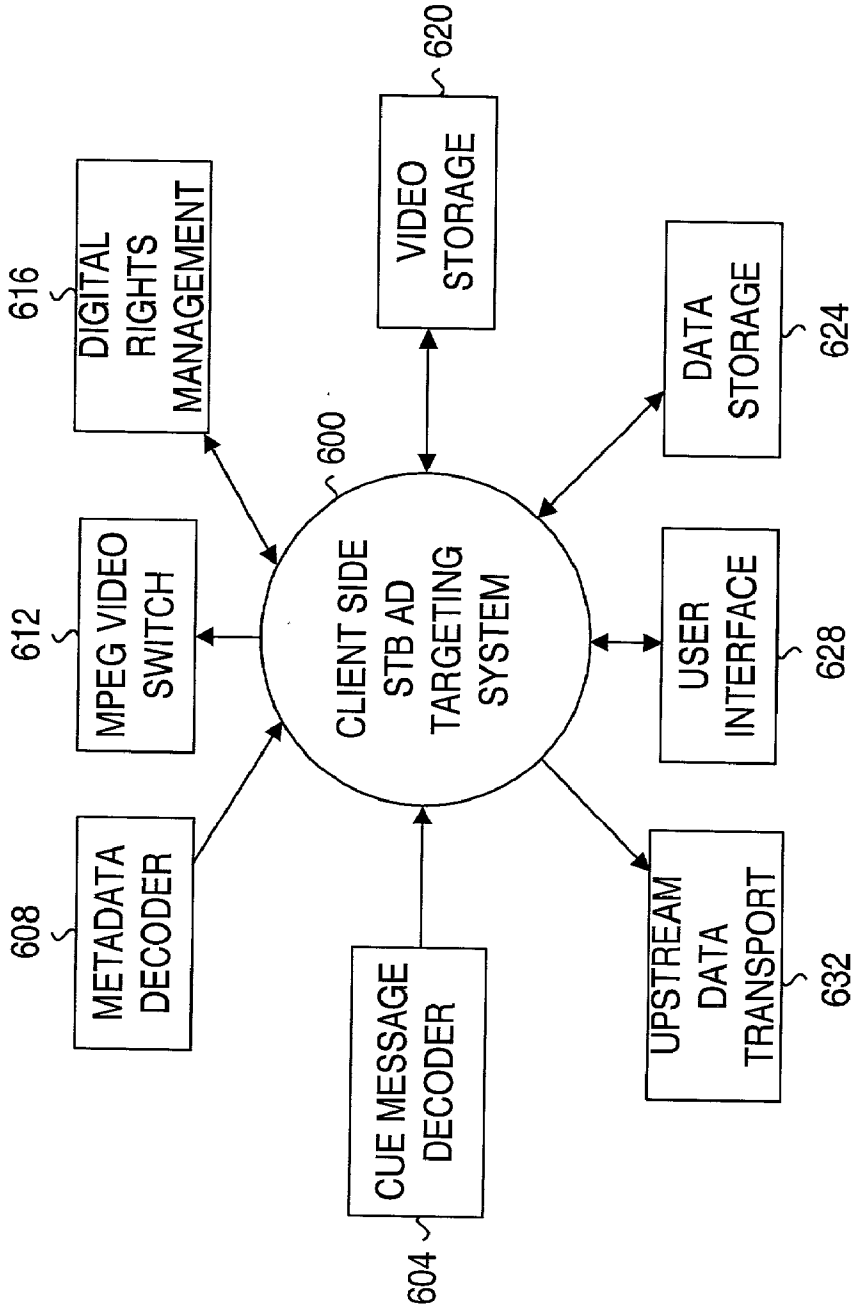

616
DIGITAL RIGHTS MANAGEMENT
612
MPEG VIDEO SWITCH
608
METADATA DECODER
600
CLIENT SIDE STB AD TARGETING SYSTEM
604
CUE MESSAGE DECODER
620
VIDEO STORAGE
624
DATA STORAGE
628
USER INTERFACE
632
UPSTREAM DATA TRANSPORT

FIG. 6A

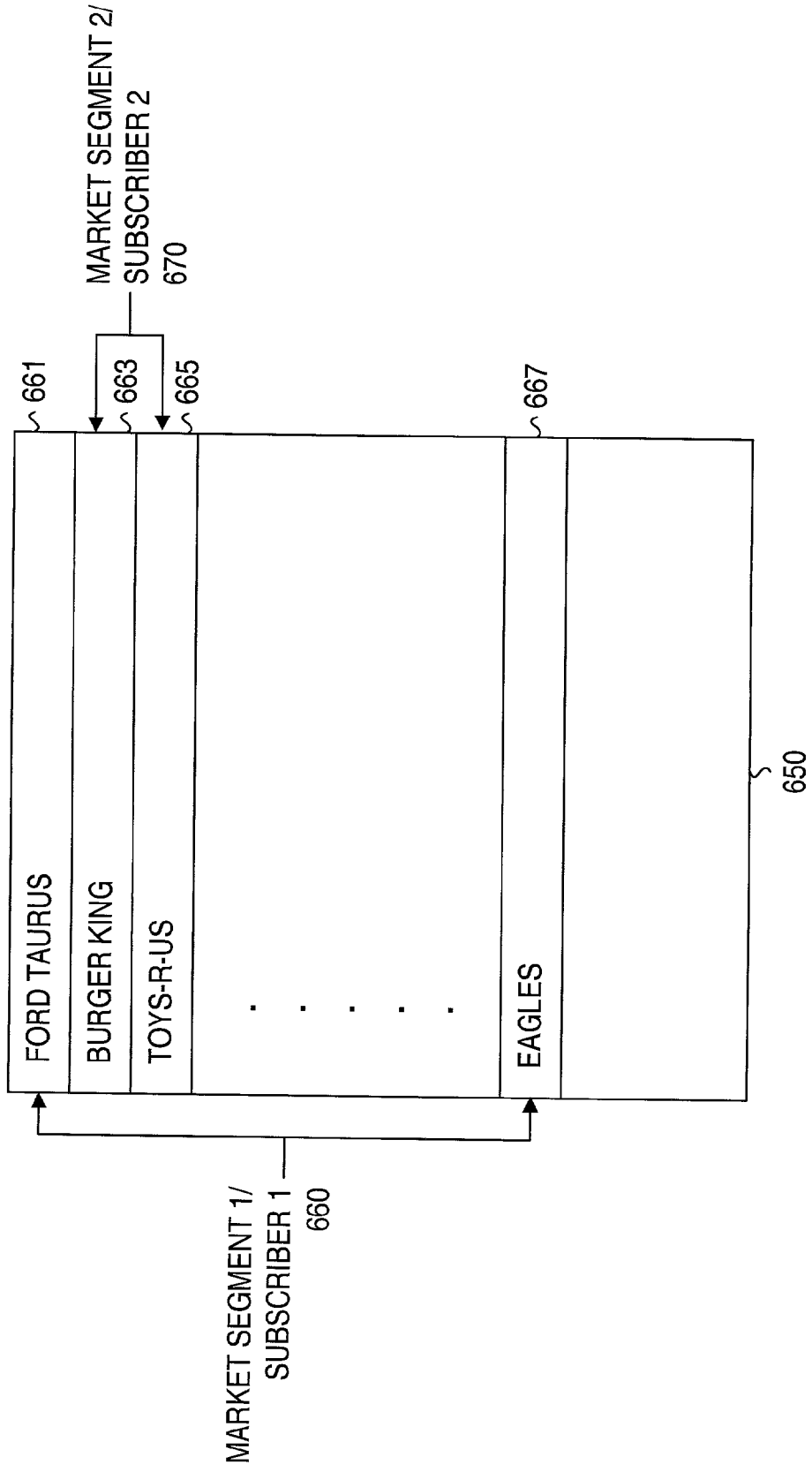
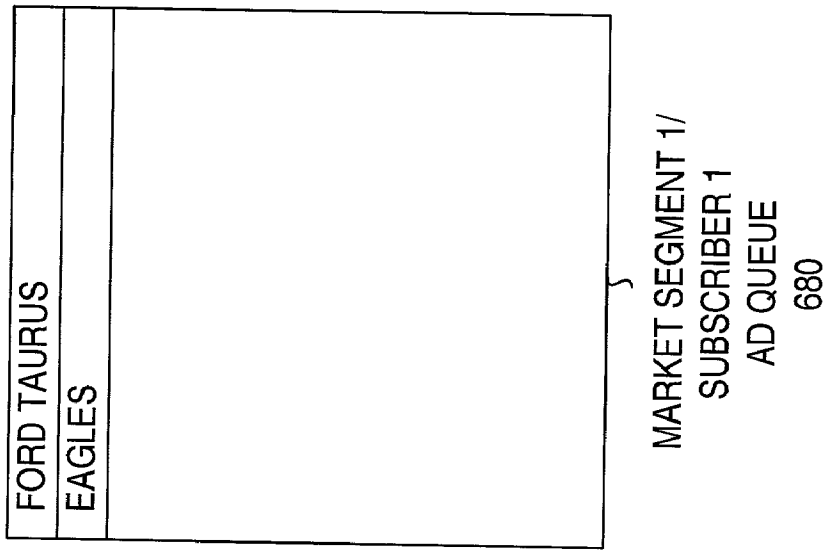

MARKET SEGMENT 2/
SUBSCRIBER 2
670
661
663
665
667
650
FORD TAURUS
BURGER KING
TOYS-R-US
EAGLES
MARKET SEGMENT 1/
SUBSCRIBER 1
660

FIG. 6B


FORD TAURUS
EAGLES
MARKET SEGMENT 1/
SUBSCRIBER 1
AD QUEUE
680

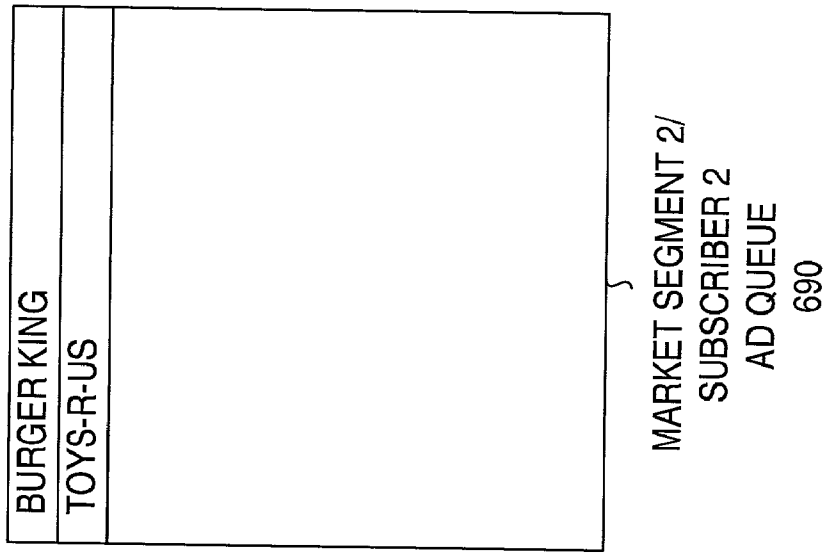

BURGER KING
TOYS-R-US
MARKET SEGMENT 2/
SUBSCRIBER 2
AD QUEUE
690

FIG. 6C

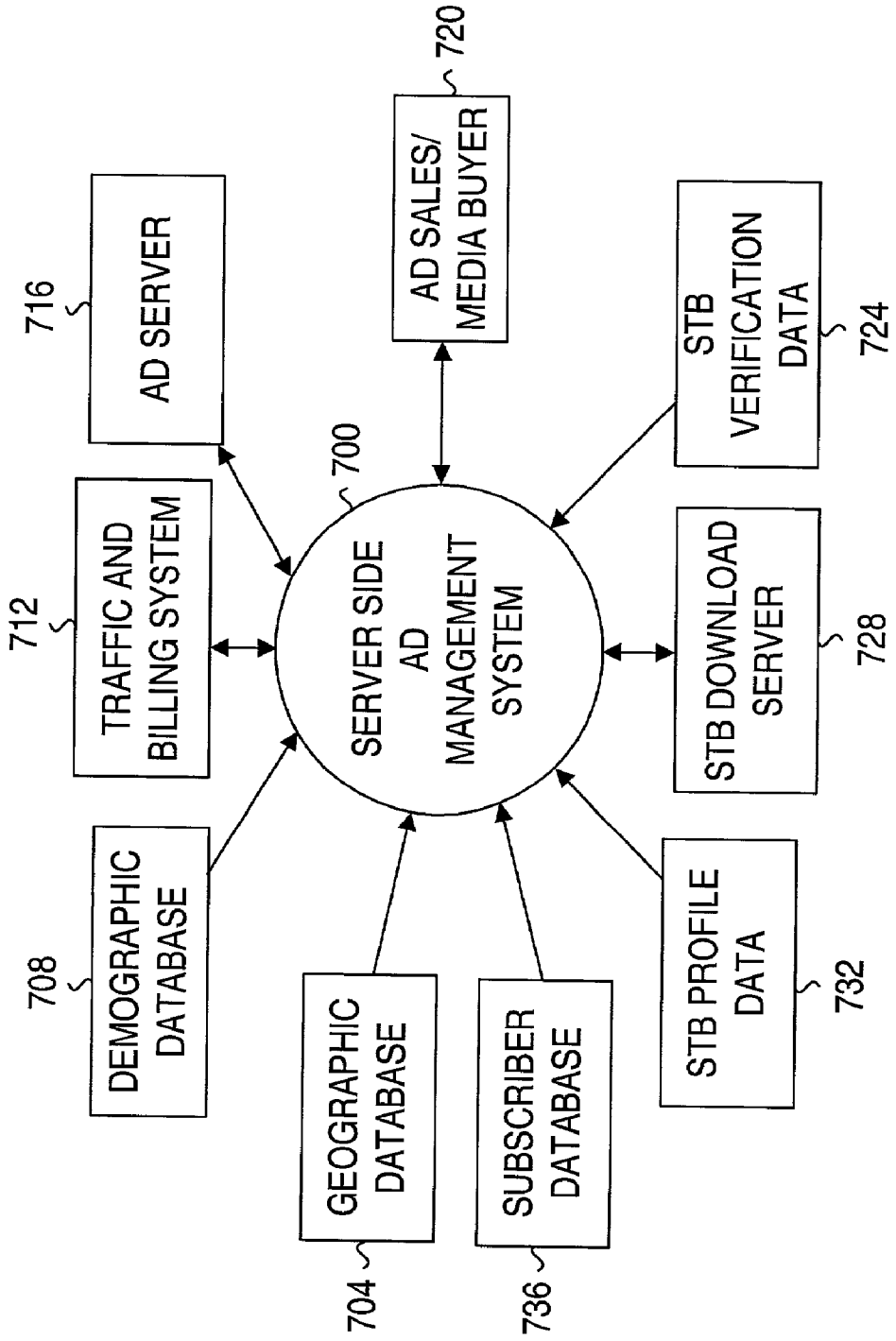

716
AD SERVER
712
TRAFFIC AND BILLING SYSTEM
708
DEMOGRAPHIC DATABASE
720
AD SALES/ MEDIA BUYER
700
SERVER SIDE AD MANAGEMENT SYSTEM
724
STB VERIFICATION DATA
728
STB DOWNLOAD SERVER
732
STB PROFILE DATA
704
GEOGRAPHIC DATABASE
736
SUBSCRIBER DATABASE

FIG. 7

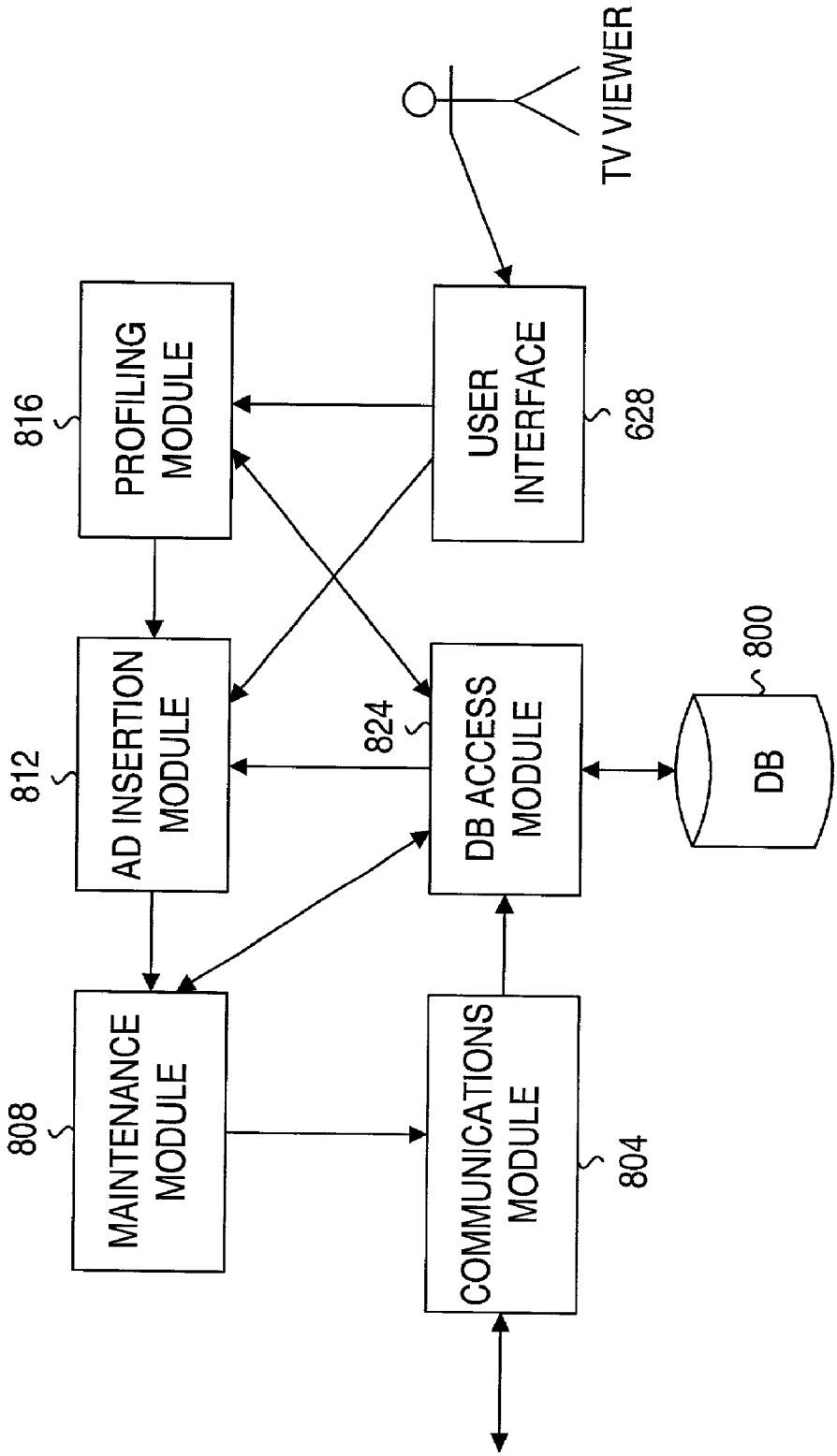

TV VIEWER
816
PROFILING MODULE
USER INTERFACE
628
812
AD INSERTION MODULE
824
DB ACCESS MODULE
800
DB
808
MAINTENANCE MODULE
COMMUNICATIONS MODULE
804

FIG. 8

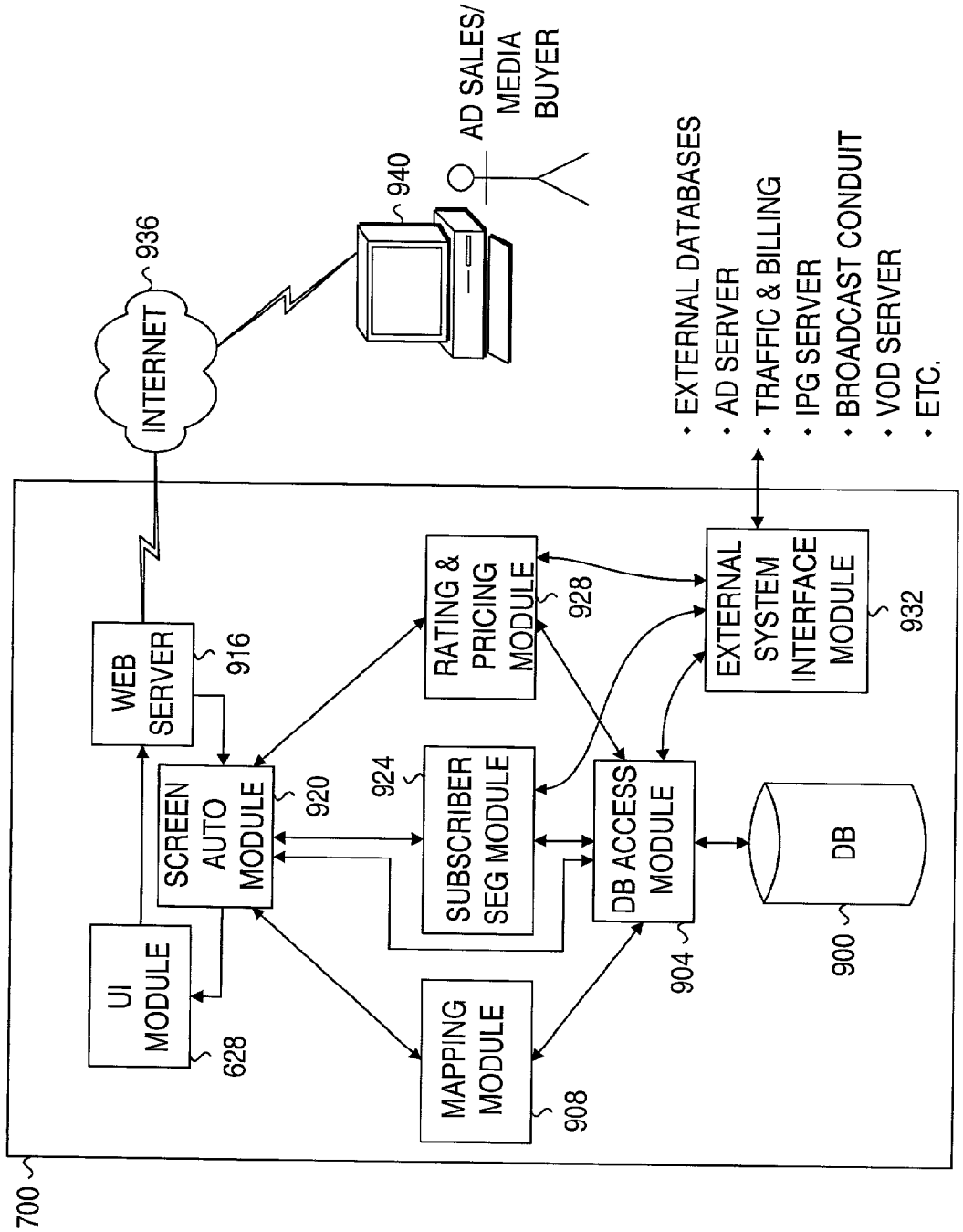

700
UI MODULE
628
WEB SERVER
916
INTERNET
936
940
AD SALES/ MEDIA BUYER
SCREEN AUTO MODULE
920
MAPPING MODULE
908
SUBSCRIBER SEG MODULE
924
RATING & PRICING MODULE
928
DB ACCESS MODULE
904
EXTERNAL SYSTEM INTERFACE MODULE
932
DB
900
• EXTERNAL DATABASES
• AD SERVER
• TRAFFIC & BILLING
• IPG SERVER
• BROADCAST CONDUIT
• VOD SERVER
• ETC.

FIG. 9

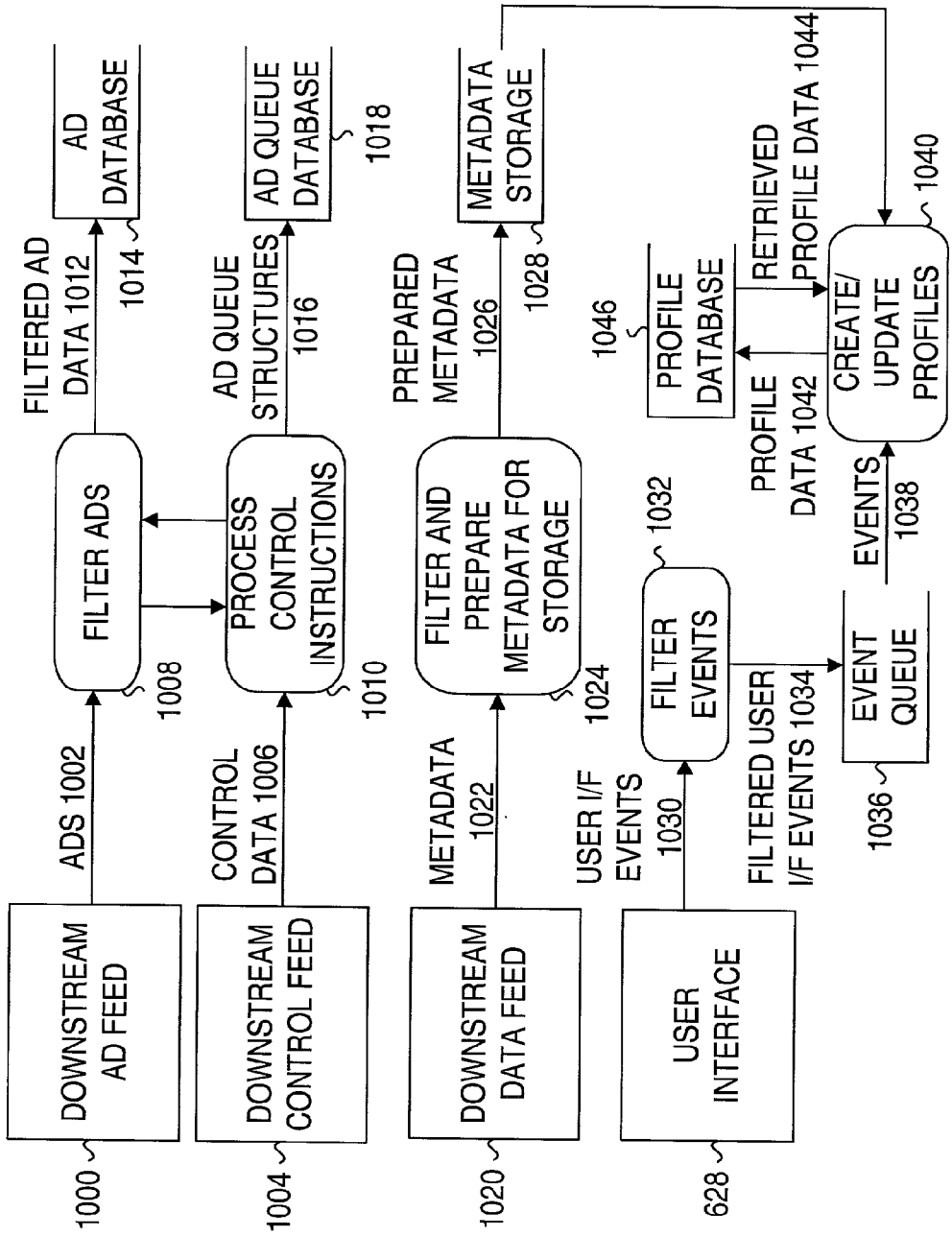

DOWNSTREAM AD FEED
1000
ADS 1002
FILTER ADS
1008
FILTERED AD DATA 1012
AD DATABASE
1014
DOWNSTREAM CONTROL FEED
1004
CONTROL DATA 1006
PROCESS CONTROL INSTRUCTIONS
1010
AD QUEUE STRUCTURES 1016
AD QUEUE DATABASE
1018
DOWNSTREAM DATA FEED
1020
METADATA 1022
FILTER AND PREPARE METADATA FOR STORAGE
1024
PREPARED METADATA 1026
METADATA STORAGE
1028
USER INTERFACE
628
USER I/F EVENTS 1030
FILTER EVENTS
1032
FILTERED USER I/F EVENTS 1034
EVENT QUEUE
1036
EVENTS 1038
CREATE/ UPDATE PROFILES
1040
PROFILE DATA 1042
PROFILE DATABASE
1046
RETRIEVED PROFILE DATA 1044

FIG. 10

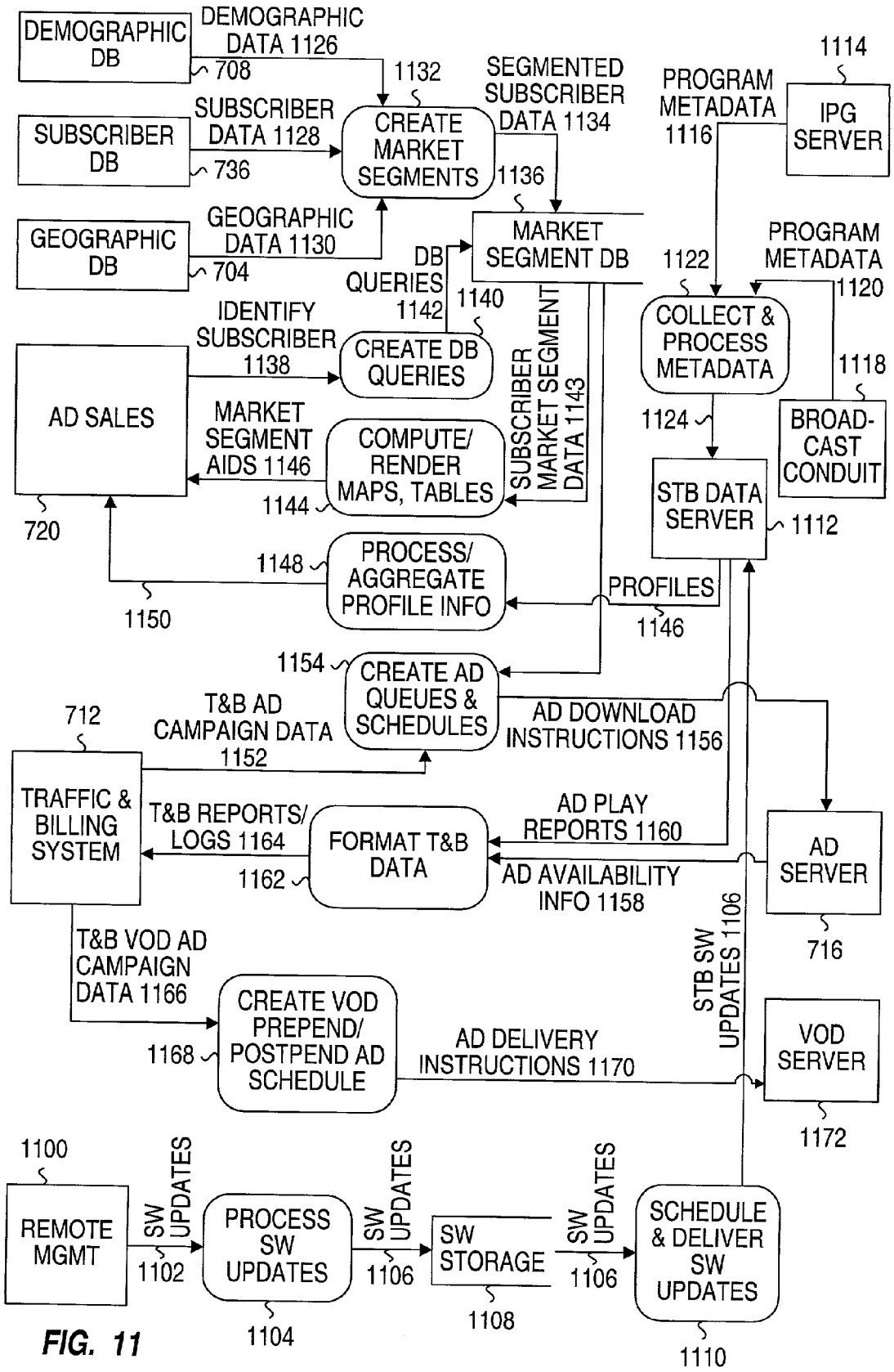

DEMOGRAPHIC DB
DEMOGRAPHIC DATA 1126
708
1132
SEGMENTED SUBSCRIBER DATA 1134
PROGRAM METADATA 1116
1114
IPG SERVER
SUBSCRIBER DB
SUBSCRIBER DATA 1128
736
CREATE MARKET SEGMENTS
1136
GEOGRAPHIC DB
GEOGRAPHIC DATA 1130
704
MARKET SEGMENT DB
DB QUERIES 1142
1140
1122
PROGRAM METADATA
1120
IDENTIFY SUBSCRIBER 1138
CREATE DB QUERIES
COLLECT & PROCESS METADATA
1118
AD SALES
MARKET SEGMENT AIDS 1146
COMPUTE/ RENDER MAPS, TABLES
SUBSCRIBER MARKET SEGMENT DATA 1143
1124
BROAD-CAST CONDUIT
STB DATA SERVER
1112
720
1144
1148
PROCESS/ AGGREGATE PROFILE INFO
PROFILES
1146
1150
1154
CREATE AD QUEUES & SCHEDULES
AD DOWNLOAD INSTRUCTIONS 1156
712
T&B AD CAMPAIGN DATA 1152
TRAFFIC & BILLING SYSTEM
T&B REPORTS/ LOGS 1164
FORMAT T&B DATA
AD PLAY REPORTS 1160
AD SERVER
1162
AD AVAILABILITY INFO 1158
716
T&B VOD AD CAMPAIGN DATA 1166
STB SW UPDATES 1106
CREATE VOD PREPEND/ POSTPEND AD SCHEDULE
1168
AD DELIVERY INSTRUCTIONS 1170
VOD SERVER
1172
1100
REMOTE MGMT
SW UPDATES
1102
PROCESS SW UPDATES
SW UPDATES
1106
SW STORAGE
SW UPDATES
1106
SCHEDULE & DELIVER SW UPDATES
1104
1108
1110

FIG. 11

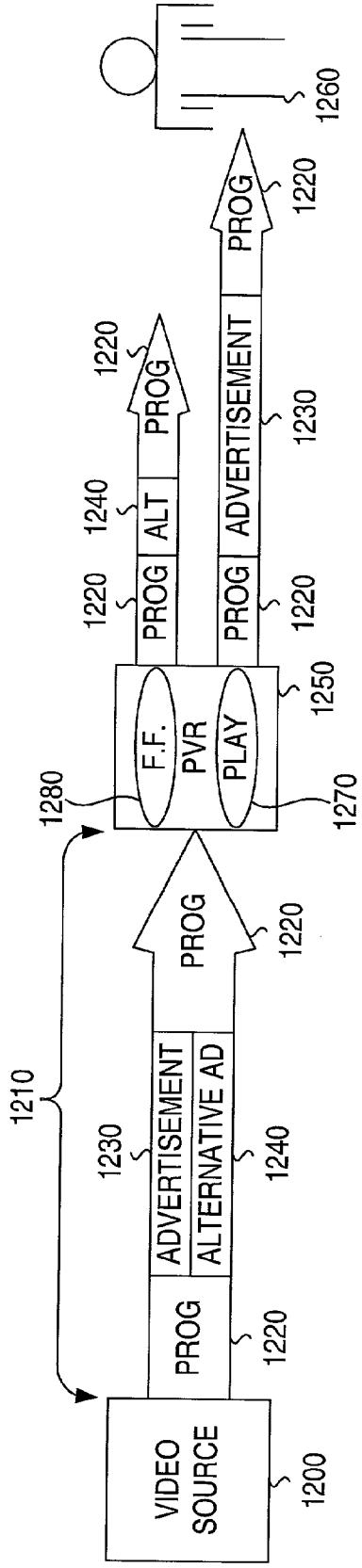

VIDEO SOURCE
1200
1210
PROG
1220
ADVERTISEMENT
ALTERNATIVE AD
1230
1240
PROG
1220
1280
F.F.
PVR
PLAY
1250
1270
PROG
1220
ALT
1240
PROG
1220
ADVERTISEMENT
1230
PROG
1220
1260

FIG. 12A

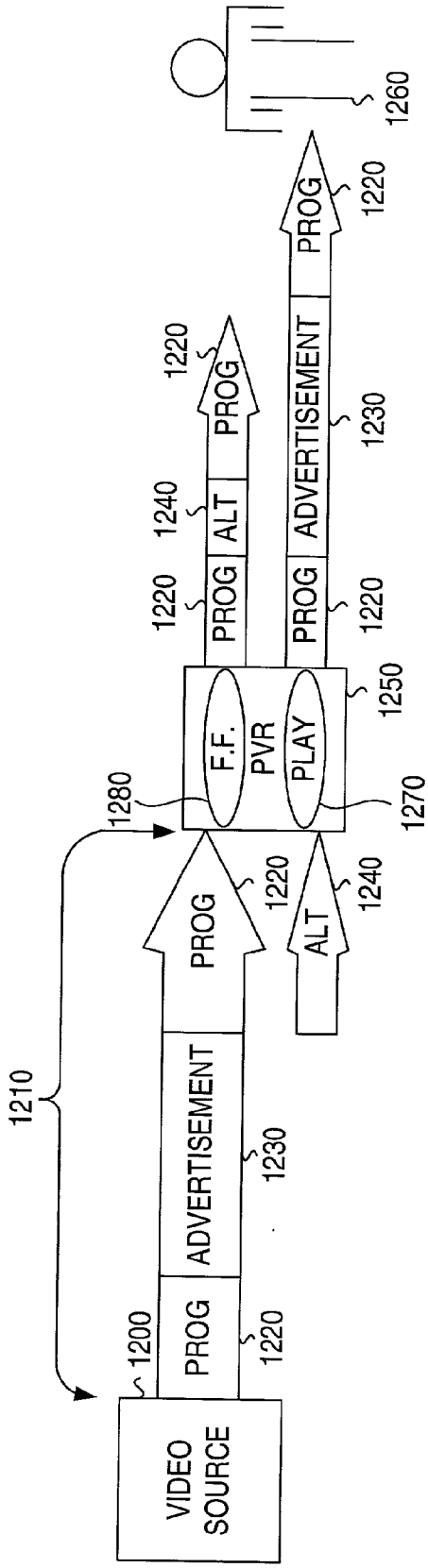

VIDEO SOURCE
1200
PROG
1220
ADVERTISEMENT
1230
1210
PROG
1220
ALT
1240
1280
F.F.
PVR
PLAY
1250
1270
PROG
1220
ALT
1240
PROG
1220
ADVERTISEMENT
1230
PROG
1220
1260

FIG. 12B

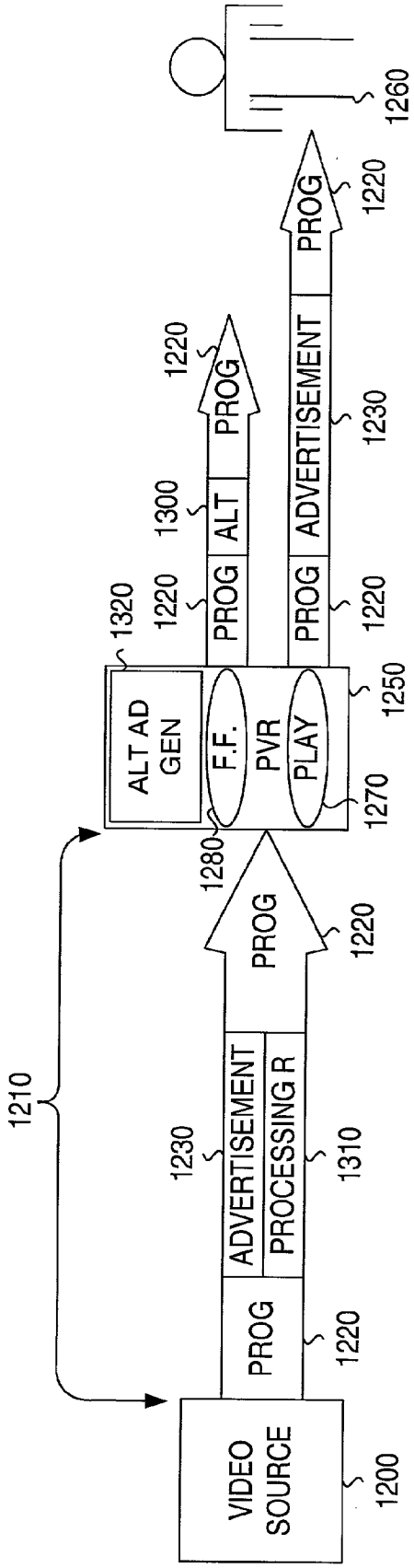

VIDEO SOURCE
1200
PROG
1220
ADVERTISEMENT
PROCESSING R
1230
1310
1210
PROG
1220
1280
ALT AD GEN
1320
F.F.
PVR
PLAY
1250
1270
PROG
1220
ALT
1300
PROG
1220
PROG
1220
ADVERTISEMENT
1230
PROG
1220
1260

FIG. 13A

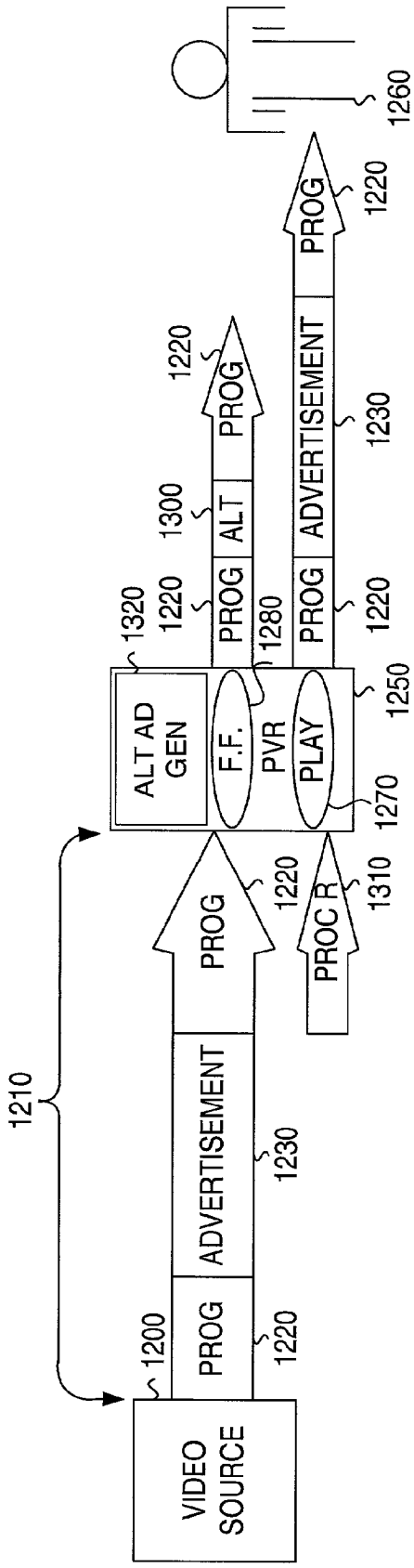

1210
VIDEO SOURCE
1200
PROG
1220
ADVERTISEMENT
1230
PROG
1220
PROC R
1310
ALT AD GEN
1320
F.F.
PVR
PLAY
1270
1250
1280
PROG
1220
ALT
1300
PROG
1220
PROG
1220
ADVERTISEMENT
1230
PROG
1220
1260

FIG. 13B

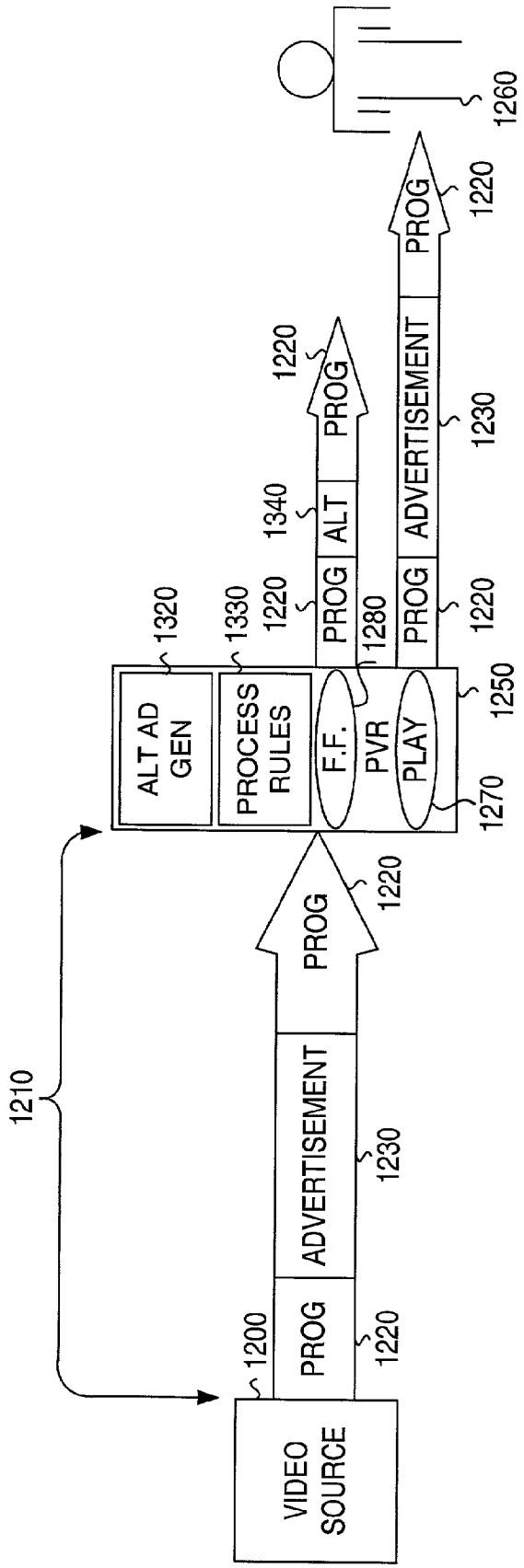

1210
VIDEO SOURCE
1200
PROG
1220
ADVERTISEMENT
1230
PROG
1220
ALT AD GEN
1320
PROCESS RULES
1330
F.F.
PVR
PLAY
1250
1270
PROG
1220
1280
ALT
1340
PROG
1220
ADVERTISEMENT
1230
PROG
1220
1260

FIG. 13C

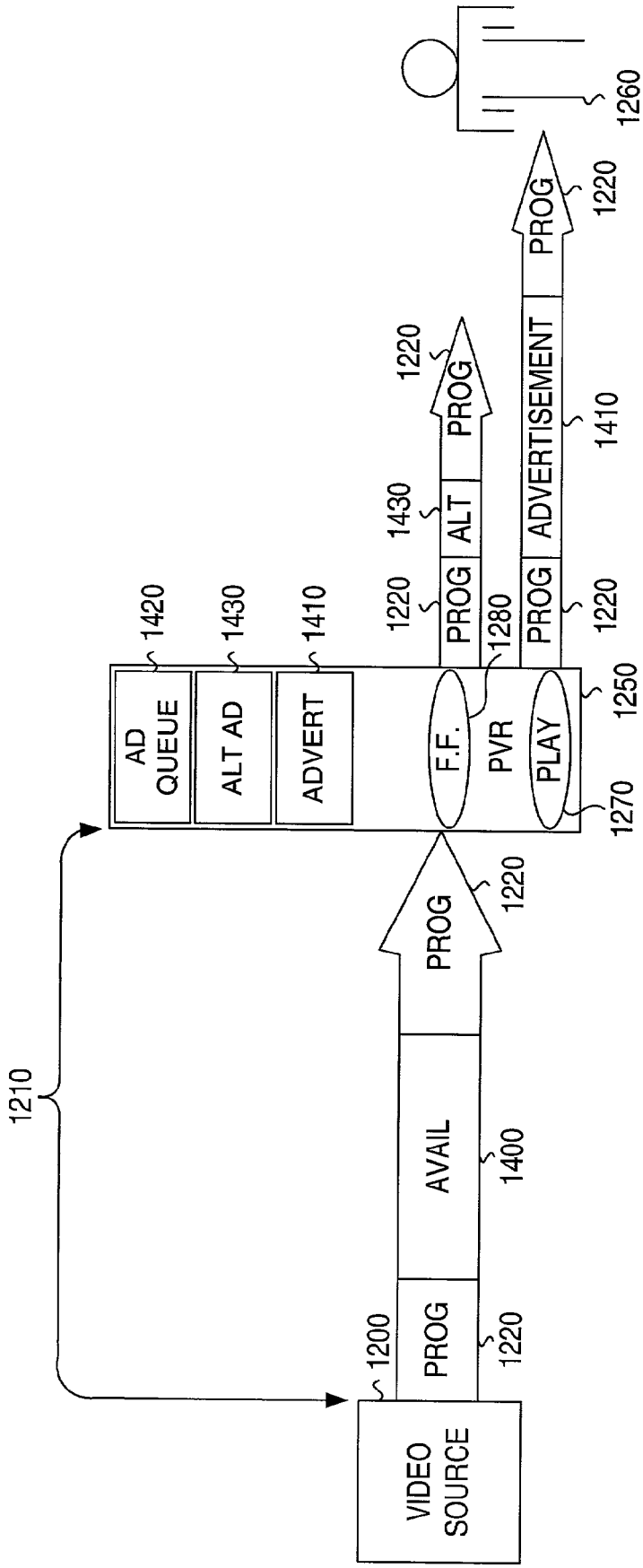

VIDEO SOURCE
1200
PROG
1220
AVAIL
1400
PROG
1220
1210
AD QUEUE
1420
ALT AD
1430
ADVERT
1410
F.F.
PVR
PLAY
1250
1270
1280
PROG
1220
ALT
1430
PROG
1220
PROG
1220
ADVERTISEMENT
1410
PROG
1220
1260

FIG. 14A

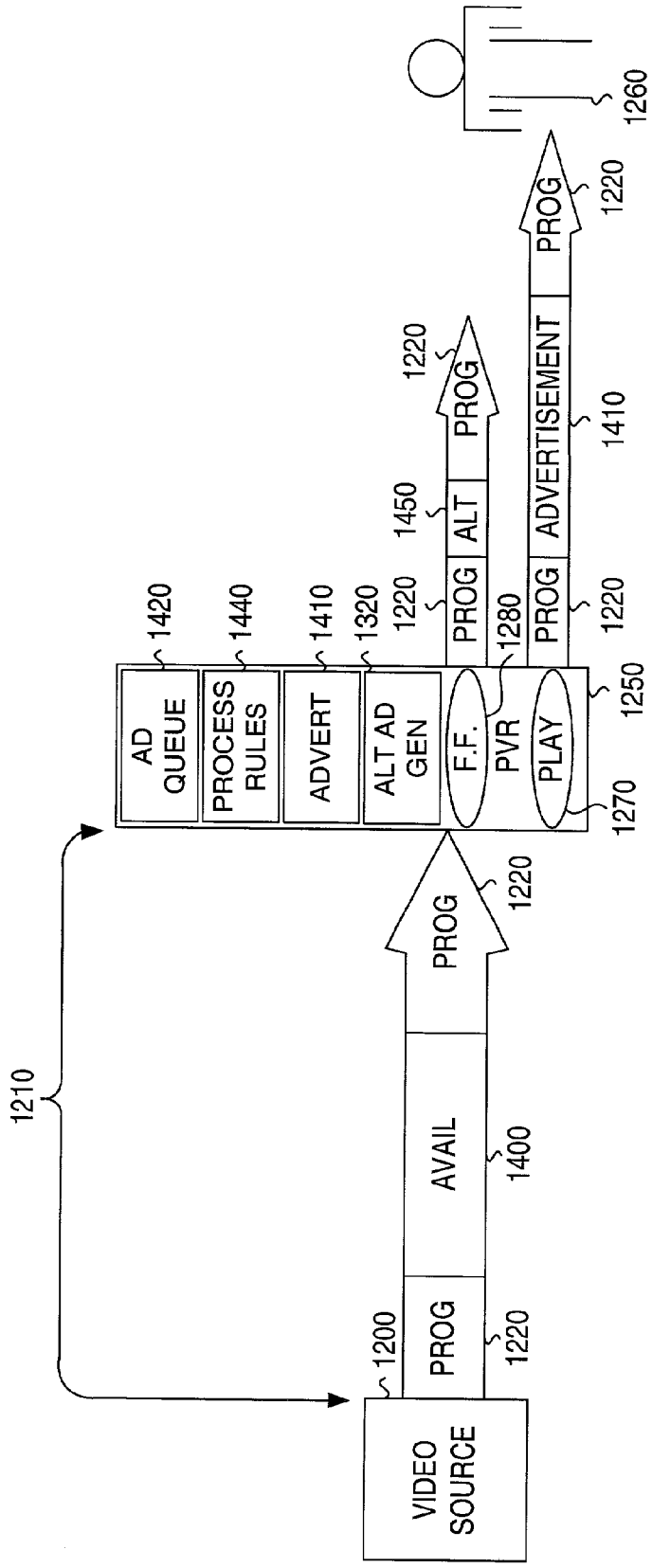

1210
VIDEO SOURCE
1200
PROG
1220
AVAIL
1400
PROG
1220
AD QUEUE
1420
PROCESS RULES
1440
ADVERT
1410
ALT AD GEN
1320
F.F.
PVR
PLAY
1270
1250
1280
PROG
1220
ALT
1450
PROG
1220
PROG
1220
ADVERTISEMENT
1410
PROG
1220
1260

FIG. 14B

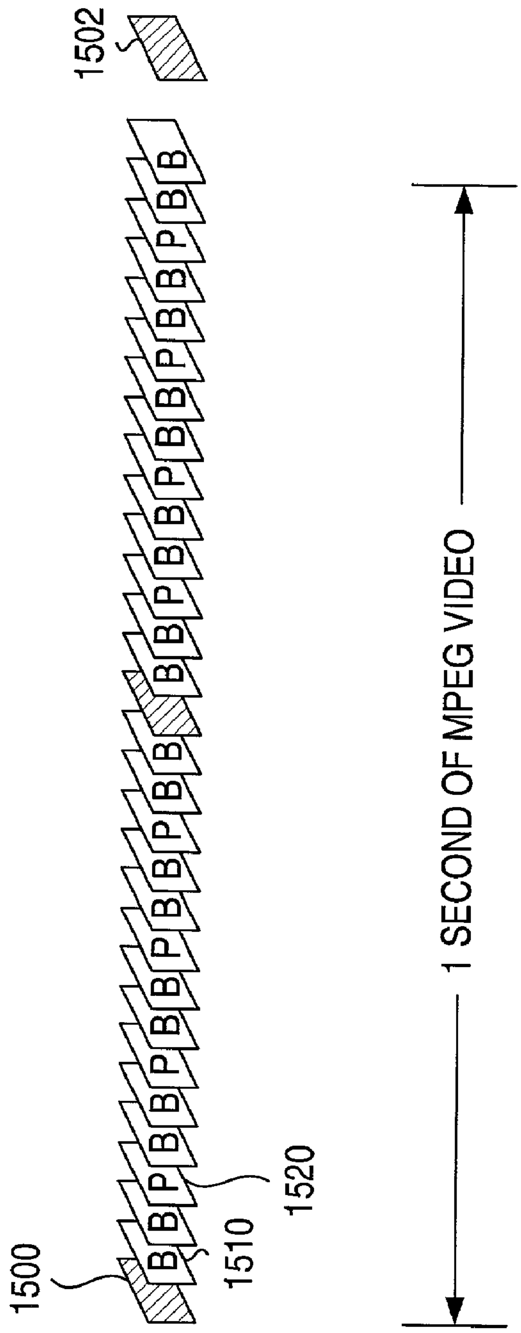


FIG. 15

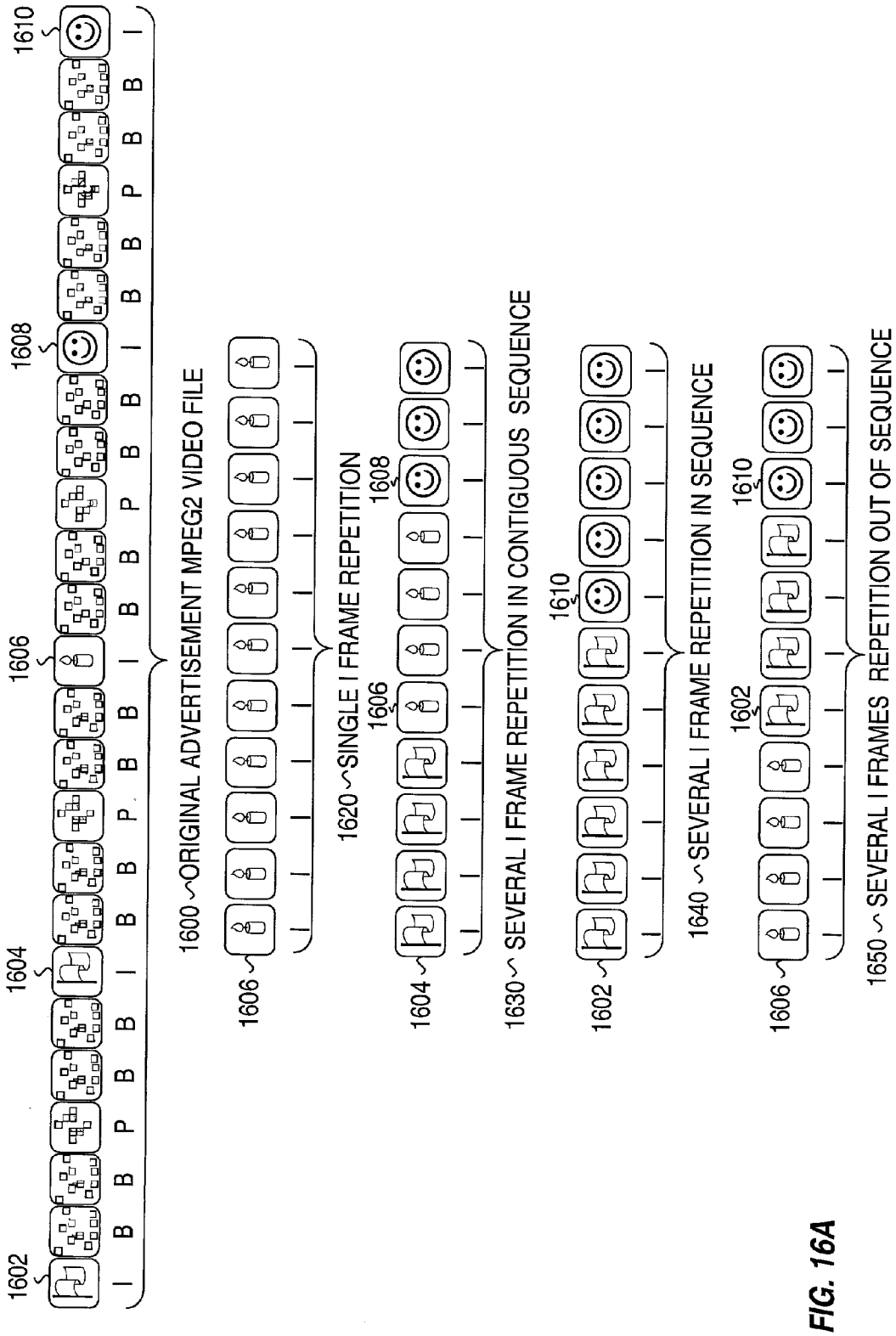

1602
1604
1606
1608
1610
I B B P B B I B B P B B I B B P B B I
1600 ORIGINAL ADVERTISEMENT MPEG2 VIDEO FILE
1606
1620 SINGLE I FRAME REPETITION
1608
1606
1604
1630 SEVERAL I FRAME REPETITION IN CONTIGUOUS SEQUENCE
1610
1602
1640 SEVERAL I FRAME REPETITION IN SEQUENCE
1610
1602
1606
1650 SEVERAL I FRAMES REPETITION OUT OF SEQUENCE

FIG. 16A

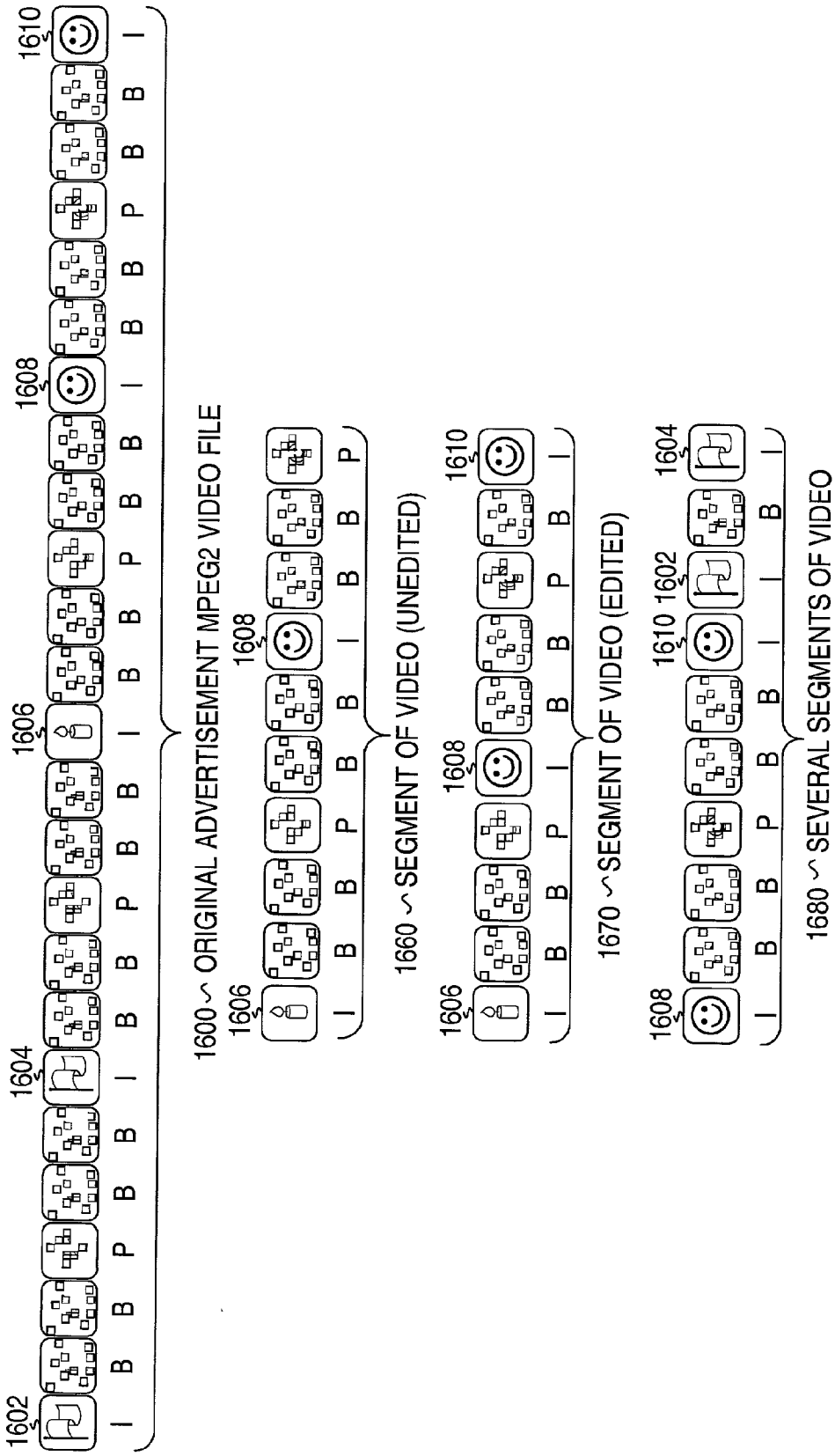

1602
1604
1606
1608
1610
I B B P B B I B B P B B I B B P B B I
1600 ORIGINAL ADVERTISEMENT MPEG2 VIDEO FILE
1606
1608
I B B P B B I B B P
1660 SEGMENT OF VIDEO (UNEDITED)
1606
1608
1610
I B B P I B B P B I
1670 SEGMENT OF VIDEO (EDITED)
1608
1610 1602
1604
I B B P B I B I
1680 SEVERAL SEGMENTS OF VIDEO

FIG. 16B

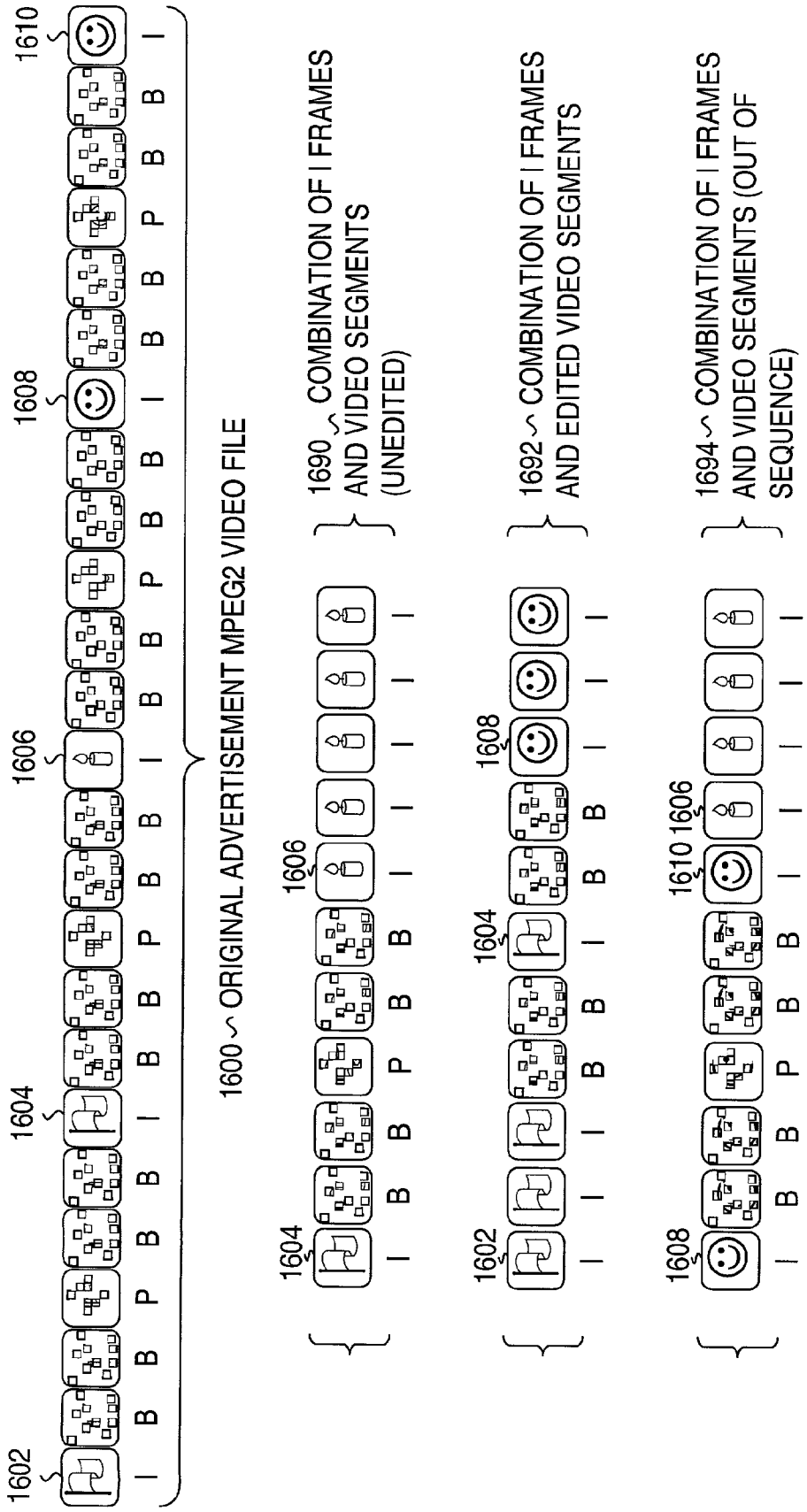

1602
1604
1606
1608
1610
I B B P B B I B B P B B I B B P B B I
1600 ORIGINAL ADVERTISEMENT MPEG2 VIDEO FILE
1690 COMBINATION OF I FRAMES AND VIDEO SEGMENTS (UNEDITED)
1692 COMBINATION OF I FRAMES AND EDITED VIDEO SEGMENTS
1694 COMBINATION OF I FRAMES AND VIDEO SEGMENTS (OUT OF SEQUENCE)

FIG. 16C

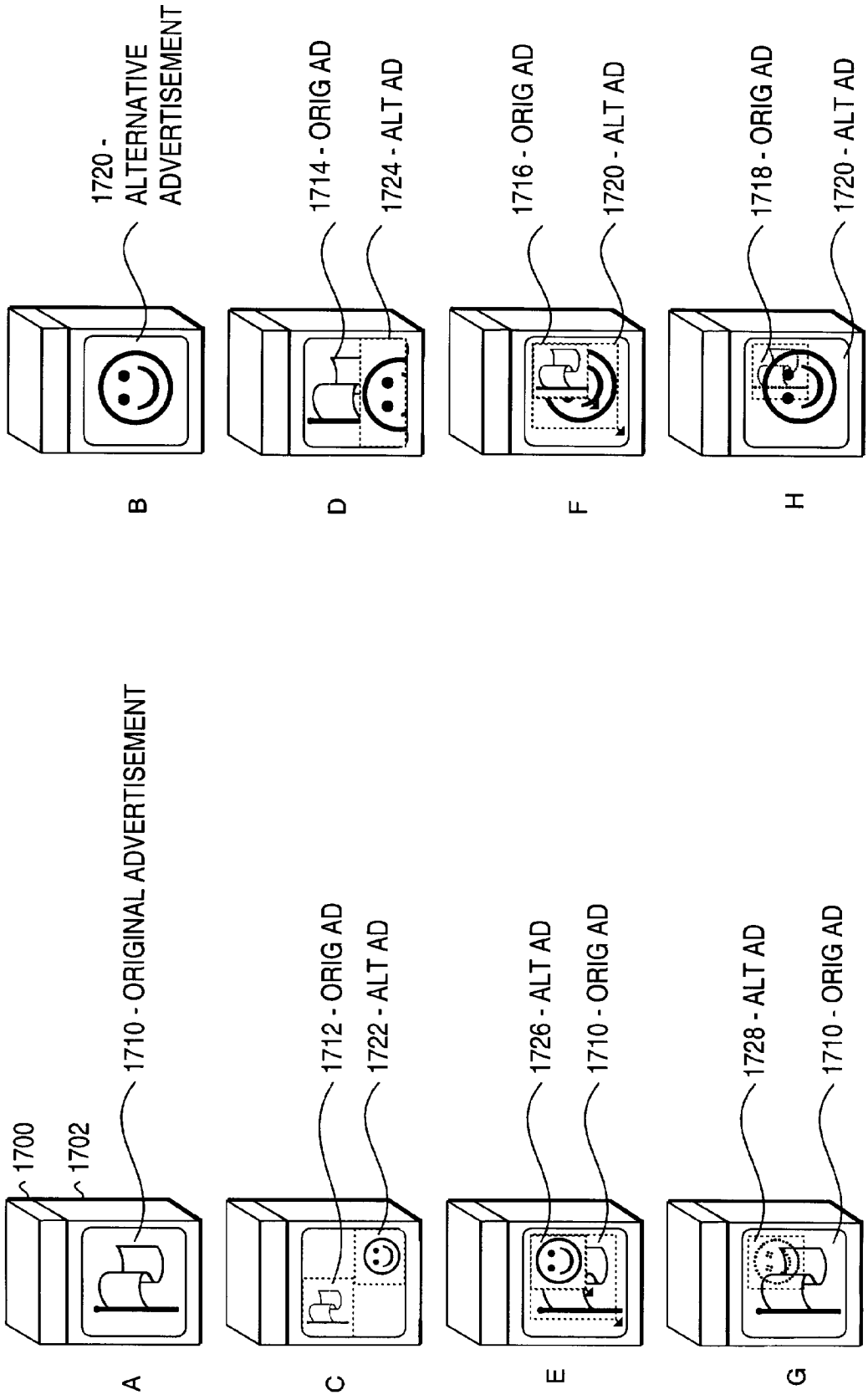

1700
1702
1710 - ORIGINAL ADVERTISEMENT
A
1720 - ALTERNATIVE ADVERTISEMENT
B
1712 - ORIG AD
1722 - ALT AD
C
1714 - ORIG AD
1724 - ALT AD
D
1726 - ALT AD
1710 - ORIG AD
E
1716 - ORIG AD
1720 - ALT AD
F
1728 - ALT AD
1710 - ORIG AD
G
1718 - ORIG AD
1720 - ALT AD
H

FIG. 17

ALTERNATIVE ADVERTISING IN PRERECORDED MEDIA

CROSS-REFERENCES

[0001] This application claims priority under 35 U.S.C. §119(e) for Provisional application No. 60/281,037, filed on Apr. 3, 2001 entitled "Personal Video Recorder (PVR) Market Overview and Advertising Opportunities" (Docket No. T738-00) and 60/329,992, filed on Oct. 17, 2001 entitled "Personal Video Recorder (PVR) System Requirements and Specification" (Docket No. T738-01). Both of the aforementioned applications are herein incorporation by reference, but are not admitted to be prior art.

[0002] This application is related to all of the Applicants co-pending applications, patents and publications listed below. Each application listed below is herein incorporated in its entirety but is not admitted to be prior art:

[0003] U.S. application Ser. No. 09/204,888, filed on Dec. 3, 1998 entitled "Subscriber Characterization System" (Docket No. T702-00);

[0004] PCT Application PCT/US99/28528 (WIPO Publication WO 00/33160A3), filed on Dec. 2, 1999 entitled "Subscriber Characterization and Advertisement Monitoring System" (Docket No. T702-00PCT);

[0005] U.S. patent application Ser. No. 09/516,983, filed on Mar. 1, 2000 entitled "Subscriber Characterization with Filters" (Docket No. T702-02);

[0006] U.S. patent application Ser. No. 09/591,577, filed on Jun. 9, 2000 entitled "Privacy-Protected Advertising System" (Docket No. T702-03);

[0007] U.S. patent application Ser. No. 09/635,252, filed on Aug. 9, 2000 entitled "Subscriber Characterization Based on Electronic Program Guide Data" (Docket No. T702-04);

[0008] U.S. application Ser. No. 09/205,653, filed on Dec. 3, 1998 entitled "Client-Server Based Subscriber Characterization System" (Docket No. T703-00);

[0009] U.S. application Ser. No. 09/205,119, filed on Dec. 3, 1998 entitled "Advertisement Monitoring System" (Docket No. T704-00);

[0010] U.S. application Ser. No. 09/516,314, filed on Mar. 1, 2000 entitled "Advertisement Monitoring and Feedback System" (Docket No. T704-01);

[0011] U.S. application Ser. No. 09/452,893, filed on Dec. 2, 1999 entitled "Subscriber Identification System" (Docket No. T705-01);

[0012] PCT Application PCT/US99/28600 (WIPO Publication WO 00/33233), filed on Dec. 2, 1999 entitled "Subscriber Identification System" (Docket No. T705-01PCT);

[0013] U.S. patent application Ser. No. 09/635,253, filed on Aug. 9, 2000 entitled "Subscriber Identification Based on Electronic Program Guide Data" (Docket No. T705-02);

[0014] U.S. patent application Ser. No. 09/553,637, filed on Apr. 20, 2000 entitled "Advertising Management System for Digital Video Streams" (Docket No. T708-01);

[0015] PCT Application PCT/US00/10633 (WIPO Publication WO 00/64165), filed on Apr. 20, 2000 entitled "Advertising Management System for Digital Video Streams" (Docket No. T708-01PCT);

[0016] U.S. patent application Ser. No. 09/553,099, filed on Apr. 20, 2000 entitled "Advertisement Insertion Techniques for Digital Video Streams" (Docket No. T708-02);

[0017] U.S. patent application Ser. No. 09/568,084, filed on May 10, 2000 entitled "Advertisement Subgroups for Digital Video Streams" (Atty. Docket No. T711-01);

[0018] PCT Application PCT/US00/12710 (WIPO Publication WO 00/69163), filed on May 10, 2000 entitled "Advertisement Subgroups for Digital Video Streams" (Docket No. T711-01PCT);

[0019] U.S. patent application Ser. No. 09/568,477, filed on May 10, 2000 entitled "Advertisement Subgroups for Digital Video Streams" (Docket No. T711-02);

[0020] U.S. patent application Ser. No. 09/635,539, filed on Aug. 10, 2000 entitled "Delivering targeted advertisements in cable-based networks" (Docket No. T711-03);

[0021] U.S. patent application Ser. No. 09/694,848, filed on Oct. 20, 2000 entitled "Method and Apparatus for Inserting Digital Media Advertisements into Statistical Multiplexed Streams" (Docket No. T712-10);

[0022] PCT Application PCT/US00/29034 (WIPO Publication WO 01/30086A), filed on Oct. 20, 2000 entitled "Method and Apparatus for Inserting Digital Media Advertisements into Statistical Multiplexed Streams" (Docket No. T712-10PCT);

[0023] U.S. patent application Ser. No. 09/796,339, filed on Feb. 28, 2001 entitled "Privacy-Protected Targeting System" (Docket No. T715-10);

[0024] PCT Application PCT/US01/06650 (WIPO Publication WO 01/65453A1), filed on Feb. 28, 2001 entitled "Privacy-Protected Targeting System" (Docket No. T715-10PCT);

[0025] U.S. patent application Ser. No. 09/635,542, filed on Aug. 10, 2000 entitled "Grouping Subscribers Based on Demographic Data" (Docket No. T719-00);

[0026] U.S. patent application Ser. No. 09/635,544 filed on Aug. 10, 2000 entitled "Transporting Ad Characterization Vectors" (Docket No. T720-00);

[0027] U.S. patent application Ser. No. 09/712,790 filed on Nov. 14, 2000 entitled "Queue Based Advertisement Scheduling and Sales" (Docket No. T721-10);

[0028] PCT Application PCT/US01/27217, filed on Aug. 31, 2001 entitled "Targeted Advertising at the Set-Top Box" (Docket No. T721-10PCT);

[0029] U.S. patent application Ser. No. 09/731,606 filed on Dec. 7, 2000 entitled "System for Providing Targeted Advertisements Using Advertiser Specific Target Groups" (Docket No. T721-12);

[0030] U.S. patent application Ser. No. 09/748,949 filed on Dec. 27, 2000 entitled "Advertisement Filtering and Storage for Targeted Advertisement Systems" (Docket No. T721-13);

[0031] U.S. patent application Ser. No. 09/742,527 filed on Dec. 21, 2000 entitled "System and Method for Automatically Managing Avail Inventory Data and Avail Pricing" (Docket No. T721-14);

[0032] U.S. patent application Ser. No. 09/748,942 filed on Dec. 27, 2000 entitled "Advertisement Distribution System for Distributing Targeted Advertisements in Television Systems" (Docket No. T721-15);

[0033] U.S. patent application Ser. No. 09/742,506 filed on Dec. 21, 2000 entitled "Internet Based Electronic Program Guide Advertisement Insertion Method and Apparatus" (Docket No. T721-16);

[0034] U.S. patent application Ser. No. 09/748,943 filed on Dec. 27, 2000 entitled "Delivering Targeted Advertisements to the Set-Top Box" (Docket No. T721-17);

[0035] U.S. patent application Ser. No. 09/742,534 filed on Dec. 21, 2000 entitled "Queue Based Head-End Advertisement Scheduling Method and Apparatus" (Docket No. T721-18);

[0036] U.S. patent application Ser. No. 09/742,852 filed on Dec. 21, 2000 entitled "System for Rescheduling and Inserting Advertisements" (Docket No. T721-19);

[0037] U.S. patent application Ser. No. 09/750,800 filed on Dec. 28, 2000 entitled "System and Method for Delivering Targeted Advertisements Using Multiple Presentation Streams" (Docket No. T721-20);

[0038] U.S. patent application Ser. No. 09/766,004 filed on Jan. 19, 2001 entitled "System and Method for Delivering Statistically Scheduled Advertisements" (Docket No. T721-21);

[0039] U.S. patent application Ser. No. 09/824,434 filed on Apr. 2, 2001 entitled "Grouping of Advertisements on an Advertising Channel in a Targeted Advertising System" (Docket No. T721-22);

[0040] U.S. patent application Ser. No. 09/658,204 filed on Sep. 8, 2000 entitled "Targeted Advertising Through Electronic Program Guide" (Docket No. T723-00);

[0041] U.S. Provisional Application No. 60/238,059, filed on Oct. 5, 2000 entitled "Platform Independent Addressable Television Advertising System" (Atty. Docket No. T726-00);

[0042] U.S. Provisional Application No. 60/238,056, filed on Oct. 5, 2000 entitled "Method and System for Addressable Advertising in the Electronic Program Guide" (Atty. Docket No. T727-00);

[0043] U.S. patent application Ser. No. 09/749,255 filed on Dec. 27, 2000 entitled "Scheduling and Linking IPG Ads in Conjunction with Programming Ads in a Television Environment" (Docket No. T727-10);

[0044] PCT Application PCT/US01/31682, filed on Oct. 5, 2001 entitled "Targeting Ads on IPG's Live Programming and Recorded Programming, and Coordinating the Ads therebetween" (Docket No. T727-10PCT)

[0045] U.S. patent application Ser. No. 09/680,622 filed on Oct. 6, 2000 entitled "Method and System for Addressable and Program Independent Advertising During Recorded Programs" (Docket No. T728-10);

[0046] U.S. patent application Ser. No. 09/751,349 filed on Dec. 28, 2000 entitled "Inserting Local Signals During MPEG Channel Changes" (Docket No. T730-10);

[0047] U.S. patent application Ser. No. unknown filed on Oct. 31, 2001 entitled "Profiling and Identification of Television Viewers" (Docket No. T734-10);

[0048] U.S. Provisional Application No. 60/267,370, filed on Feb. 8, 2001 entitled "Presentation Stream Switching Using Channel Maps" (Docket No. T736-00);

[0049] U.S. Provisional Application No. 60/278,612, filed on Mar. 26, 2001 entitled "Formation and Utilization of Cable Microzones" (Docket No. T737-00);

[0050] U.S. Provisional Application No. 60/281,196, filed on Apr. 3, 2001 entitled "Subscriber Selected Advertisement Display and Scheduling" (Docket No. T740-00);

[0051] U.S. patent application Ser. No. 09/928,024 on Aug. 10, 2001 entitled "Targeting Ads to Subscribers based on Privacy Protected Subscriber Profiles" (Docket No. T741-10); and

[0052] PCT Application PCT/US01/25261, filed on Aug. 10, 2001 entitled "Targeting Ads to Subscribers based on Privacy Protected Subscriber Profiles" (Docket No. T741-10PCT).

BACKGROUND OF THE INVENTION

[0053] The Video Cassette Recorder (VCR) is an integral part of most households. According to Statistical Abstracts of the United States, as of 1998 98.3% of US households had at least one television (the average number of television sets per home was 2.4) and 84.6% of TV households had at least one VCR. The Personal Video Recorder (PVR) is a term that is generally used to describe the digital equivalent of the VCR. PVRs are also known as Digital Video Recorders (DVRs) and when located outside of the residence can also be referred to as Personal Video Channels (PVCs).

[0054] Because VCRs are so universally accepted, it is clear that a digital successor technology will eventually take hold. That digital successor technology will provide the functionality of the VCR but with the added flexibility of a digital platform. The advent of the Internet will also have a significant impact on the successor technology to the VCR because Internet based delivery, storage and in-home distribution of multimedia content will allow for new PVR functionality and architectures.

[0055] VCRs have a fast-forward capability that allows the user to fast-forward through programming. One of the primary uses of the fast-forward button is to skip commercials in pre-recorded material. That is, users who have gone through the trouble to pre-record a program typically have no interest in viewing the advertisements. Because the use of VCRs to record programming for home use is considered "fair use" in terms of copyright, programmers and advertisers cannot prevent manufacturers from supplying VCRs or putting fast-forward functionality on VCRs, nor can they prevent consumers from using the fast-forward button to skip commercials.

[0056] PVRs, like the predecessor VCR, will have a fast-forward capability. Some manufacturers have even gone so far as to put a "commercial skip" button on the PVR that allows the user to completely skips over the advertisement with the touch of a button. Although there are copyright issues that may ultimately prevent the PVR manufacturer

from including an explicit "commercial skip" button, PVR users will likely insist on the ability to fast-forward through commercials.

[0057] In a traditional VCR/PVR, the video is meaningless when the user fast-forwards or rewinds, and the audio is suppressed. The viewer cannot typically recognize the advertisement of the manufacturer, and there is therefore little chance to make an impression on the viewer.

[0058] For the foregoing reasons, there is a need for a method and system for presenting a brief marketing message when a user fast-forwards through or rewinds through an advertisement.

SUMMARY OF THE INVENTION

[0059] The present invention provides a method and system for presenting viewers with an alternative brief version of an advertisement when they choose to fast-forward though a commercial. In a preferred embodiment, the viewer sees the fast-forwarded commercial in one portion of the screen (either background or portion of a split screen) while the alternative brief version is displayed. The alternative brief version of the advertisement is known as a trick play advertisement, and is a marketing message which may be a static screen presenting a logo or portion of the commercial, or may be a condensed version of the actual advertisement. An alternate or entirely unrelated advertisement can also be displayed as the trick play advertisement.

[0060] The present invention supports a wide range of formats for the presentation of the alternative advertisement including full screen alternate advertisements, opaque and transparent overlays, and split screens. A wide range of brief marketing messages can be used including brief segments of video in sequence, brief segments of video in sequences different than the original advertisement, mixed sequences of video and still images and single still images or sequences of still images.

[0061] One advantage of the present invention is that audio may accompany the alternative advertisement. The accompanying audio can be a sequence of musical notes or any other appropriate audio message such as the name of the manufacturer or a sound associated with the manufacturer or product.

[0062] Another advantage of the present invention is that if the PVR manufacturer has included a "commercial skip" feature the alternative advertisement will be presented even though the viewer has chosen to skip the commercial. The alternative advertisement can be displayed when the user rewinds through the advertisement. A number of events such as fast-forward, commercial skip, and rewind can be used to trigger the alternative advertisement and are known in general as trick-play events.

[0063] In the present invention the trick play advertisement can be formed by using segments of the full-length advertisement. In a preferred embodiment, the I-frames of the digital video sequence, which form the original advertisement, are used as the basis for still images or as beginning points for sequences of video in the trick play advertisement. In one embodiment, the trick play advertisement is formed dynamically by retrieving sections of the original advertisements. In another embodiment, a separate file is created which contains the trick play advertisement. In another embodiment the trick play advertisement is downloaded and stored separately from the original advertisement.

[0064] The present invention also supports the use of non-traditional video such as flash animation or other Internet based graphics or video. In one embodiment the trick play advertisement is comprised of stored files (local or external) that are displayed upon initiation of a trick play event.

[0065] One of the advantages of the present invention is that the trick play advertisement can be targeted such that different trick play advertisements are displayed to different market segments. These market segments may be defined by age, income, ethnicity, or other psychodemographic or socio-economic factors.

[0066] These and other features and objects of the invention will be more fully understood from the following detailed description of the preferred embodiments that should be read in light of the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0067] The accompanying drawings, which are incorporated in and form a part of the specification, illustrate the embodiments of the present invention and, together with the description serve to explain the principles of the invention.

[0068] In the drawings:

[0069] **FIG. 1** illustrates an exemplary program stream having advertisements inserted within programming;

[0070] **FIG. 2** illustrates an exemplary embodiment of the advertisements of **FIG. 1** being fast-forwarded and alternative advertisements being available in place of or in conjunction with the fast-forwarding advertisements;

[0071] **FIG. 3** illustrates an exemplary system diagram of a Personal Video Recorder (PVR);

[0072] **FIG. 4** illustrates an exemplary system diagram of a Video-on-Demand (VoD) network;

[0073] **FIG. 5** illustrates an exemplary system diagram of a Personal Video Channel (PVC) head-end based PVR network;

[0074] **FIG. 6A** illustrates an exemplary context diagram of a client side set-top box (STB) ad targeting system;

[0075] **FIG. 6B** illustrates a single ad queue structure for multiple market segments/subscribers;

[0076] **FIG. 6C** illustrates the use of multiple ad queues for multiple market segments/subscribers;

[0077] **FIG. 7** illustrates an exemplary context diagram of a server side ad management system;

[0078] **FIG. 8** illustrates an exemplary block diagram for a client side STB ad targeting system;

[0079] **FIG. 9** illustrates an exemplary block diagram of a server side ad management system;

[0080] **FIG. 10** illustrates an exemplary data flow in a PVR-enabled set-top box for delivering targeted advertising;

[0081] **FIG. 11** illustrates an exemplary data flow in an ad management system designed to deliver targeted advertisements to a PVR-enabled set-top box;

[0082] FIGS. **12**A-B illustrate exemplary systems in which the alternative advertisements are received as separate files;

[0083] FIGS. **13**A-C illustrate exemplary systems in which processing rules are received in order to generate alternative advertisements by applying the processing rules to advertisements;

[0084] FIGS. **14**A-B illustrate exemplary systems in which advertisements and an ad queue are utilized along with alternative advertisements and/or processing rules;

[0085] **FIG. 15** illustrates an exemplary one-second MPEG data stream;

[0086] FIGS. **16**A-B illustrate exemplary alternative advertisements being produced from an original advertisement; and

[0087] **FIG. 17** illustrates exemplary embodiments for placement of the alternative advertisement.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0088] In describing a preferred embodiment of the invention illustrated in the drawings, specific terminology will be used for the sake of clarity. However, the invention is not intended to be limited to the specific terms so selected, and it is to be understood that each specific term includes all technical equivalents which operate in a similar manner to accomplish a similar purpose. In particular, when used herein the term alternative advertisement refers to a trick play advertisement which is the advertisement presented when a trick play event is detected. A trick play event can be defined as any event which presents an opportunity for a trick play advertisement including but not limited to initiation of fast-forward at a commercial break, a commercial skip event, or rewind.

[0089] With reference to the drawings, in general, and **FIGS. 1 through 17** in particular, the apparatus of the present invention is disclosed.

[0090] **FIG. 1** is an exemplary illustration of programming **100** having advertisements **110, 120** inserted in advertisement opportunities (avails) within the programming **100**. The programming may be video, audio, streaming media or other programming that would be obvious to one of ordinary skill in the art. For ease, throughout the application we will focus of the video programming and in particular digital video. However, the invention is in no way intended to be limited thereby.

[0091] As illustrated, two 30-second advertisements **110, 120** are inserted in the middle of the programming **100**. However, the invention is in no way intended to be limited to this exemplary embodiment. As one skilled in the art would recognize the advertisements may be any length (i.e., 15, 30, 45, 60 seconds), there may be any number of advertisements (i.e., 3, 4, 5 advertisements during a commercial break), the advertisements may be inserted at any point in the programming (i.e., pre-pended or post-pended), and may be inserted between different programs. When one normally talks about advertisements in programming they are referring to broadcast or network programming, such as ABC, NBC, ESPN. However, advertisements may also be associated with Video on Demand (VoD) programming, Pay Per View (PPV) programming, pre-recorded programming that may be stored on cassettes, CDs, DVDs or other media, streaming media programming and other programming that is either now known or later discovered. For ease, throughout the application we will focus on the programming delivered to a subscriber (i.e., broadcast, network, VoD, PPV). However, the invention is in no way intended to be limited thereby.

[0092] The broadcast, network, VoD and PPV programming may be transmitted to a subscriber via a programming delivery network. The video delivery network may be a digital broadcast satellite (DBS) system, a cable television (CATV) system, a Switched Digital Video System (SDV), Internet, or other systems now known or later discovered. The system architectures can include Hybrid Fiber Coax (HFC), Fiber to the Curb (FTTC), Fiber to the Home (FTTH), any iteration of Digital Subscriber Loop (xDSL) including very high speed DSL (VDSL), terrestrial wireless networks such as multichannel multipoint distribution systems (MMDS) or local MDS (LMDS), or other architectures now know or later discovered system.

[0093] As one of ordinary skill in the art would recognize, if the programming is recorded for future playback, there is the potential that subscribers may fast forward through, or skip advertisements. With the advent of the personal video recorder (PVR) in any of its various forms that will be discussed in detail below, it is possible for the subscriber to record the programming and play it back in the future (potentially just a few minutes later) and fast forward through, or skip the advertisements. **FIG. 2** illustrates an exemplary fast forward event taking place during the viewing of the advertisements. As illustrated, each of the 30 second advertisements **110, 120** illustrated in **FIG. 1** have been reduced to two second fast forwarded advertisements **210, 220**. As one of ordinary skill in the art would recognize, a two second fast forwarded advertisement **210, 220** will not convey the advertiser's message to the subscriber. In this exemplary illustration the two second fast forwarding recorded advertisements **210, 220** are based on the subscriber fast forwarding the advertisement at 15 times the normal speed (i.e., 15X). It should be obvious to one of ordinary skill in the art, there are numerous other fast forward speeds that would be well within the scope of the invention and that the invention is in no way intended to be limited by the 15X example.

[0094] Advertisers pay very significant sums of money for advertisements placed in broadcast and network programming and in fact, advertising subsidizes free broadcast and network programming. Advertisers therefore want assurances that their advertisements are actually displayed to subscribers and are not simply skipped over. It is unlikely that subscribers can be prevented from fast forwarding over the advertisements, thus there is a need for ensuring that the advertisers get some value for their advertisements, even if the subscriber fast forwards through the advertisements. The current invention replaces or supplements the fast forwarding advertisements **210, 220** with alternative advertisements (also called trick-play advertisements) **230, 240**. The alternative advertisements **230, 240** are designed to get the

advertiser's message across in the same amount of time it takes the subscriber to fast forward through the recorded advertisement (i.e., 2 seconds in the exemplary embodiment of **FIG. 2**). In alternative embodiments this technology is also applied to skipping, rewinding, pausing and any other function that effects the presentation of the advertisement (often referred to in the industry as "trick-play"). In another alternative embodiment, the alternative advertisement is not related to the advertisement being fast forwarded (or rewinded or paused). In this embodiment, the alternative ads could be purchased separately and have no connections to the ad (i.e., next in queue) or could be tied to the ad in some fashion (i.e., Coke displaying an alternative ad during a fast forwarding Pepsi advertisement).

[**0095**] For ease of understanding the current invention will be described in relation to the recording and playback of advertisements utilizing a PVR. However, the invention is no way intended to be limited solely to PVRs. Before describing the generation or contents of the alternative advertisement in detail, a detailed description of multiple variations of a PVR will first be described.

[**0096**] PVR Introduction

[**0097**] The PVR is a device that enables a television or other interactive media viewer the ability to digitally store programming for subsequent viewing. PVRs may also be referred to as Digital Video Recorders (DVRs) and in some instances (in particular head-end based PVRs) are referred to as Personal Video Channels (PVCs). When used herein the term PVR refers to any type of device which digitally stores and plays back programming, and can include devices located in the residence, the head-end or central office, in the distribution network, as part of the Internet, or distributed over any or all of these locations.

[**0098**] Streaming media may begin to change the way video is viewed in the home and new Internet based interfaces for television viewing may appear. These advances will facilitate PVRs and may result in new types of PVR based systems which are essentially Internet based networks in which information is stored and managed in a distributed manner between the content provider, service provider, and viewer.

[**0099**] PVR Functionality

[**0100**] The PVR provides the basic functions of a VCR including record, play, rewind and fast forward. The PVR also includes functions that give a viewer the ability to manipulate live television programs by recording them simultaneously as they are being watched. This allows the viewer the ability to "pause" and have the program be recorded automatically (without hitting a Record button) and then resume watching the program by hitting Play. PVRs used to watch live programming allow the viewer to fast forward up to the current time, such that if pause was hit the viewer can return to the programming and advance through what was stored during the pause. Fast forward speeds typically include 5X, 20X, and 60X, but are clearly not limited thereto. PVRs can also offer the ability to convert live program to a recording ("Convert to Recording" feature) the ability to return to live viewing ("Resume Live TV" feature) and the ability to clear the recording buffer upon a channel change.

[**0101**] Regardless of how a program was recorded on the PVR, during playback the PVR offers the viewer the ability to play, stop, pause, rewind, and fast forward through the recorded program. In addition, the digital PVR can support frame forward and frame backward features as well as digital slow motion, bookmark, and "go to time" features. An additional, and controversial, feature is the "Skip Forward" or "Commercial Skip" function, which some commercially available devices offer. Theses functions allow a user to skip forward exactly 30 seconds, effectively allowing the viewer to skip through commercials without seeing any portion of the advertisement or having to search for the return to programming. Clearly this feature will greatly reduce the effectiveness of television advertising, and could potentially eliminate traditional advertising entirely. Nevertheless, television advertising is currently a $53B market in the US today and will not be eliminated overnight. A variety of advertising techniques are likely to be used based both on traditional 30-second spots as well as on novel advertising methodologies that will deliver the message to the viewer even though they have the ability to quickly skip through advertisements.

[**0102**] The manual recording features on a PVR are similar to those on a VCR, but PVRs also include advanced features such as the ability to check for schedule conflict and to set recording quality, priority, and expiration (the point in time at which the program is deleted from storage).

[**0103**] Program guides, often referred to as Electronic or Interactive Program Guides (EPGs/IPGs), will generally be available on PVRs and are a key feature in that they allow the user to find programs that they wish to watch or record, as well as providing ancillary information about the programs. The program guide information can also include metadata about the programs that enables the autonomous recording of programs based on a user profile.

[**0104**] Automatic program guide based recording can be used to record or repeatedly record a program. Some PVRs provide for intelligent recording in that they will automatically record programs based on a user having recorded or watched that program previously. Some systems also attempt to "learn" what the user likes to watch and will record those programs as well as similar programming. An example of a system which learns user preferences for future recording is described in World Intellectual Property Organization (WIPO) publication WO 99/65237 entitled "Television programming recording with user preference determination," published on Dec. 16, 1999.

[**0105**] The PVR may be a standalone unit or may be integrated into a cable or satellite set-top box (STB). A variety of output formats can be supported including analog S-video and composite video formats. Digital outputs may be supported (e.g. IEEE 1394 which is herein incorporated by reference) and the PVR may form part of an in-home network or distributed media storage and playback network. Applicants' co-pending provisional applications previously identified by docket numbers T738-00 and T738-01 provide additional descriptions of PVR functionality

[**0106**] Residential PVR

[**0107**] **FIG. 3** illustrates an exemplary system overview of a PVR-enabled set-top box (STB PVR) or residential gateway (RG) that contains the basic functionality necessary to support upstream and downstream data transmission, digital television reception and presentation, and storage of digital

video programming. The system contains a tuner/demod **304** that provides for the reception of programming and data. In some systems (such as cable systems) multiple demodulators may be used to provide simultaneous delivery of digital video/audio (MPEG) and Internet Protocol (IP) data. An MPEG demultiplexer **306** selects (filters) a single program from a multiple program stream. The MPEG demultiplexer **306** may contain a transport stream demultiplexer, Program Identifier (PID) filters, and a conditional access system. A data tagging unit **308** adds metadata descriptors to video to be recorded. The metadata is used by the PVR to identify and characterize programs. A write buffer **310** buffers video to accommodate disk access.

[**0108**] An upstream transporter **302** prepares data including the steps of packetizing, error protection, and other transport related functions. An upstream modulator **300** performs modulation and serves as the access protocol manager. As with most set-tops or televisions, a remote control **311** works in conjunction with a remote control demodulator **312** to allow remote control and programming of the PVR unit. A processor **320** runs middleware, PVR control software, and targeted advertising software. An actual implementation may use more than a single processor. As an example, one processor may be used to manage the core hardware resources, while a second processor may be used to handle middleware and PVR operations.

[**0109**] Random Access Memory (RAM) **314** and flash memory **316** are connected to processor **320** via a processor bus **318**. Storage of programming is provided using a disk drive **336** although other types of high-capacity non-volatile memories may be used including memory sticks, write-read optical memories, or other magnetic, electronic, optical, magneto-optical, electro-optical or acousto-optical storage systems. The disk drive **336** is connected to the write buffer **310**, processor **320**, and a read buffer **332** through a system bus **334**. The read buffer **332** buffers video to accommodate disk access. A tag extraction system **330** extracts metadata descriptors from recorded video. An audio/video decoder **328** decodes digital video and audio, examples of which are MPEG video and MPEG/AC-3 audio. The video D/A **324** and audio D/A **326** convert video and audio signals respectively to analog signals that can be sent directly to S-video or RGB inputs on a television or to an RF modulator **322** which can modulate the signals onto an appropriate TV channel.

[**0110**] As previously discussed, the PVR may be connected to a variety of networks including a cable network which supports one or more digital video and/or data protocols including any of the Motion Picture Expert Group (MPEG) video standards and the Data Over Cable Interface Specification (DOCSIS) protocol. The PVR may alternatively receive signals from a satellite and can potentially be connected to the Internet (for return signals) via a telephone line or other network connection. In the satellite embodiment, the PVR can receive advertisements from the satellite network or potentially over the telephone line or other network connection. The telephone line or other network connection can be utilized to report back viewing statistics and ad viewing information. In another embodiment, signals are sent back through the satellite or via a land based wireless connection.

[**0111**] In a DSL embodiment, the PVR is connected to a telephone line which supplies video signals and which can simultaneously serve as a data network for two-way communication with the PVR. For Internet based video, the PVR can be connected over a variety of network types and can receive streaming media broadcasts. The signals may be unicast or multicast and can be delivered from a centralized server, a distributed server system, or via an edge network. PVRs can also be used with broadcast (over-the-air) networks and microwave "wireless cable" systems. When used in conjunction with these delivery systems, an appropriate return path (either telephone, cable or other network connection) can be used to provide two-way capability to the PVR.

[**0112**] Video on Demand (VoD)

[**0113**] The ability to provide video programming to the consumer at the exact time that they desire that programming is known as Video on Demand (VoD). A VoD system allows a subscriber to retrieve a movie at any time. A true VoD system also includes the ability to pause the movie, fast forward through the movie, rewind, or stop at any point in the programming.

[**0114**] **FIG. 4** illustrates an exemplary VoD system that includes remote video servers **400** that store video; an archive **402** that stores items such as infrequently viewed movies; a backbone network **410** that is used for the distribution of digital video from the remote video servers **400** to a switching office **420**; a subscriber network **430** which connects the switching office **420** (more precisely head-end **428** within the switching office **420**) to set-tops **440**.

[**0115**] Within the switching office **420** various components are used to provide the VoD service including video servers **422**, a switch **424**, a video dial tone gateway **426** and the head-end system **428**. The video servers **422** provide "local" or "edge" storage capability that allows video that is accessed more frequently to be stored closer to the subscriber than across the network on the remote video server **400** or archive **402**. The switch **424** is used to direct traffic to the video dial tone gateway **426** that provides a subscriber interface as well as providing Operational Support Systems (OSS) and Traffic & Billing (T&B) functions. In operation, the video dial tone gateway **426** can present the subscriber with a menu for services which can guide the subscriber through the sources for video (content providers) and present the pricing information if the video is being sold on a per-unit basis (as opposed to a subscription service). The video dial tone gateway **426** thus insures that the subscriber can select the appropriate video content, that the content is accessed from the correct video server **400**, **422** or the archive **402**, that the head-end **428** and the set-top **440** are appropriately configured to transmit and receive the content respectively, and that billing records are created. Although the OSS and T&B systems are not illustrated in **FIG. 4**, they can be incorporated into the video dial tone gateway **426** or may be a separate systems located in the switching office **420** or elsewhere in the network.

[**0116**] The head-end system **428** represents the set of equipment that is needed to deliver the advertisement over the specific delivery platform in the subscriber network **430**. The subscriber network **430** may be a cable system based on Hybrid Fiber Coaxial (HFC) technology, a DSL network, or a land or satellite based wireless network. In the case of an HFC network, the head-end system **428** will typically multiplex a number of VoD streams together and modulate the

multiplexed stream onto one or more Quadrature Amplitude Modulated (QAM) channels. For a HFC network, there will typically also be a return channel that may consist of a DOCSIS based modem in the set-top and corresponding Cable Modem Termination System (CMTS) in the head-end **428**. The return channel transports requests and commands from the set-tops **440** to the head-end system **428**. Alternative downstream modulation formats and return paths can be utilized.

[**0117**] In the case of a telephone type network based on DSL technology, the head-end system **428** can consist of a terminal such as a Broadband Digital Terminal (BDT) or Host Digital Terminal (HDT) which receives video signals and prepares them for transmission to field located distribution equipment in the subscriber network **430**. The transmission is typically via a fiber optic connection and is done in stages in which the fiber carries a signal from the switching office **420** to a terminal located in the field such as a Universal Access Multiplexer (USAM) or Digital Subscriber Line Access Multiplexer (DSLAM). From this point in the network the signals can be transported to the set-top **440** over twisted wire pairs using one of the DSL transmission technologies. Alternatively, the equipment in the network may be fiber optic based such that the transport to the home is entirely over a fiber optic connection, thus forming a Passive Optical Network (PON) or all optical Fiber to the Home (FTTH) network.

[**0118**] A distinction between the HFC network and the networks used by telephone service providers is that in the HFC network the bandwidth is typically shared between all of the subscribers on a cable node, whereas in a DSL network each subscriber has an individual connection with a pre-determined amount of bandwidth. This has an impact on the design and implementation of the head-end system **428**, but should not affect the VoD functionality presented to the subscriber.

[**0119**] Satellite and land based wireless VoD systems will have head-end systems **428** which are yet distinct from cable and telephone network head-ends. Satellite systems can utilize a variety of return paths including satellite uplink, telephone line, Internet, or cable based. Both use sharing of the bandwidth on the downstream, with the satellite system extensively sharing bandwidth across the footprint of the satellite system. The VoD system can also be based on Internet Protocol (IP) and can use streaming media techniques, including unicast and multicast, to deliver the video across the backbone and subscriber networks (**410** and **430** respectively) and to the set-top **440**. Using the IP protocol allows for flexible delivery of the video, independent of the transmission technology in the subscriber network **430**. The IP protocol will also provide for the ability to easily transport and store video within the home, thus supporting in-home networking and incorporation of the subscriber set-top **440** or personal computer into the VoD network.

[**0120**] The VoD system illustrated in **FIG. 4** can be used to deliver video in various types of "on demand" formats including Quasi Video-on-Demand (QVoD) in which users are grouped based on a threshold of interest, and in which users can perform basic temporal control by switching to a different group. The system can also support Near Video-on-Demand (NVoD) in which functions like forward and reverse are simulated by transitions in discrete time intervals (e.g. 5 minutes). One mechanism for achieving this is to provide multiple versions of programming with small time skews between the versions. In true VoD services, the user has complete control over the session presentation including full-function digital VCR capabilities: play (forward and reverse), pause, fast-forward, rewind, and random position.

[**0121**] Head-end based PVR or Personal Video Channel

[**0122**] A head-end based PVR, also known as the Personal Video Channel (PVC), is an implementation of the PVR in which the storage function is performed outside of the subscriber residence. The PVC implementation makes use of the storage inherent to the VoD system to form and manage the PVR. One advantage of the PVC implementation is that the STB needs less functionality (i.e., no storage) and thus has a lower cost. One of the drawbacks of the PVC is that when the penetration of the PVC service reaches a certain point the cost of bandwidth to deliver the stored programming exceeds the cost to have individualized (residential) PVRs.

[**0123**] **FIG. 5** illustrates an exemplary implementation of a HE PVR. In this embodiment, the video dial tone gateway **426** of **FIG. 4** is replaced by a personal video channel manager **500**. The personal video channel manager **500** provides the PVR functionality to subscribers by managing their stored programs and accessing the stored programming on command, just as in a VoD system. The principal distinction between the VoD system and the PVC is that in the PVC recording is enabled so that users can request that a particular program be stored. In the event that the programming is a live event and therefore not presently stored, the personal video channel manager **500** insures that the programming is recorded on video server **422** or on another storage unit. If more than one user requests that a program be recorded, personal video channel manager **500** notes that the program has already been recorded and can prevent additional copies from being made.

[**0124**] Advertising opportunities on PVRs

[**0125**] From an advertiser's perspective, the PVR offers a tremendous range of possibilities for directing advertisements, both of the traditional 30 second type as well as various types of virtual advertisements and overlays, as will be described herein. The digital storage medium can store a large number of advertisements in addition to the recorded programming. The basic functionality of the PVR will allow for the insertion and splicing of these ads into playback material. The ads stored in the PVR will be ads determined to be relevant to the household (and individuals within the household). The ads may be filtered prior to being received by the PVR or the PVR may itself act as the filtering mechanism.

[**0126**] The PVR may have the ability to profile viewers and identify which viewer (or group of viewers) is interacting with the TV. Based on the viewer profiles and/or viewer identification, the PVR can deliver specific (targeted) advertisements. The ability to profile viewers and to identify viewers in a household based on their viewing characteristics is described in Applicants' co-pending patent applications that have previously been identified by docket numbers T702-00, T702-00PCT, T702-02, T702-03, T702-04, T703-00, T705-01, T705-01PCT, and T505-02. The targeted ads may either be spliced into a live or prerecorded program,

overlaid on a program, inserted into programming, or through other means that would be obvious to one of ordinary skill in the art.

[0127] The PVR can also report back viewing statistics and provide the advertiser information with respect to the effectiveness of the advertising (i.e., how many viewers are watching the ads and to what degree of completion). The advertiser can use the PVR to achieve one-to-one marketing capability by insuring that the right ads are delivered to and ultimately displayed to the right viewers. Although it is technically possible to learn about each viewer individually, privacy concerns and the well-established mass advertising techniques used by major advertisers are likely to result in a migration to one-to-one advertising on PVRs through the formation of market segments. In forming market segments advertisers specify characteristics of the viewers they want to reach. Although some of these characteristics may be related to viewing habits, it will ultimately be possible to generate a list of viewers (e.g. viewers coming off lease of a certain type or brand of vehicle in the next 6 months), have those viewers placed in a specific market segment, and deliver the ad to those viewers for subsequent display. To protect privacy the advertiser may not be provided with any user identifiable information, and in some cases will only know the number of individuals or households in the designated market segment. It is therefore possible to create very specific market segments without revealing personal information.

[0128] As previously mentioned, one potentially powerful way to advertise and direct advertisements on PVRs is through the substitution of (or manipulation of) traditional video advertisements (i.e., 30 second ad that appears in broadcast programming, ads that are pre-pended or post-pended in VoD programming). The PVR can substitute ads during live programming (play or recording of) or when pre-recorded programming is being played back. Another opportunity for advertising on PVRs is through the program guides. The program guides provide graphical information regarding current and upcoming programming. Modem program guides (typically referred to as Interactive Program Guides or IPGs) have incorporated graphical advertising as part of the program guide. The ads that can be placed in the advertising portion of the IPG include static advertisements inserted in the IPG, video clips and streaming media played through the IPG, and combinations of static ads and video clips displayed in the IPG. Another advertising opportunity on the PVR is the display of ads when channel changes (can be considered a trick play event) are made or while information is being retrieved from the local hard drive or other server. In this embodiment the channel change or pause can be considered to be trick play events. Applicants' co-pending patent applications previously identified by docket numbers T723-00, T727-00, T727-10, T728-10, and T730-10 describe targeting advertisements in IPGs, recorded programming and during channel changes.

[0129] PVRs may also utilize virtual ads (a variety of ways to advertise products within the programming itself) as an additional advertising opportunity. Virtual ads include the superpositioning of an advertisement on a billboard, or substitution of one product label for another in the programming (also referred to as product placement). For example, an actor or actress may be holding a soda (e.g. Pepsi) in a scene of a show and the original Pepsi label can be replaced with a Coca-Cola label. Techniques for performing virtual ad insertion including background overlays and product placement are well known to those skilled in the art and are described in U.S. Pat. Nos. 5,543,856; 5,627,915; 5,808,695; 5,892,554; 5,593,076; 6,100,925; and 6,184,937 all of which are herein incorporated by reference. Other types of virtual ads include graphical overlays and "bugs" similar to the network promo graphics which are superimposed on programming today. Applicants' co-pending applications previously identified by docket numbers T738-00 and T738-01 describe the use or virtual ads in more detail.

[0130] Stored ads offer the possibility of presenting ads to subscribers "on demand" such that the subscriber is presented with the option to view one or more ads and chooses to do so. These ads are stored on the recording medium and retrieved when the user requests the ad, either through a direct selection on a menu, or by indicating interest by clicking on an object in the programming or presented in a static ad. Stored ads and infomercials can be organized and presented by subject matter, and can be targeted to a household based on the preferences and demographics of the household. Stored ads let viewers browse ads which they have determined have a high entertainment value. In addition, a payment/incentive system can be created to encourage viewers to watch ads. One advantage of stored ads is that the ads/themes/products which are of interested to the household can be easily identified by monitoring which ads they select and how many times they select them. Applicants' co-pending application previously identified by docket number T740-00 describes the selection of ads in more detail.

[0131] Interactive ads can also be utilized to deliver advertising to subscribers. In the interactive ads a user may be prompted to indicate which ad he/she wants to watch and then may asked to interact with that ad. The advantage of interactive advertisements is that the user is participating in the advertisement, which is likely to have a significant and positive impact on recall. The interactive ad can also supply a vast amount of information to the viewer. In one embodiment, hyperlinks are presented in the ads which allow the user to access information from the Internet or stored on the hard drive.

[0132] As can be readily understood, having storage capability as part of the STB or in a VoD/PVC system allows for tremendous flexibility in the delivery of advertising. Although the fast-forward feature may limit the value of traditional advertising, many new delivery mechanisms for advertising are being envisioned.

[0133] Ad queues and ad queue management

[0134] Because of the potential for delivering a variety of types of ads and the desire to target those ads, new management systems are required for advertising on PVRs. Ad queues form part of this ad management system and allow for the organization and presentation of different ads to different market segments and different subscribers. Ad queues can be best understood in the context of a client side set-top box targeting system **600** such as that illustrated in **FIG. 6A**. The client side STB ad targeting system **600** is a software application that may be integrated into a PVR-enabled set-top box (STB PVR). The middleware package or the underlying operating system (OS) provides communication between the client side STB ad targeting system **600**

and other components in the STB. The targeted advertising features of the client side STB ad targeting system **600** permit the device to analyze viewer behavior (shows watched, channel surfing habits, commercial watching, etc.), infer viewer profiles (demographic, psychographic, and behavioral attributes), select and present advertisements based on user profiles derived from one or more of the following: a demographic database, volunteered information, profiles, or an autonomous agent.

[**0135**] A cue message decoder **604** provides the functionality for decoding cue messages. Cue messages are embedded in network video feeds. They indicate the presence of advertisement opportunities ("avails") for the insertion of advertisements. For digital-into-digital ad insertion systems, the cue messaging may be based on the SCTE DVS-253 standard which is herein incorporated by reference in its entirety.

[**0136**] A metadata decoder **608** delivers all received metadata to the client side STB ad targeting system **600**. The Metadata system may be based on the TV-Anytime Forum and MPEG-7 Metadata specifications. Metadata is data that is associated with a particular section of content that describes that content. Metadata includes descriptive items such as title, genre, cast, production company and production crew, language and other program related information. Metadata may also include the content's typical or intended demographic and psychographic groups.

[**0137**] An MPEG video switch **612** provides the functionality to seamlessly splice MPEG video/audio sequences. This function allows for clean insertion of ads. Splicing of MPEG video/audio sequences is well known to those skilled in the art.

[**0138**] A digital rights management **616** component deals with the protection of the programming and advertisements to ensure that the content provider's copyright is adequately protected. This protection can include assurances that no unauthorized copies are made.

[**0139**] A video storage **620** component is used to store all video/audio programs on the set-top box, including ads (commercials). The video storage **620** may be implemented using a mass storage device, such as a hard disk drive. Ad queues are used as part of or in conjunction with the video storage **620** to provide proper sequencing of ads. A data storage **624** component is used to store program metadata, profiles, and other data. Some part of the data storage **624** component may be non-volatile (survives power loss).

[**0140**] A user interface **628**, typically implemented through on-screen graphics and a remote control or remote keyboard, facilitates all of the control and interactions with the television viewer. Some of the interactions will be used by the client side STB ad targeting system **600** to help build the viewer profiles necessary to do individual ad targeting.

[**0141**] An upstream data transport **632** provides the service for sending data to the head-end system. The upstream data transport **632** works in conjunction with the hardware to send signals upstream over cable, twisted wire pair, wireless, fiber, or other connection.

[**0142**] **FIG. 6B** illustrates a single ad queue **650** for multiple market segments/subscribers. The ad queue **650** is a data structure which provides organization to the ads that are to be played. Although the ads referred to here are video ads, the ads may be of any type (virtual ads, IPG ads) or a combination of various types of ads. The ad queue **650** contains pointers, or Ad Resource Locators (ARLs), that indicate which ad is to be played. The ARL can be in the form of a file name or may be an actual address on a hard drive. The ARL can point to a locally stored ad or a remotely stored ad. The ad queue **650** can be local within the STB or can be at the head-end. As illustrated, the ad queue **650** contains a number of ARLs including a first ARL **661** indicating that a Ford Taurus ad is to be played, a second ARL **663** pointing to a Burger King ad, a third ARL **665** pointing to a Toys-R-Us ad, and a fourth ARL **667** pointing to an Eagles advertisement.

[**0143**] A mechanism to target ads is to form market segments into which groups of ads are placed. As illustrated, the first ARL **661** can be grouped with the fourth ARL **607** to form a first market segment **660**. This first market segment may be for a large group or may be directed at a single subscriber in the household. A second market segment **670** can be formed to include the second ARL **663** and the third ARL **665**.

[**0144**] **FIG. 6C** illustrates an alternate embodiment in which separate ad queues are utilized to store the names or addresses of the ads which are to be presented to the market segments or subscribers. A first ad queue **680** stores the ads associated with the first market segment **660** and a second ad queue **690** stores the ads that are associated with the second market segment **670**.

[**0145**] Although described in terms of advertisements, the ad queues can be used to direct trick play ads which can be targeted using all of the techniques developed for regular or virtual advertisements. Additionally, different versions of trick play ads can be generated such that when a first subscriber fast-forwards through an advertisement they get a different trick play ad than a second subscriber which fast-forwards through an advertisement.

[**0146**] **FIG. 7** illustrates an exemplary context diagram of a server side ad management system (AMS) **700**. The server side AMS **700** contains a platform that manages the sales and distribution of television advertisements in the cable television, DSL, or satellite environments. The server side AMS **700** gives advertisers the ability to describe their advertisements in terms of target market demographics, required ad bandwidth, ad duration, and other ad specific parameters. The server side AMS **700** matches the ads to the advertising opportunities that occur in the package of programming either delivered to subscribers in real time or stored on the subscriber's PVR hard disk drive. In addition, the system will work with prepend/postpend ad opportunities in a VoD environment. The server side AMS **700** tracks avails including duration and bandwidth of the avail, and uses a number of algorithms to determine if the ad can be placed in the avail.

[**0147**] The targeted advertising features of the server side AMS **700** support and manage all of the head-end/CO activities required to facilitate the targeting of television adverting on PVR-enabled set-top boxes (STB PVRs). The functionality of the server side AMS **700** includes market segmentation, geodemographic database management, viewing statistics collection, profile aggregation, ad server content and distribution management, content metadata

management, STB software management, interface to traffic and billing systems, and support of the ad sales process.

[0148] A geographic database **704** describes the subscriber area based on map information and other geographic sources. This information is used to create maps of the subscriber area indicating market segmentation. A demographic database **708** describes the basic demographic characteristics of the neighborhoods within the subscriber area. This information is used by the server side AMS **700** to establish baseline market segments for ad targeting. A subscriber database **736** includes identification, location, and services for each subscriber served. A traffic and billing system **712** is used by the service operator to provide support for the ad insertion process. The traffic and billing system **712** manages customer contracts and schedules, manages media and controls ad insertion equipment, reconciles verification lists from ad insertion equipment, creates affidavits and invoices, and helps ad sales staff with analysis and sales projections. An ad server **716** stores and distributes all of the advertisements for a particular set of subscribers. An ad sales/media buyer **720** includes the provider's ad sales professionals, the advertisers, their ad agencies, and media planners/buyers. All of these people use the server side AMS **700** to plan and implement a targeted advertising campaign.

[0149] An STB profile data **732** may come from the profiling engine within the STB and is used by the server side AMS **700** to refine the ad targeting strategy and market segmentation. A STB download server **728** is responsible for maintaining the software for the STBs. A STB verification data **724** may come from the STB ad queue system and is used to verify that a particular ad was presented to a particular viewer. Applicants' co-pending patent applications previously identified by docket number T708-01 and T708-01PCT describe the AMS in more detail.

[0150] **FIG. 8** illustrates an exemplary block diagram for the client side STB ad targeting system **600** of **FIG. 6**. A communications module **804** handles the interactions with the server side ad management system **700**, uploading and downloading data as required for system operation. An ad insertion module **812** handles the processes necessary to incorporate targeted ads into television programs, including programs received in real-time or being played from the set-top box's hard disk. The ads may be inserted into the program material at indicated points or "avails" (through cue messages), or inserted before (pre-pended) or after (post-pended) a program. A profiling module **816** analyzes user actions and habits and infers demographic, psychographic, and behavioral characteristics of the viewing household and individual viewers. A maintenance module **808** handles all maintenance of the ad queue and program table. A database module **800** stores information essential to the operation of the ad queuing and profiling system including viewer signatures, ad and program information (metadata), and possibly the ads themselves. A database access module **824** manages all access to the set-top database. The database access module **824** coordinates file system issues, multiple simultaneous requests, etc.

[0151] The user interface module **628** receives input from the remote control keypad or keyboard associated with the set-top box, selects appropriate events, and directs these events to the proper destinations within the ad queuing system.

[0152] **FIG. 9** illustrates an exemplary block diagram of the server side ad management system **700** of **FIG. 7**. A web server **916** provides the front end to the ad sales/media buyer interface. The use of a web server **916** for this application allows access to anyone with an appropriate web browser and access to the Internet **936**. A screen automation module **920** encapsulates the logic behind each of the presentation screens for the ad sales/media buyer interface and manages all of the communication between the web-based interface and the underlying database and processing engines. The UI module **628** renders web pages based on stored configuration data and the output of the screen automation module **920**. A mapping module **908** creates geographic maps of selected subscriber areas including demographic boundary identification and market segment assignments. A subscriber segmentation module **924** uses demographic, geographic, and subscriber data to form groups of subscribers that fall into predefined market segments. These groups may be bounded by cable node or cluster boundaries.

[0153] A rating and pricing module **928** estimates the effective rating for a particular targeted ad campaign and creates pricing information based on this rating and the provider's basic pricing structure. An ad management database **900** stores all of the subscriber, demographic, market segment, validation, and other data required for the server side ad management system **700**. A database access module **904** manages all access to the ad management database **900**. The database access module **904** forms appropriate queries based on requests from other system services and coordinates multiple simultaneous requests. An external system interface module **932** provides a single point of connection between the server side ad management system **700** and third party systems such as Traffic and Billing, and geodemographic service providers.

[0154] **FIG. 10** illustrates an exemplary data flow in a STB PVR (PVR enabled set-top box) for delivering targeted advertising. The STB differentiates individual viewing habits, characterizes the current viewer based on current and historical viewing information, and selects advertising appropriate for the current viewer based on the characterization. Ads **1002** are received by the STB PVR from a downstream ad feed **1000** for storage and subsequent presentation to the viewer. Control data related to ads (ad metadata) **1006** is received by the STB PVR from a downstream control feed **1004**. The control data **1006** includes descriptions of the ad content, target audience, encoding attributes, delivery instructions, and contract limitations. The control data can be created by a number of parties including the ad producer, advertiser, media buyer, network operator, and broadband service provider. The set-top box can supplement this control data by adding presentation history and user interaction data.

[0155] The ads **1002** are filtered **1008** and the filtered ads **1012** are stored in an ad database **1014**. The ad database **1014** resides in a large capacity long-term storage device, such as a hard disk. The control data **1006** is processed **1010** to generate ad queue structures **1016** that are stored in an ad queue database **1018**. The ad queue database **1040** also stores the ad metadata **1006** received from the downstream control feed **1004**. The ad queue database **1040** resides in long-term memory, such as a hard disk or flash memory. The system establishes a link that associates the ad metadata with

the related advertisements (illustrated as lines between filtering **1008** and processing **1010**).

[**0156**] The filtering **1008** determines whether an ad **1002** received from the downstream ad feed **1000** is appropriate for the household by comparing the target audience specified in the ad metadata **1006** with the viewer profiles from a profile database **1046**. Ads that are not appropriate for viewers in this household will be discarded. The ad metadata **1006** will either be saved or discarded, depending upon whether the ad was saved or discarded. The processing **1010** manages the ad database **1014** and ad queue database **1018** by examining the contract limits from the ad metadata **1006** to determine when to purge ads and ad metadata from the associated databases. Additionally, the processing component **10101** updates the ad metadata **1006** based on ad delivery and user interaction.

[**0157**] A downstream data feed **1020** delivers television program/content metadata **1022**. This data **1022** includes the program content, language information, ratings, encoding attributes, networks and air times, delivery requirements, and pricing. The program metadata **1022** can be created by a number of parties including the program producer, media company, network operator, and broadband service provider. The set-top box can supplement this program metadata **1022** by adding presentation history and user interaction data.

[**0158**] The metadata **1022** is filtered and prepared **1024** and the prepared metadata **1026** is stored in metadata storage **1028**. The filtering and preparing component **1024** makes a determination as to whether to store the program metadata based on the program air times, network services available by the household, and current system time. The metadata storage database **1028** stores program metadata received from the downstream data feed **1020**. The metadata storage database **1028** resides in long-term memory, such as a hard disk or flash memory.

[**0159**] Note that the downstream data feed **1020**, the filter and prepare metadata component **1024**, and metadata storage **1028** can be replaced by an interface to an electronic program guide/interactive program guide (EPG/IPG) if the EPG/IPG allows access to the program metadata.

[**0160**] The user interface **628** supplies user events **1030** based on viewer interaction with the remote control and the front panel of the set-top box. These events **1030** include channel changes, volume changes, and VCR-like controls of the PVR. The filter events component **1032** examines the incoming event types and discards events not related to viewer profiling. Filtered events **1034** are time stamped based on the time that the event occurred and stored in an event queue **1036**. The event queue **1036** stores the time stamped events **1034** in a sorted list. The event queue **1036** stores data from both the user interface **628** and a create/update profile component **1038**.

[**0161**] The create/update profile component **1038** uses events from the user interface **628**, program metadata from metadata storage **1028**, and existing viewer profiles from a profile database **1046** to detect new viewing habits and characterize the current viewer. The create/update profile component **1040** generates internal events that are stored in the event queue **1032** along with the user interface events. These events indicate special future processing conditions such as the end of a program or change in day part. This component also performs maintenance on the profiles by combining similar profiles and deleting outdated profiles.

[**0162**] The profile database **1048** stores viewer profiles. New profiles are the result of a single viewing session. The create/update profile component **1052** can update a profile with additional viewing information. As a profile accumulates historical viewership data, it becomes a more accurate representation of the viewer. The predominant viewer profiles will accumulate the largest amount of viewing history. When determining whether to save ads in an ad database of limited size, those viewer profiles with the most viewing time will receive the most storage capacity for targeted ads.

[**0163**] When an ad insertion opportunity arises, the set-top box determines whether the current session profile matches any of the historical profiles in the profile database. If a match exists, the match will be used for selecting an appropriate advertisement. Otherwise, the set-top box uses the current session profile to select an appropriate advertisement. After presenting the ad to the viewer, the system updates the ad metadata and transmits an insertion report to the head-end.

[**0164**] **FIG. 11** illustrates an exemplary data flow in an ad management system designed to deliver targeted advertisements to a PVR-enabled set-top box. This system includes different head-end servers that are used to segment the subscribers, deliver content and metadata to the set-top boxes, collect ad insertion results, and collect privacy protected summary data about the subscriber viewing habits. A remote manager **1100** provides a dynamic method of updating software and data files on the set-top box, including updating the viewer profiling and ad targeting applications. The remote manager **1100** delivers software updates **1102** that include application enhancements, defect corrections, and data file changes. The software updates are processed **1104** and the processed SW updates **1106** are stored in a storage device (SW storage) **1108**. The processing **1104** includes accepting new software builds and the associated data files and determining the updates that need to be delivered to each group of set-top boxes based on network service requirements for that franchise and software build information. The updated software and support data files **1106** are maintained on the storage device until it is time to deliver them to the set-top boxes. The software updates **1106** are delivered in accordance with a schedule **1110**. The schedule **1110** plans delivery of the updated software **1106** for periods of low television viewership. The software updates **1106** are sent to an STB data server **1112**, which transmits the files to the appropriate set-top boxes.

[**0165**] An IPG Server **1114** delivers interactive program guide information in the form of program metadata **1116**. A broadcast conduit **1118** receives program metadata from broadcasters and content providers and deliver the program metadata **1120**. The program metadata (from both sources) **1116**, **1120** is collected and processed **1122**. The processing **1122** includes combining the program metadata from the different sources **1116**, **1120** and formatting it for delivery to the set-top boxes. The program metadata **1116**, **1120** includes program content, language information, ratings, encoding attributes, networks and air times, delivery requirements, and pricing. The formatted program metadata **1124** is sent to the STB data server **1112**, which transmits it to the appropriate set-top boxes.

[0166] The demographic database **708** contains demographic data **1126** sorted by geographic region. The primary categories of demographic data **1126** include household income, household size, race/ethnicity, and occupation. In order to maintain the subscriber privacy, the database typically maintains data at either a zip+4 or block group level. The subscriber database **736** contains information about the service provider's subscribers **1128**. For each subscriber, the database **736** must contain the node on which the household resides and the key to obtain demographic data for that subscriber. The database **736** does not need to maintain privacy related information such as the subscriber name and address. The geographic database **704** maintains detailed maps of the service provider region **1130**. The system uses the geographic database **704** to help visualize the market segmentation of the service provider's region of coverage. Data from the demographic database **708**, the subscriber database **736**, and the geographic database **704** are combined in order to create **1132** market segments for each subscriber (i.e., segmented subscriber data **1134**). The segmented subscriber data **1134** is stored in a market segment database **1136**.

[0167] The ad sales application **720** assists the sales force in selling targeted spots to advertisers. The sales force identifies subscribers **1138** that it is interested in targeting ads to and creates **1140** DB queries **1142**. The DB queries **1142** are applied to the market segment database **1136**. The results of the queries (subscriber market segmentation data **1143**) are used for computing tables and rendering maps **1144**. The results of the computation (market segment aids **1146**) are displayed to the advertiser (sales force) using the ad sales application **720**. The market segment aids include display of market segment definitions, color coded market segment maps of the service provider coverage area, and ratings and pricing for targeted advertising based on network, spot time, and advertisement.

[0168] The STB Data Server **1112** generates viewer profiles **1146** based on historical data of television viewing habits (collected metadata). Although the raw data is not exported, the set-top box can summarize the data and transmit it upstream where it is processed and aggregated **1148** with similar information from other STBs. The process aggregates similar profiles to create a privacy-protected view of the households by region **1150**. The ad sales application **720** uses this data **1150** to help determine the target audience of advertisements.

[0169] The traffic and billing system **712** manages the advertising campaign and controls advertising campaigns for broadcast systems, personal video recorders, and video on demand. The sales force enters requirements for viewership ratings, frequency of viewership by the target audience, and flight information, which indicates the networks and times for displaying the advertisement (ad campaign data **1152**). Based on the defined ad campaign data **1152** and the market segment data **1143** from the market segment database **1136** an ad queue and schedule is created **1154**. Based on the ad schedule **1154**, ad download instructions **1156** are transmitted to the ad server **716**. The ad server **716** determines the availability of the ads (ad availability information **1158**) identified in the download instructions **1156**. The ad server **716** transmits available ads and ad metadata to set-top boxes based on the ad schedule **1154**. If the ads are displayed to the subscriber, the STB data server **1112** generates an ad play report **1160**. The ad availability information **1158** and the ad play reports **1160** are formatted **1162** to create reports/logs **1164** that are forwarded to the T&B system **712**. The traffic and billing system **712** bills the advertiser based on requirements satisfied during the campaign.

[0170] The T&B system **712** also allows the advertisers to create a VoD ad campaign **1166**. Based on the ad campaign **1166** a prepend/postpend ad schedule component **1168** is created. Based on the schedule **1168**, ad delivery instructions **1170** are transmitted to the VoD Server **1172**. The VoD Server **1172** stores content to support the video-on-demand service. The VoD Server **1172** uses the ad delivery instructions **1170** to schedule the ads for display at the beginning and end of VoD content. The traffic and billing system **712** tracks the insertion results and bills the advertiser based on the insertions and contract requirements.

[0171] Referring back to **FIG. 2**, the alternative advertisements **230**, **240** are displayed in place of or in conjunction with the fast forwarding, rewinding, skip or pausing advertisements **210**, **220**, when the subscriber fast forwards, rewinds, skips or pauses (trick play events) through the recorded advertisements **110**, **120**. As previously discussed, for ease and clarity fast forward will be focused on throughout this application. However, the invention is not limited thereto and in fact the current invention can be applied when any altering activity is performed on a recorded advertisement (trick-play events). In a preferred embodiment, the alternative advertisements **230**, **240** are related to the recorded advertisements **110**, **120** so that the advertisers are getting at least some value out of their advertisement even when the subscriber fast forwards through the advertisement. However, it is also possible that the alternative advertisements **230**, **240** are not related to the recorded advertisements **110**, **120**, and may actually be an advertisement for a different product or service. The alternative advertisements **230**, **240** may be a separate video (preferred for non-related advertisements) or may be derived from the video for the recorded advertisements **110**, **120**.

[0172] FIGS. **12**A-B illustrate several exemplary embodiments associated with the alternative advertisement being a separate video (and thus potentially an alternative advertisement unrelated to the advertisement). **FIG. 12A** illustrates an embodiment where a program source (video source) **1200** transmits a program stream (video stream) **1210** including programming **1220** and both an advertisement **1230** and an alternative advertisement **1240** (in a preferred embodiment a related alternative ad) to a PVR **1250**. The video source **1200** may be a satellite, a head-end, a networked video server, prerecorded video on a number of mediums, or other sources that would be well known to those of ordinary skill in the art. The PVR **1250** may be a HE PVR, a STB PVR, some combination of a HE/STB PVR, or some type of video source server (i.e., DVD). The video stream **1210** may be transmitted from the video source **1200** to the PVR **1250** using a video delivery system, such as those previously discussed.

[0173] In this embodiment, the advertisement **1230** and the alternative advertisement **1240** may be the same type (i.e., compressed digital video). For example, in a digital video environment, it is likely that the video would be compressed in accordance with a compression standard,

such as MPEG-2 (the Moving Picture Experts Group system). ISO/IEC 13818 is the current standard for digital video broadcast and digital video disk and this standard is herein incorporate by reference in its entirety. However, as one skilled in the art would recognize, there are other standards for video compression now known or later discovered that could be used that would be well within the scope of the current invention including, but not limited to, MPEG-4 (ISO/IEC 14496 is the standard for multimedia for the fixed and mobile web applications and is herein incorporated by reference in its entirety), Microsoft® Windows Media Video, RealNetworks® RealVideo and On2 Technologies VP4. Alternatively, the alternative advertisement **1240** may have a different format than the advertisement **1230**.

[**0174**] The PVR **1250** will display the advertisement **1230** to a subscriber **1260** if the video stream **1210** was either not recorded or if the advertisement **1230** within the video stream **1210** is played back at normal speed **1270**. If the video stream was recorded and the subscriber **1260** fast forwards **1280** (or any other trick-play event) the advertisement **1230**, the alternative advertisement **1240** will be displayed to the subscriber **1260**. Displaying the alternative advertisement **1240** may be in place of or in conjunction with the fast forwarding advertisement **1230**. In effect, the PVR **1250** is switching between the two different video advertisements (advertisement **1230** and alternative advertisement **1240**) that were received within the video stream **1210**.

[**0175**] As one skilled in the art knows, the audio associated with advertisements may be transported along with the advertisements or may be transmitted as a separate file from the advertisements. As illustrated, there is no separate audio for the advertisement **1230** or the alternative advertisement **1240** indicating that the audio was transported along with the appropriate advertisement (or that no audio is associated with the ads). However, it should be noted that there could be a separate audio stream (not illustrated) for each of the advertisements (ad **1230** and alternative ad **1240**) within the program stream **1210**. In either event, the PVR **1250** plays the audio associated with the selected advertisement (advertisement **1230** for play **1270** and alternative ad **1240** for fast forward **1280**). The playing of audio with the alternative ad advantageous. The alternative audio can be a sequence of musical notes or any other appropriate audio message such as the name of the manufacturer or a sound associated with the manufacturer or product. In an alternative embodiment, there is either no audio for the alternative ad **1240** or the audio is a generic audio (i.e., sound, tone, jingle).

[**0176**] It should be noted that the advertisement **1230** and the alternative advertisement **1240** may be default advertisements (everybody connected to that video delivery system receives the same advertisement) or they may be targeted advertisements. The advertisements may be targeted based on geodemographics (i.e., node or cluster of nodes), household (i.e., STB PVR), or individual (session based). The targeting of ads is described in applicants' co-pending applications that have previously been identified by the docket numbers T719-00, T734-10, T737-00, T741-10, and T741-10PCT. Depending on the criteria used to target the advertisements **1230** and alternative advertisements **1240**, it is possible for different nodes, households or subscribers **1260** to receive the same targeted advertisement **1230** but different targeted alterative advertisements **1240**.

[**0177**] According to one embodiment, the video stream **1210** may include multiple alternative advertisements **1240**, and the PVR **1250** determines which alternative advertisement **1240** to display to the subscriber **1260** based on which subscriber **1260** (individual subscriber or group of subscribers) the PVR **1250** determines is interacting with (i.e., viewing) the video stream **1210**. That is, the alternative advertisement **1240** is targeted to the subscriber **1260** (regardless of whether the advertisement **1230** was a default ad or was targeted). It should be noted that a system for determining who is likely to be viewing the programming may be incorporated into the PVR **1250**, may be a separate system that provides the results to the PVR **1250**, or some combination or iteration thereof. Applicant's co-pending applications previously identified by docket numbers T702-00, T702-00PCT, T702-02, T702-03, T702-04, T703-00, T705-01, T705-10PCT, and T734-10 describe in more detail systems for profiling subscribers based on their interactions with the TV, and possibly other data that can be gathered about the subscribers, and for identifying the subscribers by comparing current interactions to the generated profiles.

[**0178**] **FIG. 12B** illustrates an exemplary embodiment in which the alternative advertisement **1240** is not received within the video stream **1210** but is received separately. The alternative advertisement **1240** may be received from the same video source **1200**, a media buyer, directly from an advertiser, or from other external sources that would be known to those skilled in the art. The alternative advertisement **1240** may be delivered via the same video delivery network as the video stream **1210** (i.e., via an ad channel) or may be delivered via a different network, such as the Internet. The alternative advertisement **1240** may have a format similar (i.e., MPEG-2) to that of the advertisement **1230**, or it may have a separate format, such as HTML, streaming media, Flash, Shockwave, or other formats well known to those skilled in the art. As previously discussed, the advertisements **1230** and the alternative advertisements **1240** may be default ads or may be targeted ads.

[**0179**] The alternative advertisement **1240** may be delivered to the PVR **1250** in order to be received at the same time (or close proximity) to the advertisement **1230** or may be delivered at completely separate times, such as during off hours. In any event, the PVR **1250** needs to associate the alternative advertisement **1240** and the advertisement **1230** so that it can deliver the appropriate advertisement (advertisement **1230** or alternative advertisement **1240**) to the subscriber **1260** based on the mode (play **1270** or fast forward **1280**) of playback. According to one embodiment, the alternative advertisement **1240** received by and stored on the PVR **1250** may be nothing more than a URL address. If the subscriber **1260** fast forwards **1280** through the advertisement **1230**, the PVR **1250** will deliver the contents of the URL to the subscriber **1260**. Regardless of the format of the alternative advertisement **1240**, it may be displayed in place of the fast forwarding advertisement **1230** or in conjunction with the fast forwarding advertisement **1230**.

[**0180**] As illustrated, there is no separate audio for the advertisement **1230** or the alternative advertisement **1240** indicating that the audio was transported along with the appropriate advertisement. However, there could be a separate audio stream (not illustrated) for the advertisement **1230** within the program stream or for the alternative ad **1240** received separately. Moreover, the audio associated with the

ad **1230** could be received separately (not within the program stream). Furthermore, the audio associated with the alt ad **1240** (which is received separately) could be received within the program stream **1210**. In any event, the PVR **1250** either plays the audio associated with the selected advertisement (**1230** or **1240**), no audio or a standard audio.

[**0181**] According to one embodiment, multiple alternative advertisements **1240** are delivered to the PVR **1250** and stored thereon. Each of the alternative ads **1240** received by the PVR **1250** must be associated with the appropriate advertisement **1230**. The PVR **1250** determines which subscriber **1260** (individual or group) is viewing the video stream **1210** and displays the appropriate alternative advertisement **1240** (in place of or in conjunction with the fast forwarding advertisement **1230**) when the subscriber **1260** fast forwards **1280** through the recorded advertisement **1230**. As previously discussed, the determination of which subscriber is interacting with the TV (i.e., viewing the video stream **1210**) may be done by profiling the subscribers based on their interactions.

[**0182**] FIGS. **13**A-C illustrate several exemplary embodiments associated with an alternative advertisement **1300** being derived from the advertisement **1230** by utilizing processing rules **1310**. **FIG. 13A** illustrates an embodiment where the video source **1200** transmits the video stream **1210** including programming **1220** and both the advertisement **1230** (default or targeted) and the processing rules **1310** (i.e., data file) to the PVR **1250**. The processing rules **1310** will be described in more detail later. The PVR **1250** may include an alternative ad generator **1320** that generates the alternative ad **1300** by applying the processing rules **1310** to the advertisement **1230**. Based on whether the subscriber **1260** is fast forwarding **1280** through the advertisement **1230** or playing the advertisement **1230** at regular speed **1270** determines whether the alternative advertisement **1300** (either alone or in conjunction with the fast forwarding advertisement **1230**) or the advertisement **1230** is displayed to the subscriber **1260**.

[**0183**] The alternative ad generator **1320** may generate the alternative ad **1300** for each ad **1230** that is received, may generate the alternative ad **1300** for each ad **1230** that is recorded, or may generate the alternative ad **1300** on the fly for those ads **1230** that are being fast forwarded **1280** through. If the alternative ads **1300** are generated in advance of when they would be displayed (i.e., for each ad or for each recorded ad), the alternative ads **1300** would be stored within the PVR **1250** until they are required. The alternative ads **1300** could be purged as soon as they are played, after the corresponding ad **1230** is played and not recorded, at some predefined time interval (i.e., after a week), after the recorded ad **1230** was played, after the recorded ad **1230** is purged from the PVR **1250**, or other scenarios that would be obvious to those of ordinary skill in the art.

[**0184**] As illustrated, there is no separate audio or separate audio processing rules indicating that the audio was transported along with the advertisement **1230** and the processing rules **1310** covered both the video and the audio. However, as previously noted there could be a separate audio stream (not illustrated) for the advertisement **1230** within the program stream **1210**. Moreover, there could be a separate audio file associated with what will become the alternative advertisement **1300** within the program stream **1210** (with ad **1230** or as separate file). In fact, receiving a separate audio file for the alternative advertisement (regardless of how it is received) is preferred as manipulation of, for example, a 30 second audio track to produce a 2 second alternative audio track is not simple. In another embodiment, a second set of processing rules may be received for the audio. In any event, the PVR **1250** plays either the audio associated with the selected advertisement (**1230** or **1240**), a standard audio or no audio.

[**0185**] According to one embodiment, the processing rules **1310** may actually consist of multiple sets of processing rules **1310** with each set describing a different way to modify the advertisement **1230**. The alternative advertisement **1300** is created based on who the PVR **1250** determines is watching the video stream **1210** an applying the appropriate set of processing rules **1310**. That is, the alternative advertisement **1300** may be customized (targeted) to the subscriber **1260** (individual subscriber or group of subscribers) that is determined to be viewing the video stream **1210** (regardless of whether the advertisement **1230** was a default or was targeted). A system for determining who is likely to be viewing the TV (i.e., the video stream **1210**) has previously been discussed.

[**0186**] Multiple alternative advertisements **1300** may be made by applying each set of processing rules **1310** for each advertisement **1230** that is: recorded, played back, or fast forwarded during playback. Alternatively, only the set of processing rules **1310** associated with the appropriate subscriber **1260** are applied so that only targeted alternative advertisements **1300** are generated for the current subscriber **1260** when the associated advertisement **1230** is: recorded, played back, or fast forwarded during playback. In either event, if alternative advertisements **1300** are created prior to the fast forwarding event **1280** they will need to be stored on the PVR **1260** and then purged at the appropriate time (i.e., after a certain time, after playback, after ad **1230** is purged).

[**0187**] The different sets of processing rules **1310** are likely based on different viewing preferences of the subscriber **1260**. For example, processing rules **1310** for a subscriber **1260** whose viewing preferences indicate that they do not to like a lot of action in their program choices may be to simply select an individual image from the advertisement **1230** and display it for the length of the alternative advertisement **1300** (i.e., 2 seconds). Application of this processing rule **1310** would generate an alternative ad **1300** that was a still image. Alternatively, processing rules **1310** for a subscriber **1260** whose viewing preferences was quick changing action may be to select several images and display each of them for a certain time (i.e., four images each for a half-second for the two second alternative ad **1300**). Other processing rules **1310** may be to display a certain portion of the advertisement **1230** (i.e., first two seconds, last two seconds).

[**0188**] **FIG. 13B** illustrates an exemplary embodiment in which the processing rules **1310** are not received within the video stream **1210** but are received separately. The processing rules **1310** may be received from the same video source **1200**, a media buyer, directly from an advertiser, or from other external sources that would be known to those skilled in the art. The processing rules **1310** may be delivered via the same video delivery network as the video stream **1210** or may be delivered via a separate network, such as the

Internet. The processing rules **1310** may be delivered to the PVR **1250** in order to be received at the same time (or close proximity) to the advertisement **1230** or may be delivered at completely separate times, such as during off hours. In any event, the PVR **1250** needs to associate the processing rules **1310** and the advertisement **1230** so that it can generate the alternative advertisement **1300**. The alternative ads **1300** may be generated prior to a fast forward event **1280** and stored on the PVR **1250** or may be generated on the fly as the fast forward event **1280** occurs.

[**0189**] As illustrated, there is no separate audio or separate audio processing rules indicating they were included in the advertisement **1230** and the processing rules **1310** respectively. However, as previously noted there could be a separate audio stream (not illustrated) for the advertisement **1230** within the program stream **1210** or received separately. Moreover, in a preferred embodiment there could be a separate audio file (alternative audio) associated with what will become the alternative advertisement **1300**. The alternative audio could be received within the program stream **1210** (with ad **1230** or as separate file) or received separately (i.e., ad channel or Internet connection). In another embodiment, a second set of processing rules may be received for the audio. In any event, the PVR **1250** either plays the audio associated with the selected advertisement (**1230** or **1240**), no audio, or standard audio.

[**0190**] According to one embodiment, multiple sets of processing rules **1310** (each set describing a different way to modify the advertisement **1230**) are delivered to the PVR **1250** and stored thereon. Each set of processing rules **1310** received by the PVR **1250** must be associated with the appropriate advertisement **1230**. The PVR **1250** may generate multiple alternative ads **1300** based on the advertisement **1230** and the different sets of rules **1310**, or may only generate the alternative advertisement **1300** associated with the current subscriber **1260**. The alternative ads **1300** may be generated in advance (before the fast forward event) or on the fly (during the fast forward event).

[**0191**] **FIG. 13C** illustrates an exemplary embodiment in which processing rules **1330** are already stored on the PVR **1250** and are thus not related to the specific ads **1230**. The processing rules **1330** contained on the PVR **1250** may have been preloaded at time of purchase or installation, may have been created by the subscriber **1260**, may have been created by the network operator and loaded onto the PVR **1250** via the video delivery network or via a separate connection, such as the Internet. In this embodiment, there are no alternative advertisements **1240** or processing rules **1310** associated with the advertisements **1230** delivered to the PVR **1250** via any means. Rather the processing rules **1330** will be generic and the advertisements **1230** will have to somewhat follow a format associated with the processing rules **1330** so that alternative advertisements **1340** can be created by applying the processing rules **1330** to any advertisement **1230**.

[**0192**] As illustrated, there is no separate audio processing rules thus indicating the processing rules **1310** cover audio as well. However, there could be a second set of processing rules for the audio. As the processing rules stored on the PVR are likely generic, the audio would have to be formatted to work with the generic rules (for example, the processing rules may define using the first two seconds of audio so the first two seconds of the audio would have to be what the advertiser wanted played during an alternative ad). According to one embodiment, either no audio or standard audio is played during the alternative advertisement. In another embodiment, a separate audio file (alternative audio) associated with what will become the alternative advertisement **1340** is received. The alternative audio could be received within the program stream **1210** (with ad **1230** or as separate file) or received separately (i.e., ad channel or Internet connection).

[**0193**] According to one embodiment, multiple processing rules **1330** may exist on the PVR **1250**, with each processing rule **1330** being associated with one or more subscribers **1260** (individual or group) that may be viewing the video stream. The PVR **1250** may develop an alternative ad **1340** for each set of processing rules **1330** or simply for the processing rules **1330** associated with the current subscriber **1260**. The processing rules **1330** may be applied in advance and the alternative ad **1340** thus stored on the PVR **1250**, or may be generated as the recorded advertisement **1230** is fast forwarded **1280** (on the fly).

[**0194**] FIGS. **14**A-B illustrate several exemplary embodiments where advertisements **1410** (in a preferred embodiment targeted advertisements) and an ad queue **1420** are stored on the PVR **1250**. The video stream **1210** from the video server **1200** includes avails **1400** (either blank avails or avails with default ads available for replacement with targeted ads). The PVR **1250** inserts the ads **1410** in the avails **1400** based on the ad queue **1420**. The ad queue **1420** is a list of the next ads **1410** that should be inserted. The ad queue **1420** may vary based on what subscriber **1260** is interacting with the TV, what time of day it is, what day of the week, what programs are on, and other criteria that would be well within the scope of the current invention. Applicants co-pending applications previously identified by docket numbers T721-10, T721-18 and T721-19 describe ad queues in more detail.

[**0195**] It should be noted that the ad queue **1420** provides a pointer, which may be in the form of an ad resource locator (ARL), to the ads **1410** that are to be inserted. The ad queue **1420** points to the location of the ads **1410** within the PVR **1250**. However, the invention is in no way intended to be limited thereto. Rather, the ads **1410** may be stored externally (i.e., on a separate storage device, by the advertiser or media buyer) and delivered to the PVR **1250** when the ad queue **1420** determines it is appropriate. If stored externally, the ads **1410** may be delivered to the PVR **1250** in advance of the insertion of the ad **1410** (i.e., when the ad queue **1420** identifies the ad **1410** as the next ad to be inserted) or at the time of insertion. The ads **1410** may be delivered via the video delivery network or via an external connection, such as the Internet.

[**0196**] **FIG. 14A** illustrates an exemplary embodiment, in which alternative ads **1430** are also stored on the PVR **1250**. In a preferred embodiment, the alternative ads **1430** are related to the ads **1410**. However, the invention is not limited thereto, as alternative embodiments may have alternative ads **1430** that are not related to the ads **1410**. If the subscriber **1260** fast forwards **1280** through an advertisement **1410** that was inserted in the video stream **1210** and recorded by the PVR **1250**, then the PVR **1250** displays the alternative ad **1430** (either in place of or in conjunction with

the advertisement **1410**). As previously noted, the alternative ads **1430** may have a format different than the format of the ad **1410**. For example, the ad **1410** may be in MPEG format while the alternative ad **1430** may be HTML, Flash, Shockwave, streaming media or other formats.

[**0197**] If the alternative ads **1430** are related to ads **1410**, there will have to be a link between the two so that the PVR **1250** knows which alternative ad **1430** to display if the ad **1410** is fast forwarded **1280**. If the alternative ads **1430** are not related to the ads **1410**, then a separate queue may be maintained for the alternative ads. The separate queue may be a subset of the ad queue **1420** or may be a completely separate queue.

[**0198**] There is no audio illustrated indicating that it is part of the advertisements **1410** and alternative advertisements **1430**. However, the audio for each of the advertisements could be stored separately. If the audio was separate the audio and video would be linked in a preferred embodiment.

[**0199**] According to one embodiment, there may be several alternative ads **1430** for each ad **1410**, with the appropriate alternative ad being selected based on which subscriber **1260** (individual or group) is interacting with the video programming **1210**.

[**0200**] As illustrated, the ads **1410**, ad queue **1420** and alternative ads **1430** are separate, possibly indicating that there are separate memory devices for each of these. The current invention covers any implementation of memory that may be used to capture this data, including a separate memory device for each, or a single memory device that contains all the data but is partitioned in some fashion. As one skilled in the art would recognize, the memory could be RAM, a hard drive, a CD, a memory stick or any other types of memory that would be obvious to one of ordinary skill in the art. Moreover, it should be noted that the alternative ads **1430** may also be stored external to the PVR **1250**.

[**0201**] **FIG. 14B** illustrates an exemplary embodiment, in which processing rules **1440** are stored on the PVR **1250**. The processing rules **1440** may be associated with the ads **1410** or may be general processing rules. The PVR **1250** may generate alternative ads **1450** in advance of when they are needed or on the fly when the fast forward event occurs. If the subscriber **1260** fast forwards through a recorded advertisement **1410**, then the PVR **1250** displays the alternative ad **1450** (either in place of or in conjunction with the advertisement **1410**). As would be obvious to one of ordinary skill in the art, the processing rules **1440** may also be stored external to the PVR **1250**. According to one embodiment, there may be several processing rules **1440** for each ad **1410**, with the appropriate processing rules **1440** being applied to generate the appropriate alternative ad **1450** based on which subscriber **1260** (individual or group) is interacting with the video programming **1210**.

[**0202**] There is no separate audio or separate audio processing rules illustrated indicating that the audio is part of the advertisements **1410** and the audio processing rules are part of the processing rules **1440**. However, the audio for each of the advertisements **1410** and the audio processing rules could be stored separately. Furthermore, separate audio files could be stored for what will become the alternative ads **1450**. Alternatively, there may be no audio or generic audio (i.e., tone) associated with the alternative ads.

[**0203**] It should be noted that the exemplary embodiments discussed in relation to FIGS. **12-14** may be combined in different fashions without departing from the scope of the current invention. For example, the PVR may be able to receive alternative ads (related and non-related) and associated alternative audio, and processing rules (for both audio and video) via both the video delivery network and the alternative connection, as well as store ads (targeted and non-targeted), alternative ads (targeted, non-targeted, related and non-related) and processing rules thereon.

[**0204**] Before discussing in detail how the processing rules generate an alternative ad (video) from a standard advertisement, an exemplary overview of MPEG coding is provided in **FIG. 15** that illustrates an exemplary one second of an MPEG stream. As would be obvious to one of ordinary skill in the art, an MPEG stream consists of three separate type of frames, I-frames **1500**, P-frames **1510** and B-frames **1520**. The I-frames **1500** are compressed (or coded) using only information within the frame (called intra-frame coding), the P-frames **1510** are compressed using information within the frame as well as information from the previous I or P frame (called inter-frame or predictive coding) and the B-frames **1520** are compressed using information within the frame as well as information from the previous I or P frame and from the next I or P frame (called bi-directional inter-frame or predictive coding). As illustrated, there is an I-frame 1500 every 15th frame. As one of ordinary skill in the art would recognize, I frames may have any arbitrary spacing, or may not be present at all. For example, I-frames may be repeated at different intervals, such as every 3rd (IBBI), 6th (IBBPBBI), 9th (IBBPBBPBBPBBI), 12th, 15th, 18th, and so on frames. Common practice (striking a compromise between good compression and rapid access), though dictates typical I-frame intervals of 12 or 15 frames.

[**0205**] As previously mentioned, the processing rules may be specific to the advertisement or may be generic in nature. The processing rules may state which frames from the advertisement to use to create the trick play ad. As one skilled in the art would recognize, processing rules specific to the advertisement could be much more elaborate than generic processing rules. That is, the generic rules may simply specify a single frame to display (i.e., first I-Frame), or a particular segment of video (i.e., first 2 seconds), or simple combinations of the above (i.e., first and second I-frames; first I-frame for 1 second followed by 1 second of video). The specific processing rules could identify exact frames, sets of frames, segments of video, and any complex combination thereof (i.e., 3rd I-Frame for ½ second, followed by segment of video between 21st and 22nd second of ad, followed by 1st I-frame for ½ second). In addition, the processing rules could also define editing of the various frames or video segments (i.e., cropping; changing video features such as color, tint, hue, contrast; adding computer generated graphics; displaying different frames at the same time (i.e., one on top and one on bottom); using one frame as the background for video segments being run in front of the frame).

[**0206**] As previously mentioned, there may be multiple sets of processing rules defined for each advertisement (specific rules) or for each subscriber (generic rules). The different sets of rules could create different advertisements based on who was determined to be viewing the programming.

[0207] According to one embodiment, the frames or segments of video that make up the advertisement may be flagged with some type of designations. This flagging may be performed when the advertisement is generated or anytime after ad production. The flagging of the frames may be done in numerous methods known to those of ordinary skill in the art, including but not limited to user data embedded in the compressed video stream (as defined, for example in the MPEG-2 video specification—ISO/IEC 13818-2 which is herein incorporated by reference), or as a separate packetized data steam associated and synchronized with a specific program (as defined, for example, in the MPEG-2 systems specification—ISO/IEC 13818-1 which is herein incorporated by reference), or as a separate data file that provides pointers to flagged frames in the advertisement. If the advertisement is flagged in some fashion, the processing rules could rely on the flagging in order to generate the alternative advertisement. Additionally, the flagging could be used to customize (target) the alternative advertisement to the subscriber that is determined to be interacting with the program stream. As should be obvious, the generic processing rules associated with flagged advertisements are much more simple than processing rules that would be associated with the advertisement.

[0208] Exemplary specific processing rules for flagged advertisements may include: display all the video that is flagged in a certain fashion (i.e., designated with a **1**); add computer-generated graphics to all frames flagged with a **2**, crop the frames flagged with a **3**. Exemplary generic processing rules for flagged advertisements may include: display all the video that is flagged with a **1**. There are multiple generic and specific rules that would be well within the scope of the current invention.

[0209] FIGS. **16**A-B illustrate an exemplary advertisement in MPEG format and several exemplary alternative advertisements that can be created therefrom. As illustrated, the exemplary advertisement **1600** has an I-frame every 6th frame. That is, the 1st I frame is the 1st frame **1602**, the second I frame is the 7th frame **1604**, the 3rd I frame is the 13th frame **1606**, the 4th I frame is the 19th frame **1608**, and the 5th I frame is the 25th frame **1610**. The processing rules used to generate the alternative ads may have been specific to the advertisement **1600** or general in nature, and the advertisement **1600** may be flagged in some fashion or not. An important aspect of the processing rules as shown in the exemplary alternative advertisements in FIGS. **16**A-B, is the preservation of inter-frame coding relationships. That is, a predicted frame (ether P-frame or B-frame in the MPEG-2 examples) must be accompanied by the necessary anchor frames (I or P frames used to predict the inter-frame coded picture).

[0210] **FIG. 16A** illustrates exemplary alternative advertisements made up of only I-frames. A first exemplary alternative advertisement **1620** is a single I frame for the entire time it takes to fast forward through the advertisement. As illustrated, frame **1606** was selected to display. A second exemplary alternative advertisement **1630** is several contiguous and sequential I-frames being displayed. As illustrated, the 2nd I-frame (7th frame) **1604**, the 3rd I frame (13th frame) **1606**, and the 4th I-frame (19th frame) **1608** are displayed one after another. A third exemplary alternative advertisement **1640** is several sequential I-frames being displayed. As illustrated, the 1st I-frame (1st frame) **1602**, and the 5th I-frame (25th frame) **1610** are displayed one after another. A fourth exemplary alternative advertisement **1650** is several I-frames being displayed out of sequence. As illustrated, the 3rd I-frame (13th frame) **1606**, the first I-frame (1st frame) **1602**, and the 5th I-frame (25th frame) **1610** are displayed one after another. As one skilled in the art would recognize, there are numerous combinations of displaying single images one after another that would be well within the scope of the current invention.

[0211] **FIG. 16B** illustrates exemplary alternative advertisements made up of segments of video from the original advertisement **1600**. A first exemplary alternative advertisement **1660** is a single segment of video extracted unedited from the advertisement **1600**. As illustrated, the video from the 3rd I-frame **1606** through the fourth I-frame **1608** and continuing to the 1st P-frame thereafter makes up the alternative advertisement **1660**. A second exemplary alternative advertisement **1670** is a single segment of video that is edited from the form of the advertisement **1600**. As illustrated, the third I-frame **1606** is displayed followed by only limited B-frames thereafter, followed by the fourth I-frame **1608** and a majority of the B-frames and P-frames thereafter, followed by the fifth I-frame **1610**. In this embodiment, the segment of video was similar to the unedited version **1660**, except certain B-frames and P-frames were removed and additional video was displayed (I-frame **1610**). A third exemplary alternative advertisement **1680** is several segments of video combined together (edited or unedited, in order or out of order). As illustrated, the entire video between I-frame **1606** and I frame **1608**, is followed by an edited version of the video from I-frame **1602** to I-frame **1604**. As one skilled in the art would recognize, there are numerous combinations of displaying segments of video that would be well within the scope of the current invention.

[0212] **FIG. 16C** illustrates exemplary alternative advertisements made up of a combination of segments of video and I-frames from the original advertisement **1600**. A first exemplary alternative advertisement **1690** is a combination of a segment of unedited video and an I-frame. As illustrated, the video from I-frame **1604** to I-frame **1606** is followed by the repetition of I-frame **1606**. A second exemplary alternative advertisement **1692** is a combination of segments of edited video and I-frames. As illustrated, I-frame **1602** is repeated, followed by edited video from I-frame **1602** through I-frame **1604** and beyond, followed by repetition of I-frame **1608**. A third exemplary alternative advertisement **1694** is a combination of segments of video and I-frames out of sequence. As illustrated, the video from I-frame **1608** to I-frame **1610** is followed by the repetition of I-frame **1606**. As one skilled in the art would recognize, there are numerous iterations of displaying segments of video in combination with I-frames that would be well within the scope of the current invention.

[0213] As previously mentioned, it is also possible that the processing rules associated (specifically those related to the advertisements) could also edit the advertisement by adding computer generated graphics, cropping the advertisement, adjusting video features (i.e., color, opacity), and other editing features that would be obvious to one skilled in the art. Examples of alternative ads that could be created using editing features include, but are not limited to:

[0214] Cropping an I-frame or video segment (i.e., just using the potion of an I-frame with the actors face, or the product);

[0215] Adding text (not in the original ad) to an I-frame or video segment;

[0216] Adjusting the coloring of the advertisement so that an I-frame could be used as a background (i.e., logo) with a video segment running in front of it;

[0217] fading in and out between frames or segments; and

[0218] emphasizing certain features in a frame or video segment.

[0219] As one of ordinary skill in the art would recognize, the number of ways to modify an advertisement in order to create an alternative ad is almost limitless. The current invention is in no way intended to be limited to the above examples but should be construed to include all plausible variations and iterations thereof.

[0220] The processing rules associated with audio are likely not as complex as there are not as many ways for splicing audio together that would be audible. The processing rules for audio may include playing a single portion of the audio (i.e., first two seconds) or splicing several portions of audio together (i.e., first second and last second). According to one embodiment, the appropriate segment of video is identified in some manner, such as with metadata, and the identified segment is played. According to another embodiment, a portion of background music from the ad may be played while the words of the ad are extracted (not played). According to another embodiment of the invention, audio associated with either more or less time that the length of the alternative ad are selected and then slowed down or speed up accordingly. For example, it is possible that the first three seconds of audio (i.e., details about a sale) are speed up so they are played back within two seconds. As one skilled in the art, would recognize modifying the audio in such a fashion would effect the pitch of the audio. Thus, according to one embodiment, after the audio was either speed up or slowed down the pitch of the audio would be adjusted prior to playback. As one of ordinary skill in the art would recognize there are other processing rules that could be used to select and/or edit audio for the alternative ads that would be well within the scope of the current invention.

[0221] Once the alternative ad (whether generated or received as a separate file) is selected for display during a trick-play event, the alternative ad is displayed to the subscriber. As previously discussed, the alternative ad may be displayed in place of the ad or in conjunction with the ad. **FIG. 17** illustrates various embodiments of how the alternative ad can be displayed to the subscriber. Each embodiment illustrates a STB PVR **1700** and a TV **1702**, though one skilled in the art would realize that the PVR **1700** could be a HE PVR, a DVD player or other devices that can play back recorded programs. The first embodiment (A), illustrates the original advertisement **1710** being displayed in trick play mode (i.e., fast forward, skip, rewind). The second embodiment (B), illustrates the alternative advertisement **1720** being displayed in place of the original advertisement. As previously discussed, the alternative advertisement may be a still image or a video, may have been generated from the original advertisement or may have been received as a separate file, and may include audio or not.

[0222] The remaining embodiments, illustrate the alternative ad being placed in conjunction with the original advertisement in trick play mode (i.e., fast forward). These embodiments are preferable as the subscriber can see the original ad and see that they are actually skipping portions of the ad and are not being forced to watch additional ads. The third embodiment (C), illustrates a split screen with the original ad **1712** on one half and the alternative ad **1722** on the other half. As illustrated, each ad is reduced in size from embodiments A and B so that the entire ad (original and alternative) fits on the appropriate half of the screen. The fourth embodiment (D), also illustrates a split screen with the original ad **1714** on one half and the alternative ad **1724** on the other half. However, in this embodiment each ad is cropped from that illustrated in embodiments A and B. It should be noted that the cropped alternative ad **1722** may in fact be a cropped version of an image or video segment from the original ad and not actually a cropped version of the alternative ad.

[0223] The fifth embodiment (E), illustrates the alternative ad **1726** superimposed over the original ad **1710**. The superimposition is shown as the upper right corner, but it is not limited thereby. In fact according to one embodiment, the location, size and shape of the superimposed ad **1726** are adjustable. The adjustments may be defined in the processing rules (i.e., by the advertiser) or may be made by the network operator. In either event, the adjustments may be based on who is watching the ad. In an alternative embodiment, the subscriber may make the adjustments (the subscriber may make the adjustments each time or may define his preferences and have those preferences as the default orientation). The sixth embodiment (F), illustrates the original ad **1716** superimposed over the alternative ad **1720**. As with the fifth embodiment (E), the size, shape and location of the superimposed ad are adjustable.

[0224] The seventh embodiment (G), illustrates the alternative ad **1728** superimposed over the original ad **1710**. The superimposition is illustrated as having different video features than the original ad **1710**. For example, the superimposed ad may have a degree of opaqueness so that portions of the original ad **1710** can be seen below. Other video features can include modifying the color, contrast, brightness, hue, tint and saturation, but are not limited thereby. As illustrated, the superimposed ad **1728** has less distinct features and accordingly the original ad **1710** has the more distinct features (i.e., color, brightness reduced on superimposed ad **1728**). However, this embodiment is not limited thereto. In fact, the video features of the superimposed ad **1728** could be adjusted to make the superimposed ad **1728** more distinct. In another embodiment, the video features of the original ad **1710** could be adjusted to either make the original ad **1710** more distinct (bright) or more subtle (dull). In another embodiment, the video features of both ads could be adjusted. The adjustments may be defined in the processing rules (possibly dependent on who is watching the ad), by the network operator, or by the subscriber. The eighth embodiment (F), illustrates the original ad **1718** superimposed over the alternative ad **1720**. As with the seventh embodiment (G), the video features of either ad may be adjusted.

[0225] As one skilled in the art would recognize there are numerous alternatives for displaying alternative ads or alternative ads in conjunction with the original ads that are not described above but that would be well within the scope of the current invention. For example, whichever ad is superimposed on the other could be surrounded by a border to help distinguish between the two.

[0226] According to one embodiment of the present invention it is possible to generate a single alternative advertisement for multiple advertisements. According to one embodiment, an advertiser may have two advertisements slated to be played on after one another and may wish to present, for example, a single 4-second alternative ad as opposed to two 2-second alternative ads. As discussed above, the alternative ad may be received as a separate file or may be generated by applying the processing rules to the advertisements. However, the ads need not be for the same advertiser in order to be combined. For example, two advertisers who have complimentary products may wish to define a combined alternative advertisement (i.e., Coke and McDonalds may have a combined alternative ad). As would be obvious to one of ordinary skill in the art, coordination between the advertiser(s) would be required.

[0227] In yet another alternative embodiment, it is possible that during fast-forwarding of two advertisements (i.e., one for company A and one for company B) a combined alternative ad (for company C not related to companies A and B) is displayed (i.e., a 4-second alternative ad for Tylenol is displayed while advertisements for Burger King and Budweiser are fast forwarded). As would be obvious to one of ordinary skill in the art, in a preferred embodiment, the unrelated alternative ad would be a separate file. However, it is possible that the unrelated alternative ad could be generated from the ads (though there may be some copyright issues with that). The unrelated alternative advertisement may have been linked to the advertisements for some reason (i.e., an alternative Beer ad during fast forwarding of a football and track ad). The linking may be done by the advertiser prior to transmitting the alternative ad (i.e., the unrelated ad is sent with a link to the ad) or may be done within the PVR (i.e., display this alternative ad if an certain ad or set of ads is fast forwarded through and does not already have an alternative ad(s) defined therefore). Alternatively, the alternative ad may simply been the next alternative advertisement to display during a trick play event of two ads.

[0228] It should be noted that the display of unrelated ads is discussed above in relation to a combined alternative ad for two advertisements. However, these same methods could be applied to a single ad or more than two consecutive ads.

[0229] According to one embodiment of the invention, the PVR determines the location with the advertisement when the trick play event (i.e., fast forward) is initiated, and if applicable the speed of the trick play event. If a determination is made that the ad has progressed to far, or that the speed is too great, or some combination thereof, the PVR may either prevent the trick-play event or skip the alternative ad. In another embodiment, the alternative ad will be initiated and the trick play event will be paused for the time it takes to complete the alternative advertisement.

[0230] As one of ordinary skill in the art would recognize, and as discussed above, some PVRs have a skip advertisement function. According to one embodiment of the invention, the playback of the recorded video after the skip command would be paused while an alternative ad was displayed. In another embodiment, if the trick play event is a pause, the PVR may display an alternative ad after a predetermined amount of time expired. The reason for the delayed time is that the subscriber may have paused on the ad for a reason, such as to obtain a phone number, or they may have left the room. An alternative ad displayed during a pause event is likely displayed in conjunction with the original ad. Moreover, it is likely that the subscriber would be able to delete or withdraw the alternative advertisement before any certain time has passed (i.e., if the subscriber had stopped to view a phone number on the original ad). As it is possible that a pause lasts for a while, it is possible that the alternative ad is displayed for a long time or that multiple alternative ads are displayed (if available). According to one embodiment, the alternative ads may not be related to the paused ad.

[0231] During the playback of an advertisement, the subscriber may change channels to live television for the approximate amount of time that the ad would run (i.e., 30 seconds, or possibly 2 minutes for the entire commercial break). According to one embodiment, an alternative ad will be displayed in conjunction with the live programming. According to another embodiment, the alternative ad will be displayed for the time it takes the channel change to occur (as one skilled in the art knows the changing of channels in digital cable, satellite and SDV systems may take several seconds).

[0232] The invention has been described with specific emphasis on digital video. However, the invention is not limited thereto and may be applied to audio, streaming media and other advertisement media that would be known to those skilled in the art. In fact, this application has defined some alternative audio advertisements as they relate to the video counterparts but could applied to simply audio. Moreover, this application has concentrated on PVRs but the invention is not limited thereto. In fact the invention to be applied to any prerecorded media. For example, if a subscriber attempted to fast forward through the previews on a movie rental they may be presented with an alternative preview.

[0233] Although this invention has been illustrated by reference to specific embodiments, it will be apparent to those skilled in the art that various changes and modifications may be made which clearly fall within the scope of the invention. The invention is intended to be protected broadly within the spirit and scope of the appended claims.

What is claimed is:

1. A method for displaying an alternative advertisement to a subscriber during a trick-play event, the method comprising:

detecting the trick-play event during playback of a recorded advertisement; and

displaying the alternative advertisement to the subscriber.

2. The method of claim 1, wherein said displaying includes displaying the alternative advertisement instead of the recorded advertisement.

3. The method of claim 1, wherein said displaying includes superimposing the alternative advertisement over the recorded advertisement.

4. The method of claim 3, wherein the superimposed alternative advertisement covers a portion of the recorded advertisement.

5. The method of claim 4, wherein size of the superimposed alternative advertisement is adjustable.

6. The method of claim 4, wherein location of the superimposed alternative advertisement is adjustable.

7. The method of claim 3, wherein at least some subset of video features associated with the superimposed alternative advertisement are adjustable.

8. The method of claim 7, wherein the video features include at least some subset of opacity, contrast, brightness, hue, tint and saturation.

9. The method of claim 3, wherein at least some subset of video features associated with the recorded advertisement are adjustable.

10. The method of claim 3, wherein at least some subset of video features associated with the superimposed alternative advertisement are different from a corresponding subset of the video features associated with the recorded advertisement.

11. The method of claim 10, wherein the superimposed alternative advertisement is more distinct than the recorded advertisement.

12. The method of claim 10, wherein the recorded advertisement is more distinct than the superimposed alternative advertisement.

13. The method of claim 1, wherein said displaying includes displaying the superimposed alternative advertisement on one portion of viewing area and displaying the recorded advertisement on another portion of the viewing area.

14. The method of claim 1, further comprising superimposing the recorded advertisement over the alternative advertisement.

15. The method of claim 14, wherein location of the superimposed recorded advertisement is adjustable.

16. The method of claim 14, wherein size of the superimposed recorded advertisement is adjustable.

17. The method of claim 14, wherein at least some subset of video features associated with either the alternative advertisement or the superimposed recorded advertisement are adjustable.

18. The method of claim 14, wherein the superimposed recorded advertisement is displayed as a full image of the recorded advertisement.

19. The method of claim 14, wherein the superimposed recorded advertisement is displayed as a cropped image of the recorded advertisement.

20. The method of claim 1, wherein said detecting includes detecting an initiation of the trick play event during playback of the recorded advertisement.

21. The method of claim 1, wherein said detecting includes detecting a start of a recorded advertisement during the trick play event.

22. The method of claim 1, further comprising

detecting an end of the recorded advertisement; and

stopping the display of the alternative advertisement.

23. The method of claim 22, further comprising displaying recorded programming in trick play mode.

24. The method of claim 22, further comprising

determining that another recorded advertisement is in trick play mode;

determining that there is an associated alternative advertisement therefore; and

displaying the associated alternative advertisement.

25. The method of claim 1, further comprising

detecting a start of a second recorded advertisement during the trick play event; and

displaying a second alternative advertisement associated with the second recorded advertisement.

26. The method of claim 1, further comprising

detecting an end of the trick play event;

stopping the display of the alternative advertisement.

27. The method of claim 26, further comprising displaying recorded programming.

28. The method of claim 1, further comprising

detecting an end of the trick play event prior to end of the recorded advertisement;

continue, until the end of the recorded advertisement, trick playing the recorded advertisement and displaying the alternative advertisement; and

return to displaying recorded programming at the end of the recorded advertisement.

29. The method of claim 1, further comprising determining point in recorded advertisement that the trick play event occurs.

30. The method of claim 29, wherein said displaying includes displaying the alternative advertisement if a determination is made that the trick play event occurs within a predefined period from a start of the recorded advertisement.

31. The method of claim 30, wherein the predefined period is a period of time.

32. The method of claim 30, wherein the predefined period is a percentage of total time of recorded advertisement.

33. The method of claim 29, wherein said displaying includes displaying the alternative advertisement if a determination is made that the alternative advertisement can be displayed within time it will take to trick play through remaining portion of the recorded advertisement.

34. The method of claim 29, wherein said displaying includes displaying the alternative advertisement if a determination is made that the alternative advertisement can be displayed within a predetermined period after completion of the trick play event for remaining portion of the recorded advertisement.

35. The method of claim 29, further comprising modifying the alternative advertisement based on said determining.

36. The method of claim 29, further comprising pausing the trick play event until said displaying alternative advertisement is complete if additional time is required to display entire alternative advertisement based on the point in advertisement that the trick play event occurs.

37. The method of claim 1, wherein the alternative advertisement is related to the recorded advertisement.

38. The method of claim 1, wherein the alternative advertisement is approximately an amount of time equal to time associated with fast forwarding through the recorded advertisement.

39. The method of claim 37, wherein the alternative advertisement is a separately produced advertisement.

40. The method of claim 37, wherein the alternative advertisement is derived from the recorded advertisement.

41. The method of claim 40, wherein the alternative advertisement is derived by applying processing rules to the recorded advertisement.

42. The method of claim 41, wherein the processing rules are specific to the recorded advertisement.

43. The method of claim 41, wherein the processing rules are specific to the subscriber.

44. The method of claim 41, wherein the processing rules are generic.

45. The method of claim 41, wherein the alternative advertisement is a still image from the recorded advertisement.

46. The method of claim 41, wherein the alternative advertisement is a series of still images from the recorded advertisement.

47. The method of claim 41, wherein the alternative advertisement is a video segment from the recorded advertisement.

48. The method of claim 41, wherein the alternative advertisement is a series of video segments from the recorded advertisement.

49. The method of claim 41, wherein the alternative advertisement is a combination of still images and video segments from the recorded advertisement.

50. The method of claim 41, wherein the alternative advertisement is a portion of the recorded advertisement with computer generated graphics added thereto.

51. The method of claim 1, wherein the alternative advertisement is related to more than one recorded advertisement.

52. The method of claim 51, wherein the alternative advertisement is displayed during a trick play event for the more than one recorded advertisement.

53. The method of claim 1, wherein the alternative advertisement is not related to the recorded advertisement.

54. The method of claim 1, wherein trick play events include fast forwarding, skipping, rewinding, and pausing.

55. A system for displaying an alternative advertisement to a subscriber when the subscriber fast forwards through a recorded advertisement, the system comprising:

means for detecting a fast forward event during playback of the recorded advertisement; and

means for displaying the alternative advertisement to the subscriber.

56. The system of claim 55, wherein said means for displaying displays the alternative advertisement instead of the fast forwarding recorded advertisement.

57. The system of claim 55, wherein said means for displaying superimposes the alternative advertisement over the fast forwarding recorded advertisement.

58. The system of claim 55, wherein said means for displaying superimposes the fast forwarding recorded advertisement over the alternative advertisement.

59. The system of claim 55, wherein said means for detecting detects a start of a recorded advertisement during the fast forward event.

60. The system of claim 59, wherein

said means for detecting also detects an end of the fast forwarding recorded advertisement; and

said means for displaying stops displaying the alternative advertisement at the end of the fast forwarding recorded advertisement.

61. The system of claim 55, wherein said means for detecting detects an initiation of the fast forward event during playback of the recorded advertisement.

62. The system of claim 61, wherein

said means for detecting also detects an end of the fast forward event; and

said means for displaying stops displaying the alternative advertisement at the end of the fast forward event.

63. The system of claim 62, further comprising means for automatically controlling the fast forward event, wherein if said means for detecting detects the end of the fast forward event prior to end of the recorded advertisement,

said means for automatically controlling will continue to fast forward the recorded advertisement until the end of the recorded advertisement, and

said means for displaying will continue to display the alternative advertisement until the end of the recorded advertisement.

64. The system of claim 55, further comprising means for automatically pausing the fast forward event, wherein said means for detecting also detects an end of the fast forwarding recorded advertisement; and wherein

if said means for displaying has not completely displayed the alternative advertisement prior to a detection of the end of the fast forwarding recorded advertisement by said means for detecting,

said means for automatically pausing will pause the fast forward event until the display of the alternative advertisement is complete.

65. The system of claim 55, further comprising means for ignoring the fast forward event, wherein said means for detecting also detects point in the recorded advertisement that the fast forward event is initiated, and wherein

said means for ignoring will ignore the fast forward event for the recorded advertisement based on the point of initiation; and

said means for displaying will not display the alternative advertisement if the fast forward event is ignored.

66. The system of claim 65, wherein said means for ignoring ignores the fast forward event if the point of initiation occurs outside of a predefined period from a start of the recorded advertisement.

67. The system of claim 66, wherein the predefined period is a period of time.

68. The system of claim 66, wherein the predefined period is a percentage of total time of recorded advertisement.

69. The system of claim 55, wherein said means for detecting also detects point in the recorded advertisement that the fast forward event is initiated, and

further comprising means for modifying the alternative advertisement based on the point of initiation.

70. A method for generating an alternative advertisement for display to a subscriber when the subscriber trick plays a recorded advertisement, the method comprising:

receiving an advertisement;

recording the advertisement;

receiving processing rules; and

generating the alternative advertisement by applying the processing rules to the recorded advertisement.

71. The method of claim 70, wherein said receiving an advertisement includes receiving the advertisement from a television delivery network.

72. The method of claim 71, wherein said receiving an advertisement includes receiving the advertisement within an avail in programming.

73. The method of claim 71, wherein said receiving an advertisement includes receiving the advertisement via an advertisement channel.

74. The method of claim 70, wherein said receiving an advertisement includes receiving the advertisement via an Internet connection.

75. The method of claim 70, wherein said receiving an advertisement includes receiving the advertisement from local memory .

76. The method of claim 75, wherein the advertisement was preloaded in the local memory.

77. The method of claim 75, wherein the advertisement was stored in the local memory after being received by at least some subset of: within an avail, via an ad channel, and via an Internet connection.

78. The method of claim 70, wherein said receiving an advertisement includes receiving a targeted advertisement.

79. The method of claim 70, wherein said recording includes recording the advertisement after detecting an initiation of a record event.

80. The method of claim 70, wherein said recording includes recording the advertisement after detecting a pause in viewing of the advertisement.

81. The method of claim 70, wherein the processing rules are related to the advertisement.

82. The method of claim 81, wherein said receiving processing rules includes receiving the processing rules as part of the advertisement.

83. The method of claim 81, wherein said receiving processing rules includes receiving the processing rules as a separate file with the advertisement.

84. The method of claim 81, wherein said receiving processing rules includes receiving the processing rules separate from the advertisement.

85. The method of claim 70, wherein said receiving processing rules includes receiving the processing rules via an Internet connection.

86. The method of claim 70, wherein said receiving processing rules includes receiving the processing rules from local memory.

87. The method of claim 86, wherein the processing rules were preloaded in the local memory.

88. The method of claim 70, wherein the processing rules are related to the subscriber.

89. The method of claim 70, wherein the generated alternative advertisement is a still image selected from the recorded advertisement.

90. The method of claim 89, wherein the still image is a video frame.

91. The method of claim 90, wherein the video frame is a full image video frame.

92. The method of claim 91, wherein the full image video frame is an MPEG I frame.

93. The method of claim 70, wherein the generated alternative advertisement is a collection of full image video frames selected from the recorded advertisement.

94. The method of claim 70, wherein the generated alternative advertisement is a single segment of video selected from the recorded advertisement.

95. The method of claim 70, wherein the generated alternative advertisement is a collection of video segments selected from the recorded advertisement.

96. The method of claim 70, wherein the generated alternative advertisement is a combination of still images and video segments from the recorded advertisement.

97. The method of claim 70, wherein the generated alternative advertisement is targeted to the subscriber.

98. The method of claim 70, wherein the processing rules are also associated with audio for the recorded advertisement.

99. A personal video recorder (PVR) capable of displaying alternative ads during trick play events, the PVR comprising:

memory;

means for detecting a trick play event during playback of an advertisement within recorded programming; and

means for displaying an alternative advertisement during the trick play event for the recorded advertisement.

100. The PVR of claim 99, wherein the recorded programming is on a medium.

101. The PVR of claim **100**, wherein the medium is a CD, DVD, or program server.

102. The PVR of claim 99, further comprising:

means for receiving programming; and

means for recording the programming.

103. The PVR of claim 99, further comprising means for receiving alternative advertisements.

104. The PVR of claim **103**, wherein the alternative advertisements are related to with the recorded programming.

105. The PVR of claim **103**, wherein the alternative advertisements have a format similar to that of the recorded advertisements.

106. The PVR of claim **103**, wherein the alternative advertisements have a different format than the recorded advertisements.

107. The PVR of claim **103**, wherein the alternative advertisements may be some combination of digital video, streaming media, HTML, Flash, Shockwave and audio.

108. The PVR of claim **103**, wherein the alternative advertisements are not related to the recorded programming.

109. The PVR of claim 99, further comprising:

means for receiving processing rules; and

means for generating alternative advertisements by applying the processing rules to the recorded advertisements.

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