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(54) **SYSTEM AND METHOD FOR DELIVERING COMPANION CONTENT**

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(52) **U.S. Cl.**

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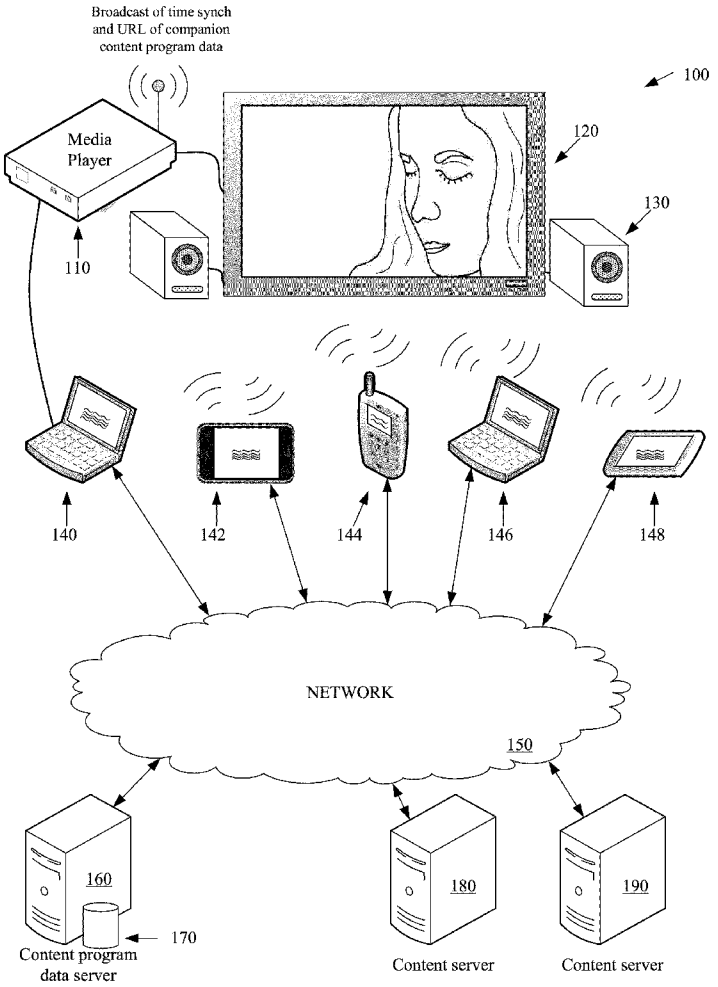
USPC **725/88**

(57) **ABSTRACT**

A system and method for providing companion content on a device that downloads content associated with a media presentation playing on a media player and displays the downloaded content at times synchronized to time-offsets (from the start of the program) of the presentation by signals from the media player.



Samsung v. Zophonos
IPR2026-00083
Exhibit 1007

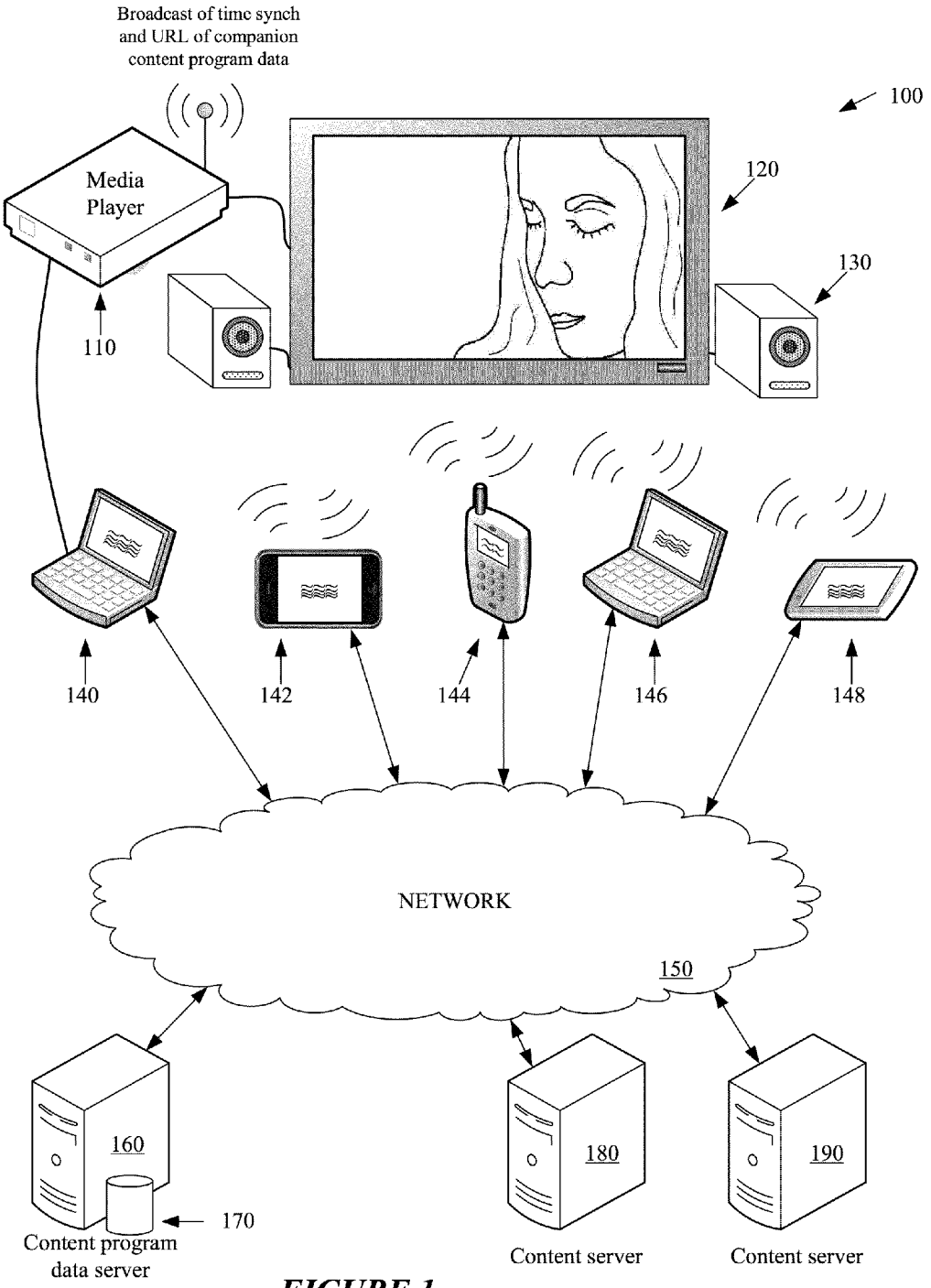

Broadcast of time synch and URL of companion content program data
100
Media Player
120
130
110
140
142
144
146
148
NETWORK
150
160
170
180
190
Content program data server
Content server
Content server

FIGURE 1

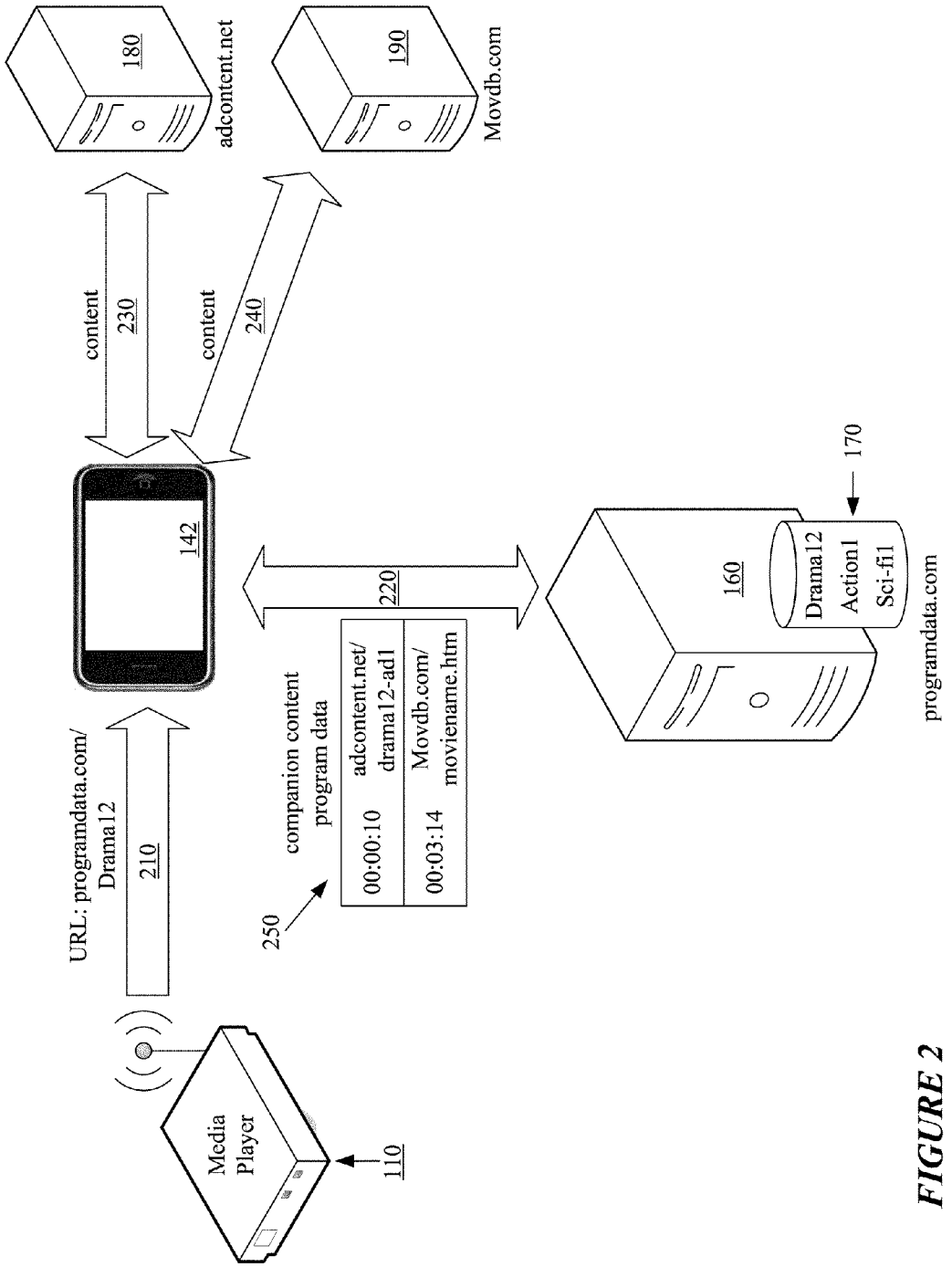

180
adcontent.net
190
Movdb.com
content
230
content
240
142
220
160
170
Drama12
Action1
Sci-fi1
programdata.com
URL: programdata.com/
Drama12
210
companion content
program data
250
00:00:10
adcontent.net/
drama12-ad1
00:03:14
Movdb.com/
moviename.htm
Media
Player
110

FIGURE 2

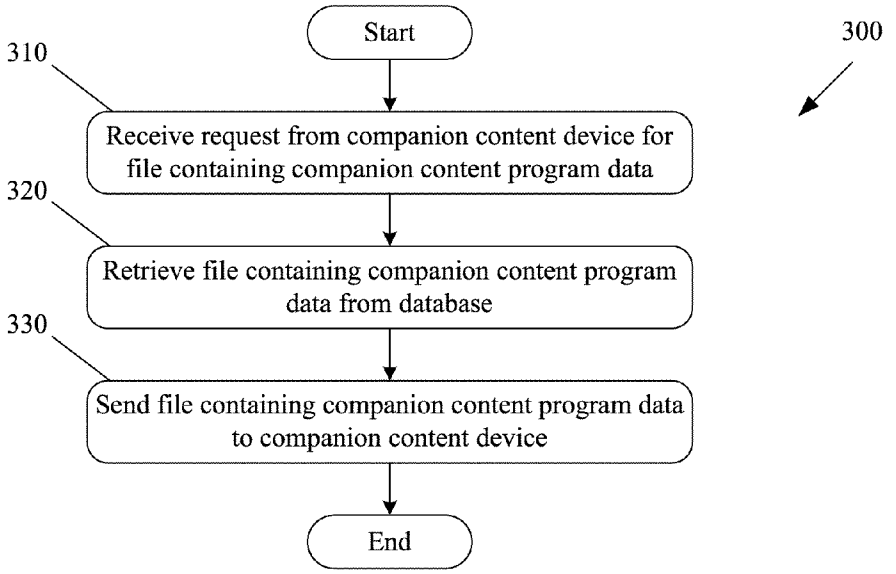


Figure 3

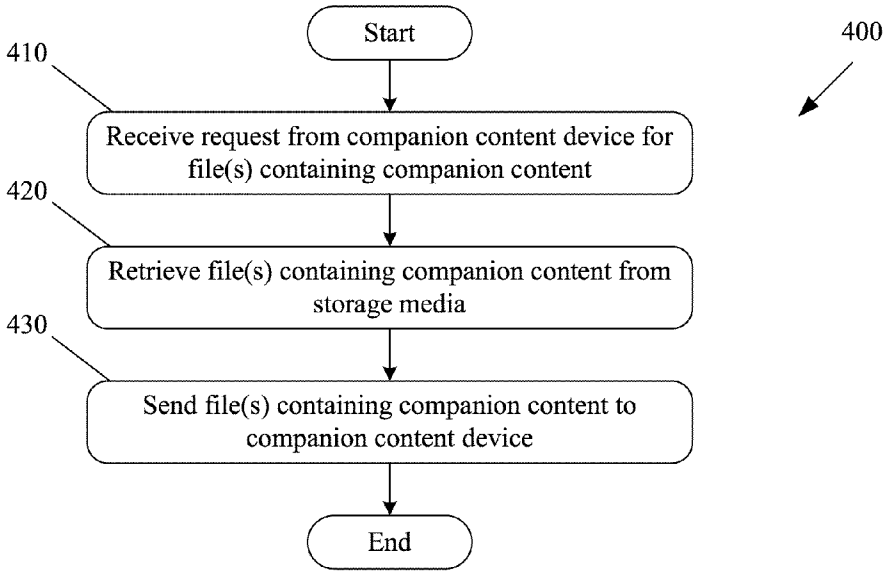


Figure 4

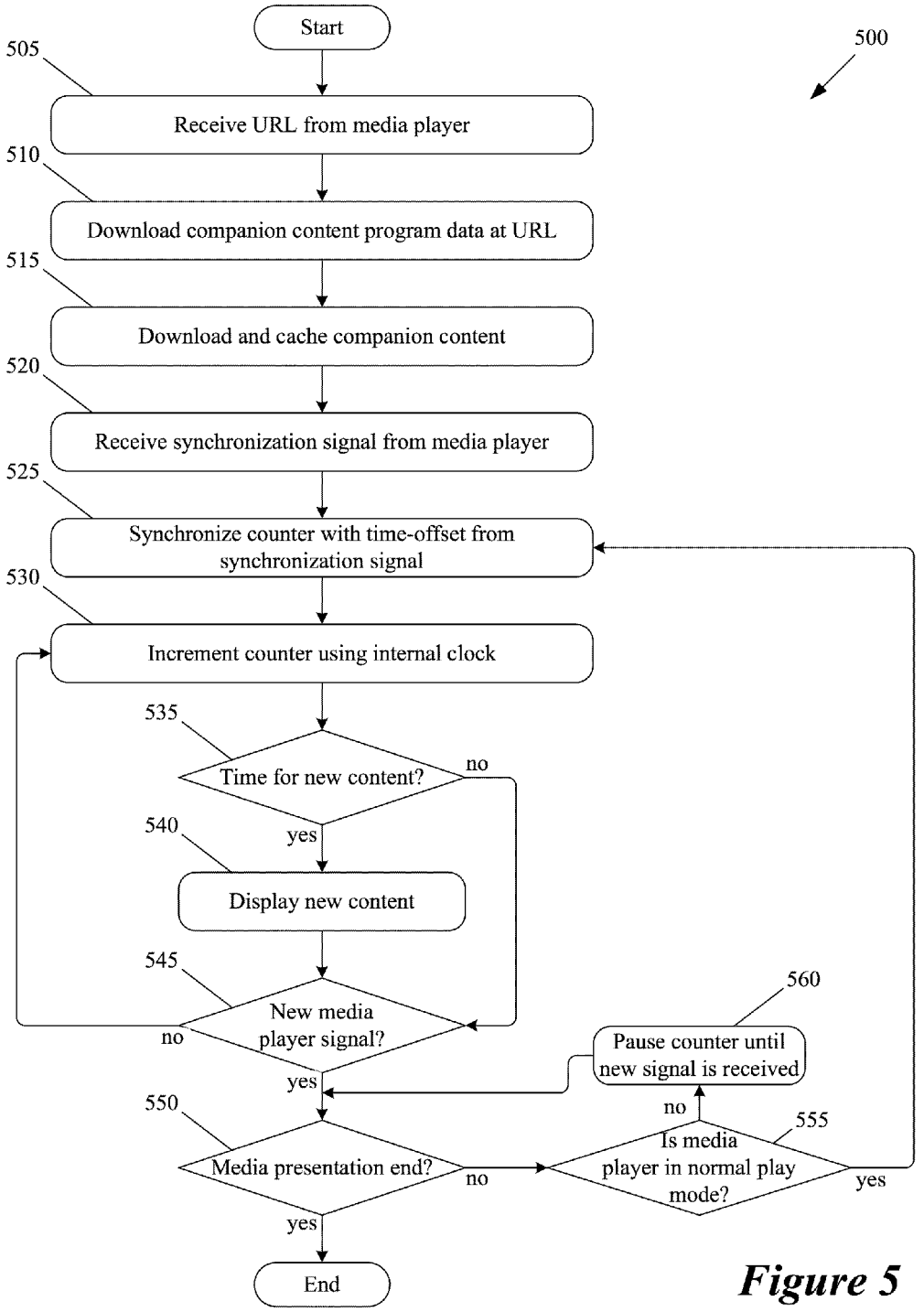

Start
500
505
Receive URL from media player
510
Download companion content program data at URL
515
Download and cache companion content
520
Receive synchronization signal from media player
525
Synchronize counter with time-offset from synchronization signal
530
Increment counter using internal clock
535
Time for new content?
no
yes
540
Display new content
545
New media player signal?
no
yes
560
Pause counter until new signal is received
550
Media presentation end?
no
yes
555
Is media player in normal play mode?
no
yes
End

Figure 5

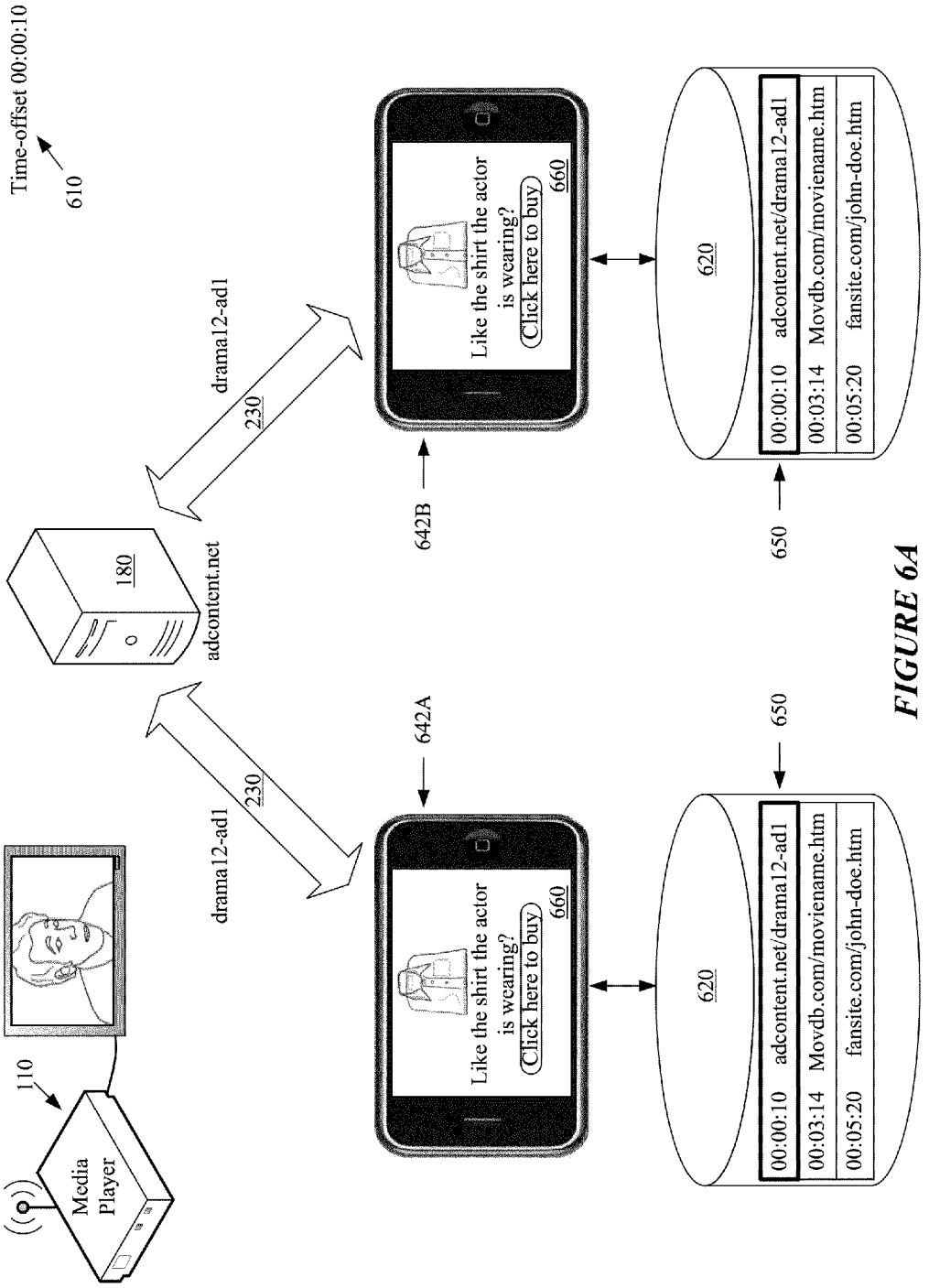

Time-offset 00:00:10
610
drama12-ad1
230
180
adcontent.net
drama12-ad1
230
110
Media Player
642B
Like the shirt the actor is wearing?
Click here to buy
660
642A
Like the shirt the actor is wearing?
Click here to buy
660
650
620
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doe.htm
650
620
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doe.htm

FIGURE 6A

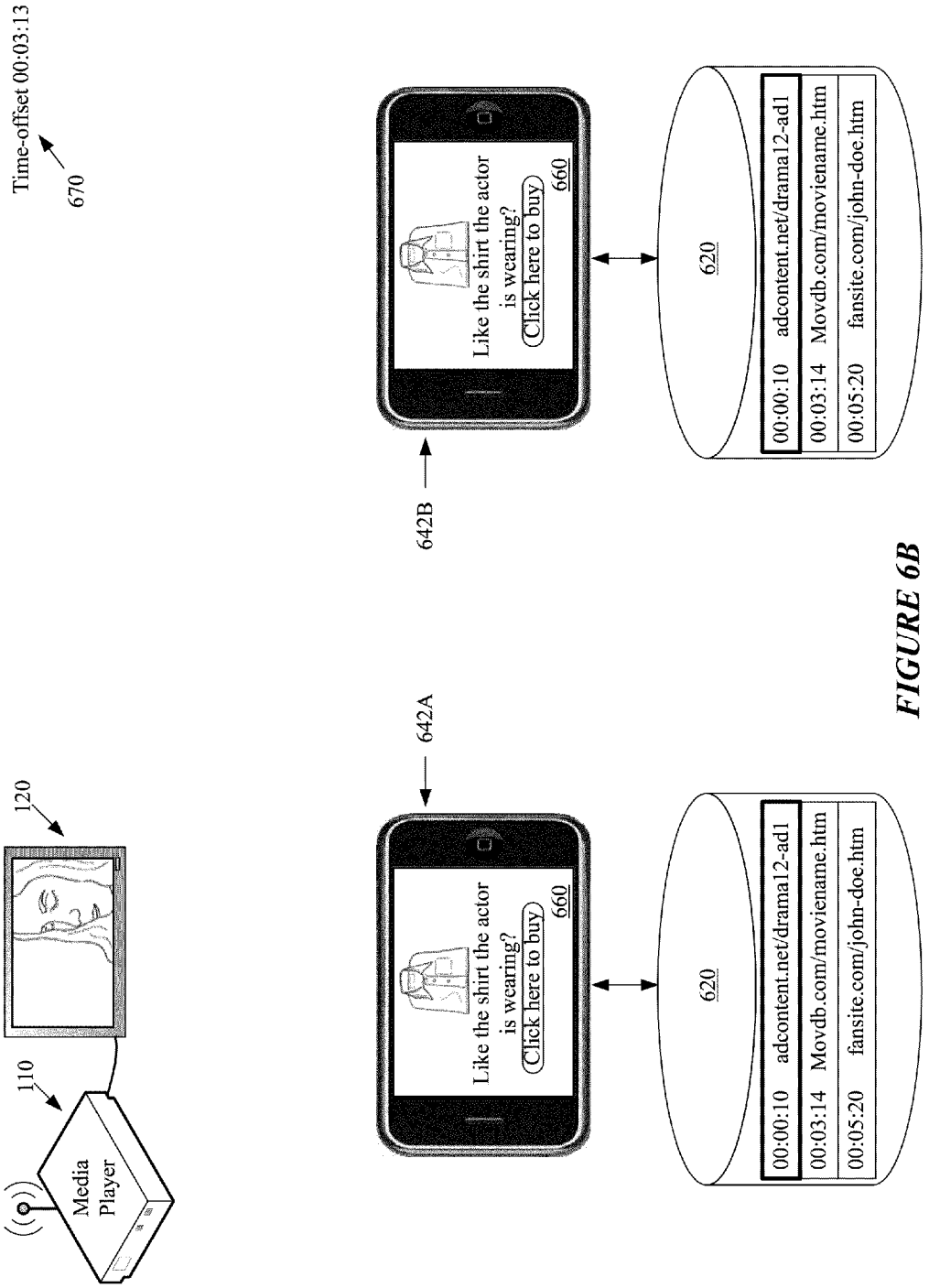

Time-offset 00:03:13
670
120
110
Media Player
642A
Like the shirt the actor is wearing?
Click here to buy
660
620
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doe.htm
642B
Like the shirt the actor is wearing?
Click here to buy
660
620
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doe.htm

FIGURE 6B

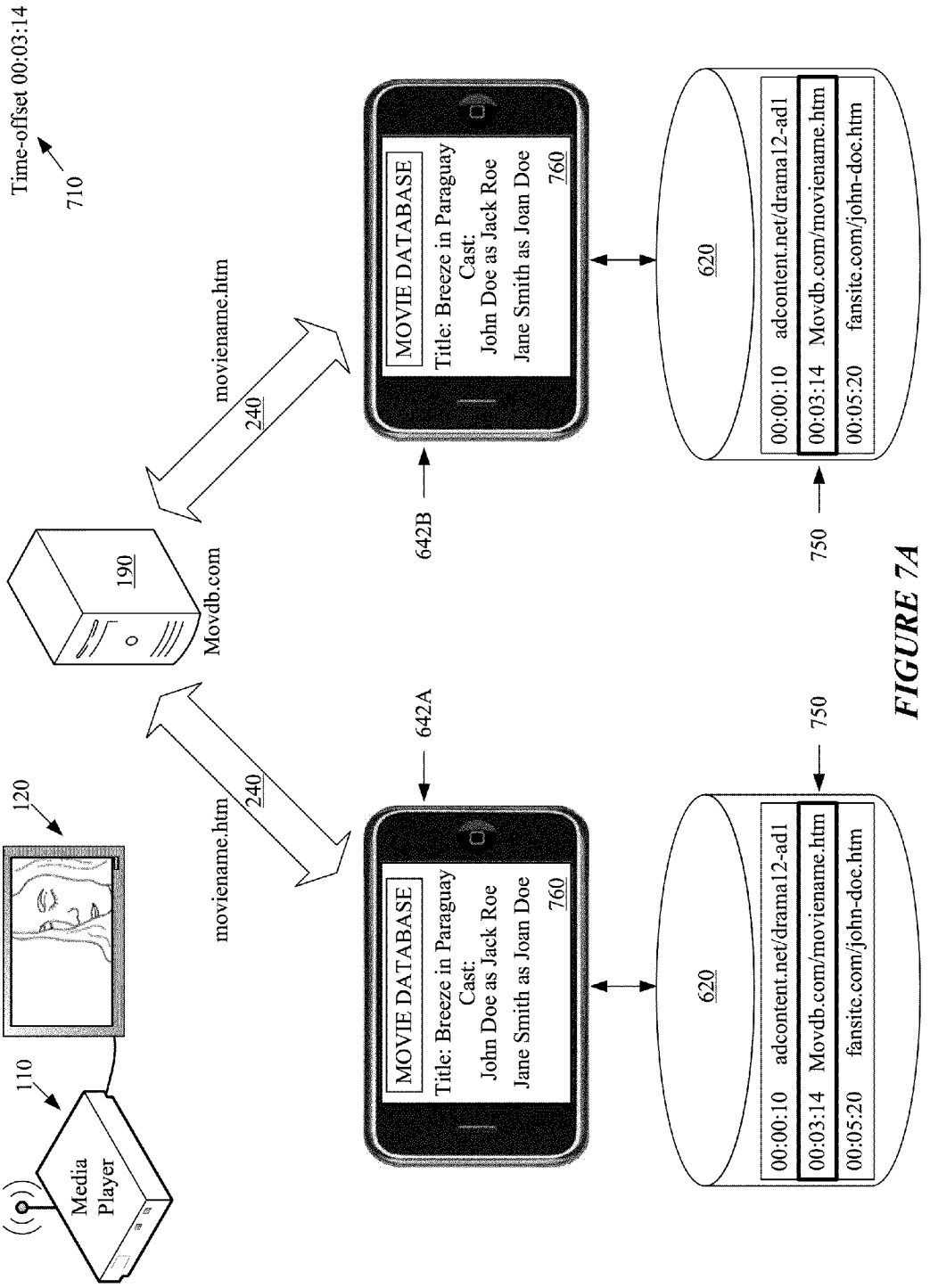

Time-offset 00:03:14
710
moviename.htm
240
MOVIE DATABASE
Title: Breeze in Paraguay
Cast:
John Doe as Jack Roe
Jane Smith as Joan Doe
760
620
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doc.htm
642B
750
190
Movdb.com
642A
750
120
110
Media Player

FIGURE 7A

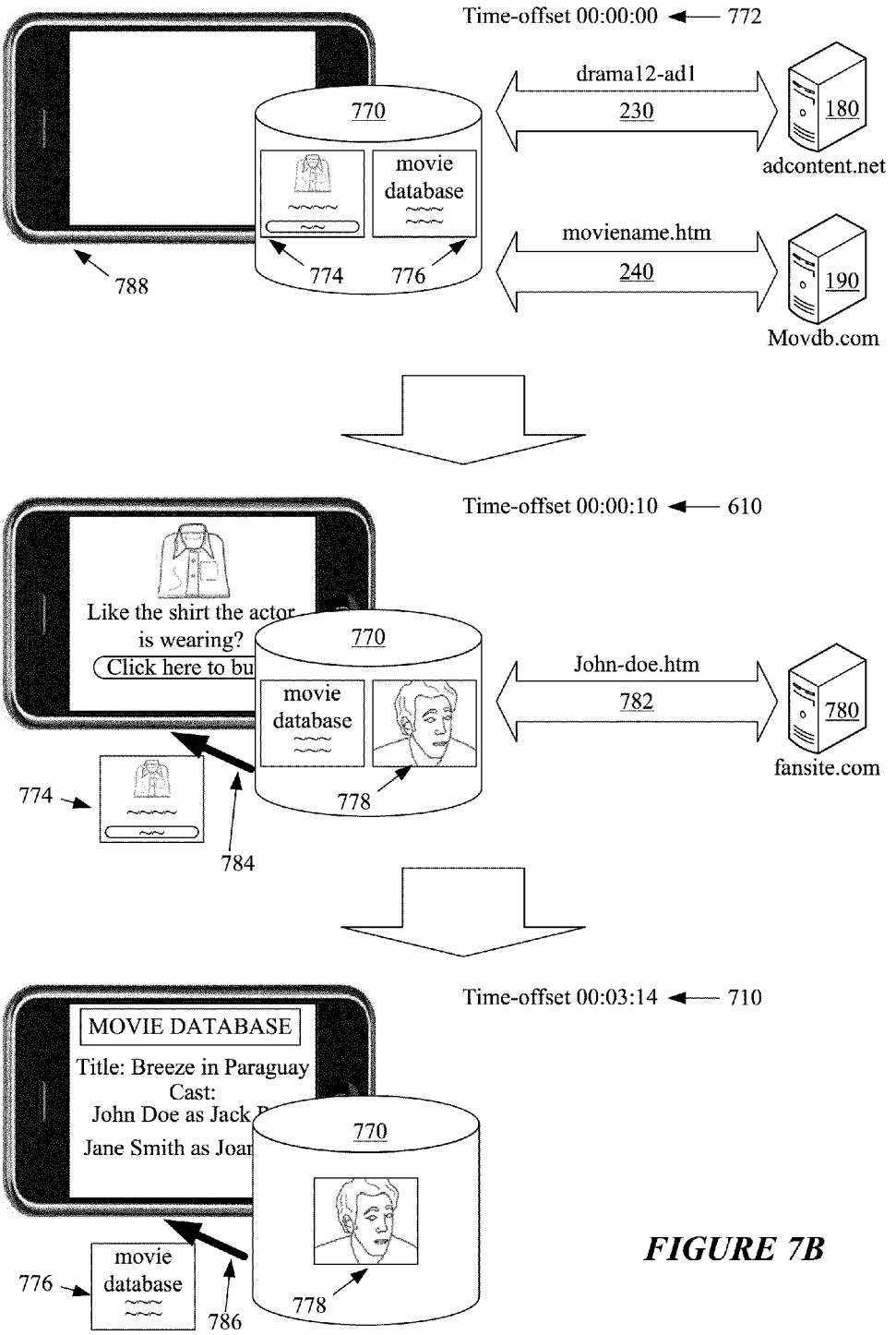

Time-offset 00:00:00
772
drama12-ad1
230
180
adcontent.net
770
movie database
moviename.htm
240
190
Movdb.com
774
776
788
Time-offset 00:00:10
610
Like the shirt the actor is wearing?
Click here to bu
John-doe.htm
782
780
fansite.com
774
784
778
Time-offset 00:03:14
710
MOVIE DATABASE
Title: Breeze in Paraguay
Cast:
John Doe as Jack
Jane Smith as Joa
776
786
778

FIGURE 7B

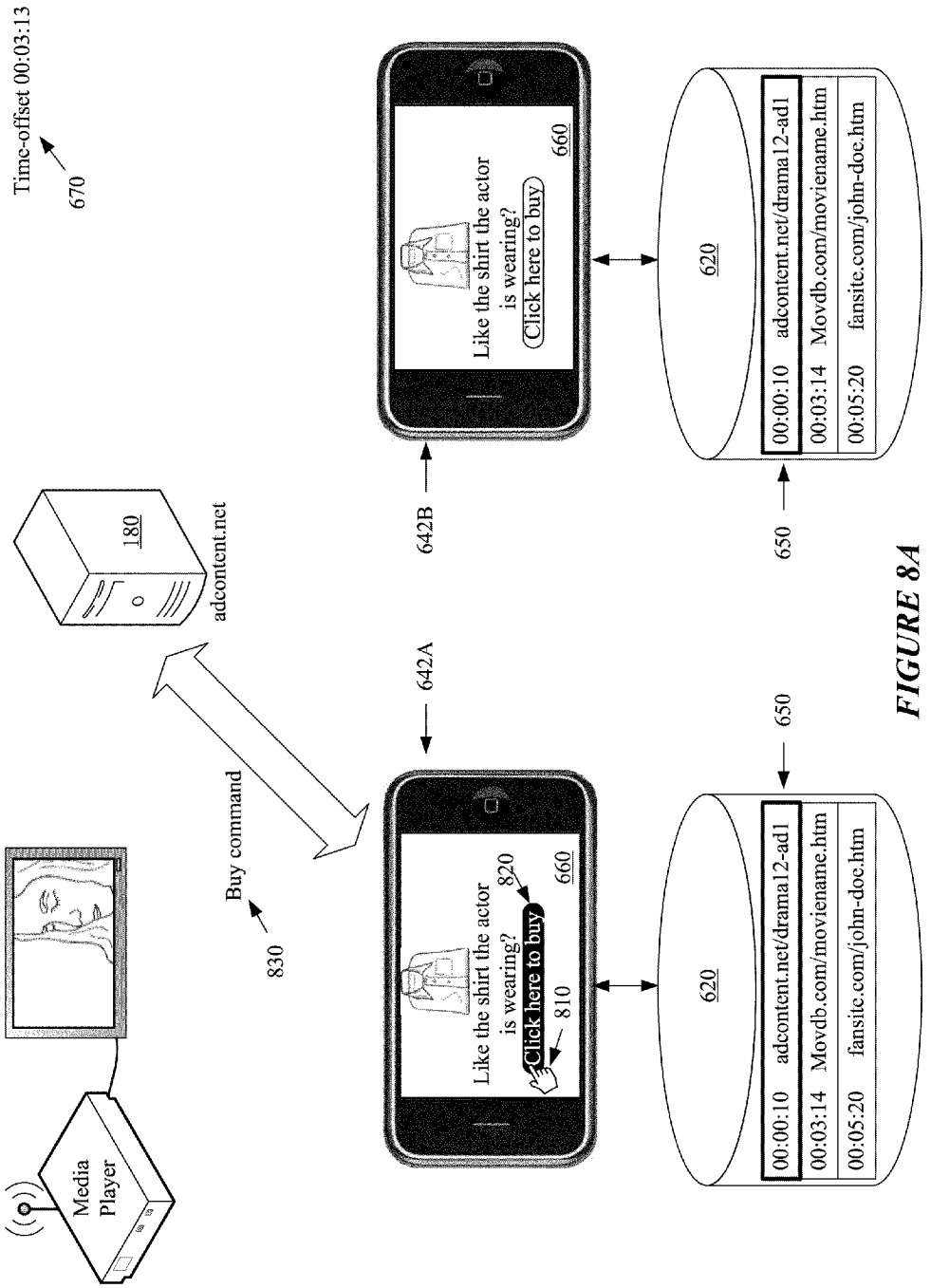

Time-offset 00:03:13
670
Like the shirt the actor is wearing?
Click here to buy
660
620
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doc.htm
642B
650
180
adcontent.net
642A
650
Buy command
830
820
810
Media Player

FIGURE 8A

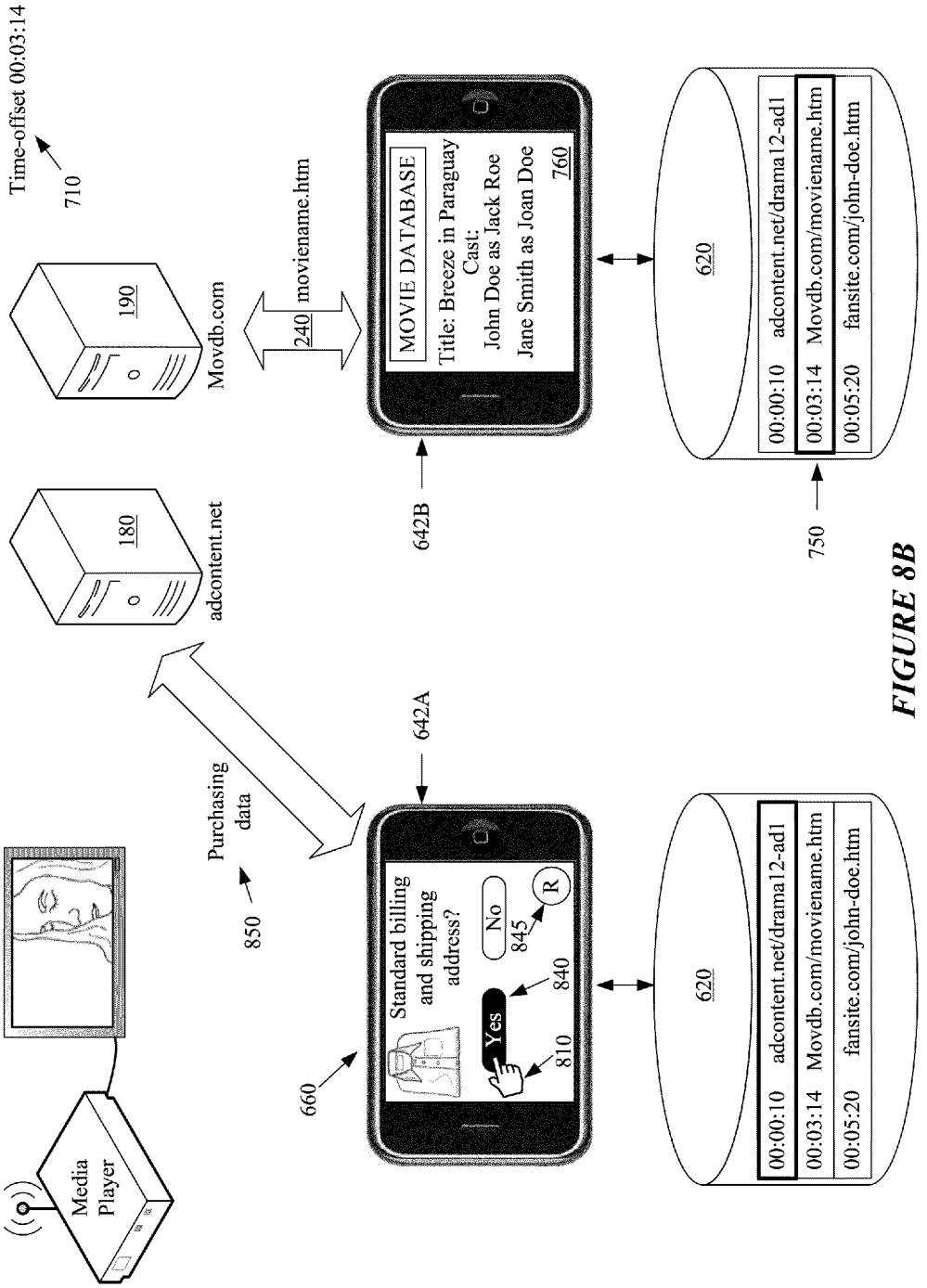

Time-offset 00:03:14
710
190
Movdb.com
240 moviename.htm
MOVIE DATABASE
Title: Breeze in Paraguay
Cast:
John Doe as Jack Roe
Jane Smith as Joan Doe
760
620
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doe.htm
180
adcontent.net
642B
750
Purchasing data
850
642A
Media Player
660
Standard billing and shipping address?
Yes
No
810
840
845
R
620
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doe.htm

FIGURE 8B

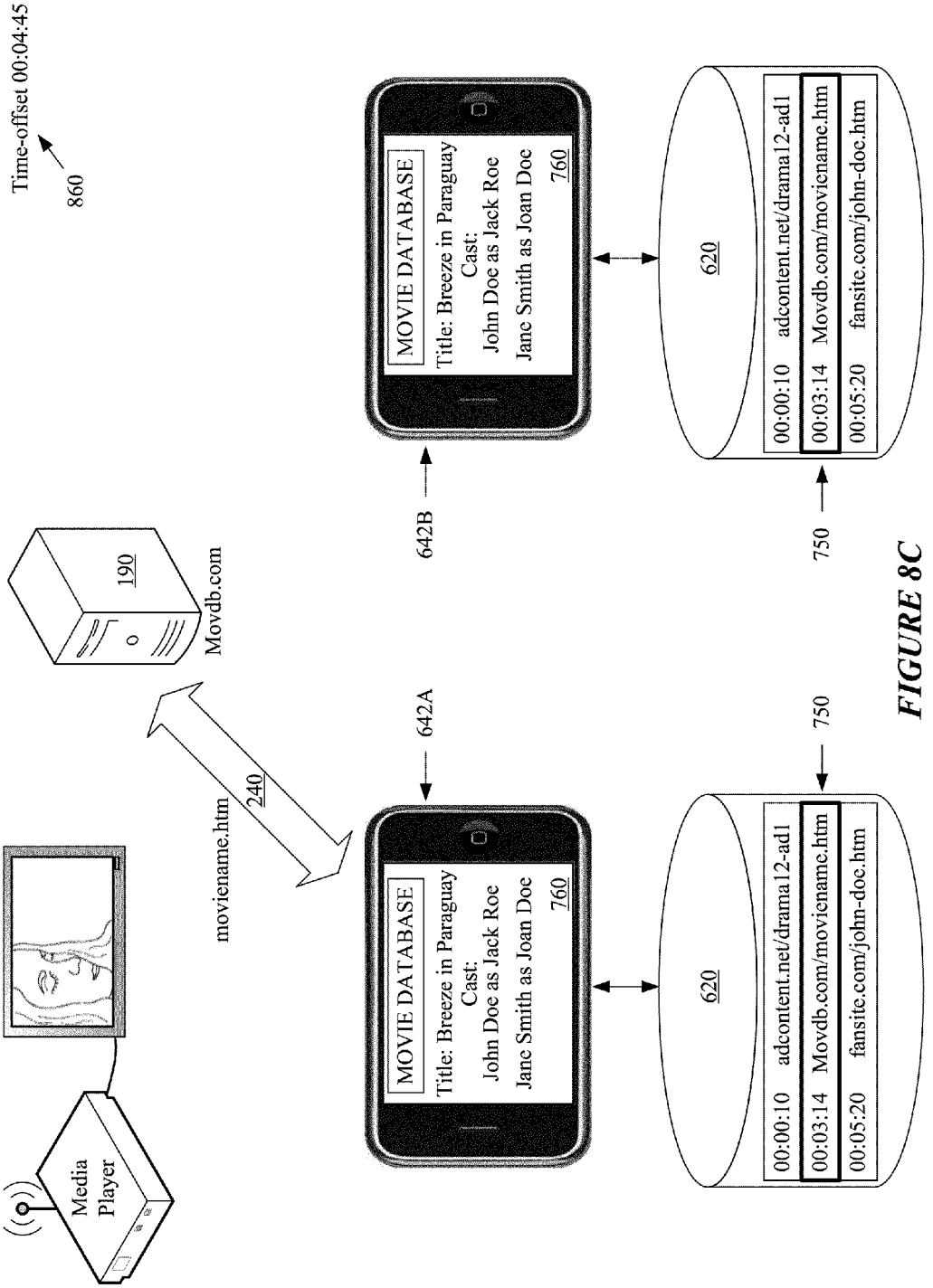

Time-offset 00:04:45
860
Media Player
moviename.htm
240
190
Movdb.com
642A
642B
MOVIE DATABASE
Title: Breeze in Paraguay
Cast:
John Doe as Jack Roe
Jane Smith as Joan Doe
760
620
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doc.htm
750

FIGURE 8C

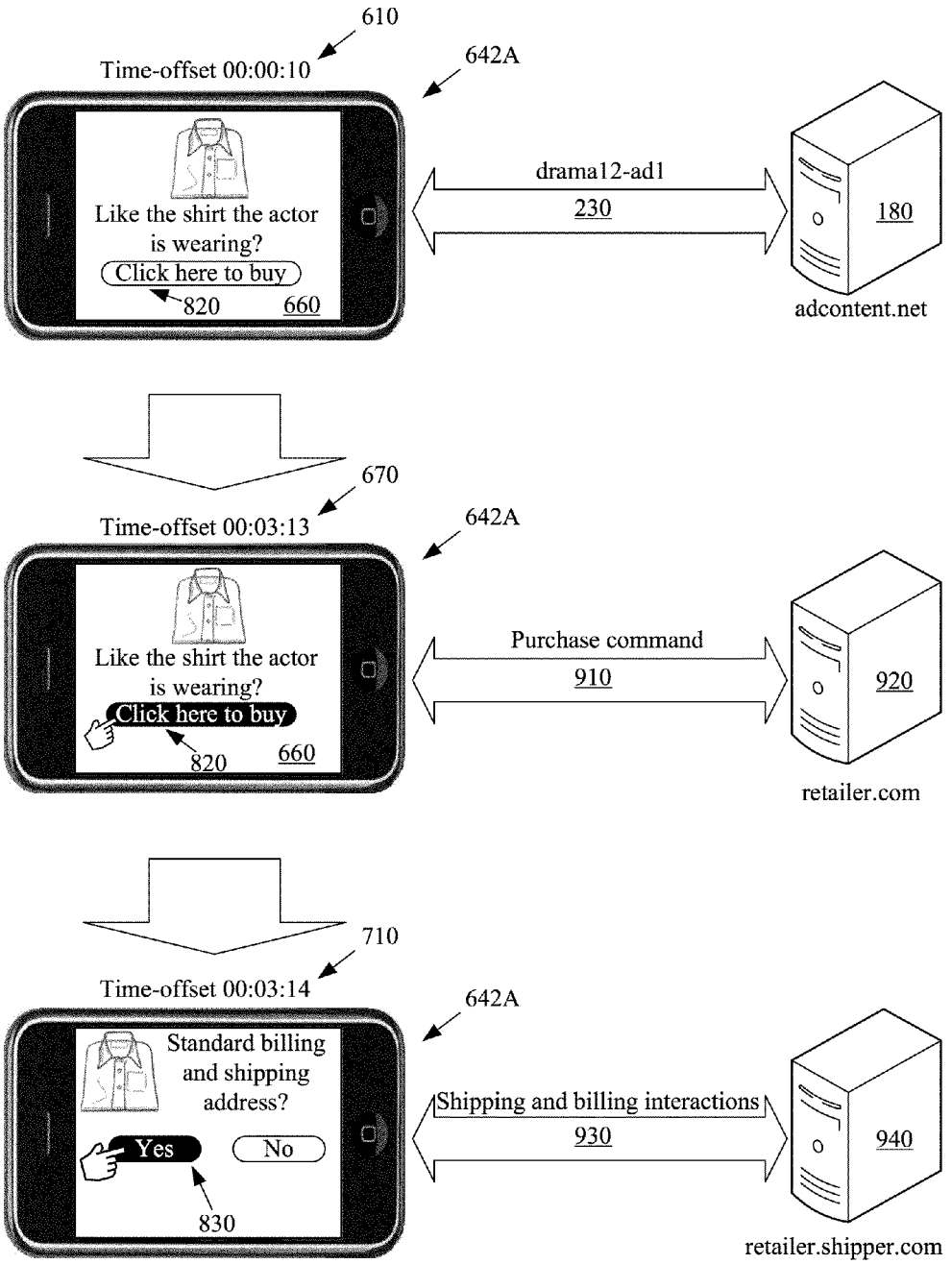

610
Time-offset 00:00:10
642A
Like the shirt the actor is wearing?
Click here to buy
820
660
drama12-ad1
230
180
adcontent.net
670
Time-offset 00:03:13
642A
Like the shirt the actor is wearing?
Click here to buy
820
660
Purchase command
910
920
retailer.com
710
Time-offset 00:03:14
642A
Standard billing and shipping address?
Yes
No
830
Shipping and billing interactions
930
940
retailer.shipper.com

FIGURE 9

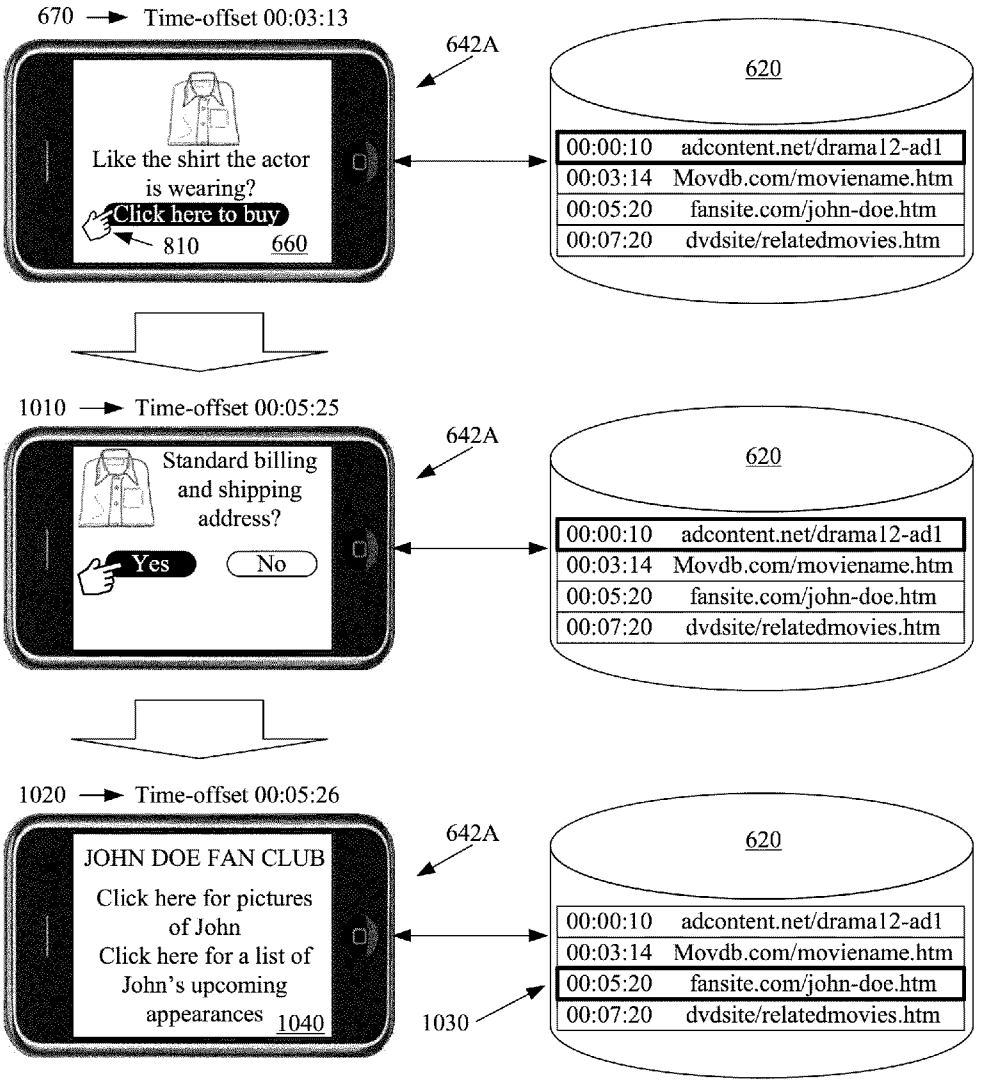

670
Time-offset 00:03:13
642A
620
Like the shirt the actor is wearing?
Click here to buy
810
660
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doe.htm
00:07:20 dvdsite/relatedmovies.htm
1010
Time-offset 00:05:25
642A
620
Standard billing and shipping address?
Yes
No
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doe.htm
00:07:20 dvdsite/relatedmovies.htm
1020
Time-offset 00:05:26
642A
620
JOHN DOE FAN CLUB
Click here for pictures of John
Click here for a list of John's upcoming appearances
1040
1030
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doe.htm
00:07:20 dvdsite/relatedmovies.htm

FIGURE 10

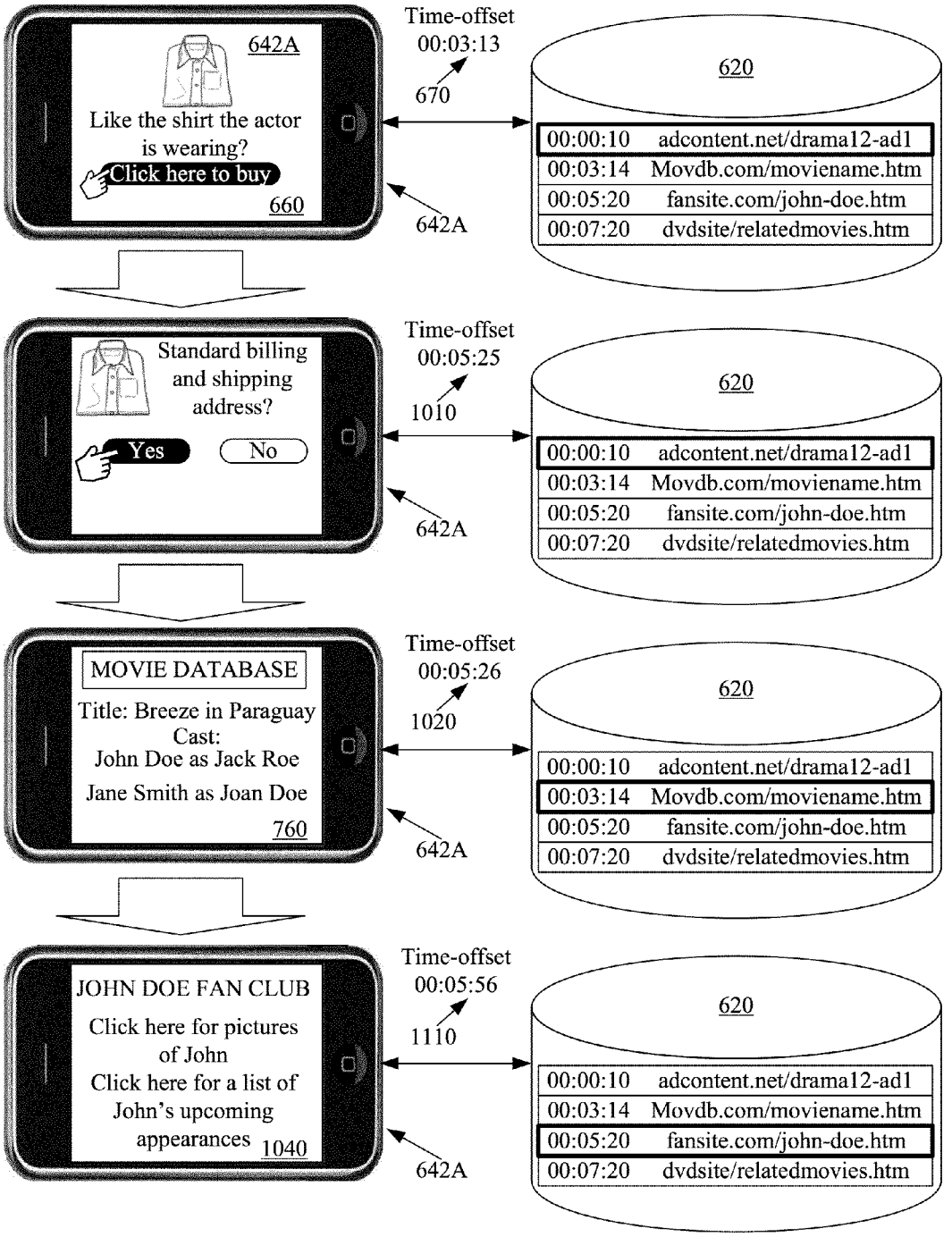

642A
Like the shirt the actor is wearing?
Click here to buy
660
Time-offset 00:03:13
670
642A
620
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doe.htm
00:07:20 dvdsite/relatedmovies.htm
Standard billing and shipping address?
Yes
No
Time-offset 00:05:25
1010
642A
620
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doe.htm
00:07:20 dvdsite/relatedmovies.htm
MOVIE DATABASE
Title: Breeze in Paraguay
Cast:
John Doe as Jack Roe
Jane Smith as Joan Doe
760
Time-offset 00:05:26
1020
642A
620
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doe.htm
00:07:20 dvdsite/relatedmovies.htm
JOHN DOE FAN CLUB
Click here for pictures of John
Click here for a list of John's upcoming appearances
1040
Time-offset 00:05:56
1110
642A
620
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doe.htm
00:07:20 dvdsite/relatedmovies.htm

FIGURE 11

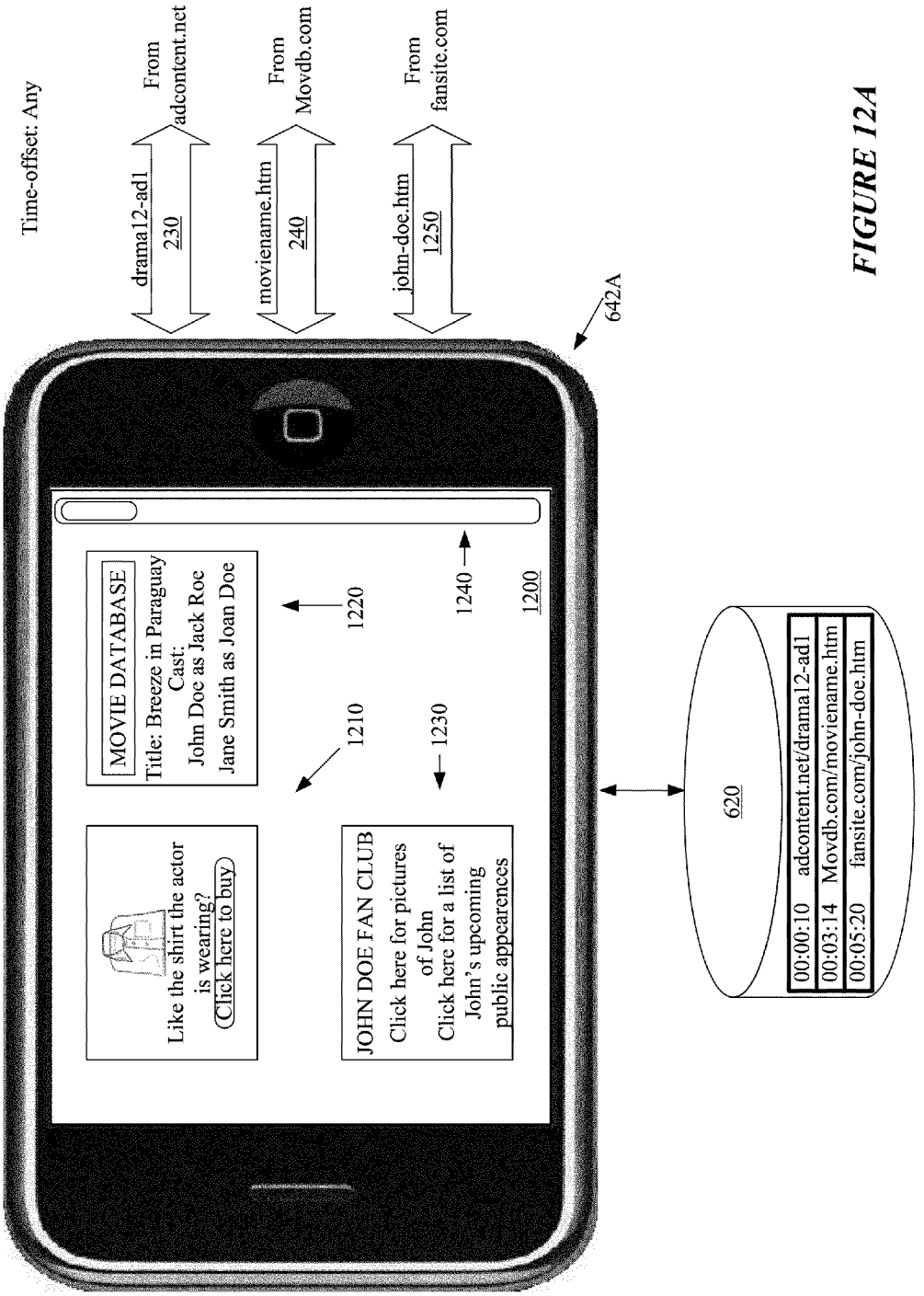

Time-offset: Any
drama12-ad1
230
From
adcontent.net
moviename.htm
240
From
Movdb.com
john-doe.htm
1250
From
fansite.com
642A
MOVIE DATABASE
Title: Breeze in Paraguay
Cast:
John Doe as Jack Roe
Jane Smith as Joan Doe
1220
1240
1200
1210
1230
Like the shirt the actor is wearing?
Click here to buy
JOHN DOE FAN CLUB
Click here for pictures of John
Click here for a list of John's upcoming public appearences
620
00:00:10 adcontent.net/drama12-ad1
00:03:14 Movdb.com/moviename.htm
00:05:20 fansite.com/john-doe.htm

FIGURE 12A

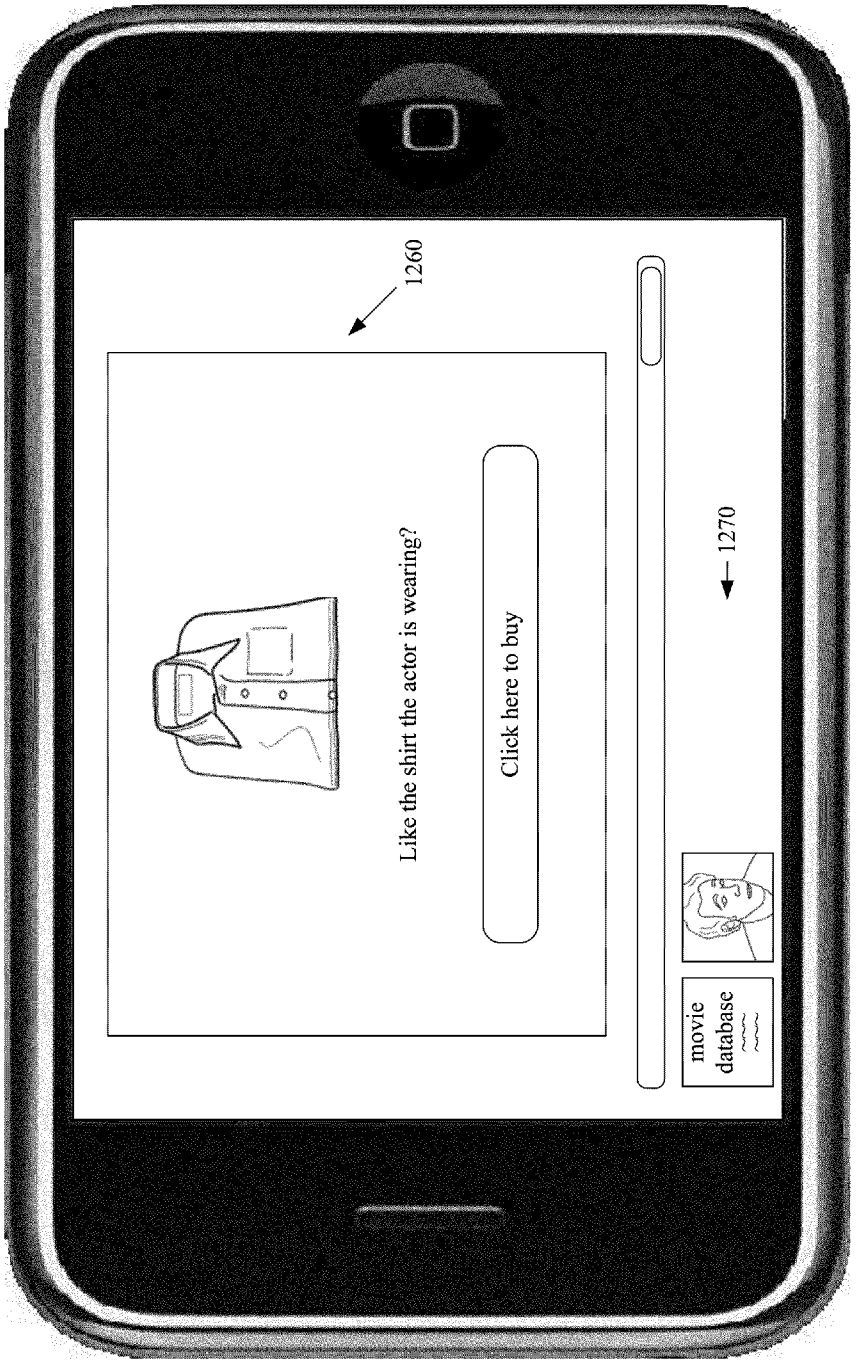

1260
Like the shirt the actor is wearing?
Click here to buy
1270
movie database

FIGURE 12B

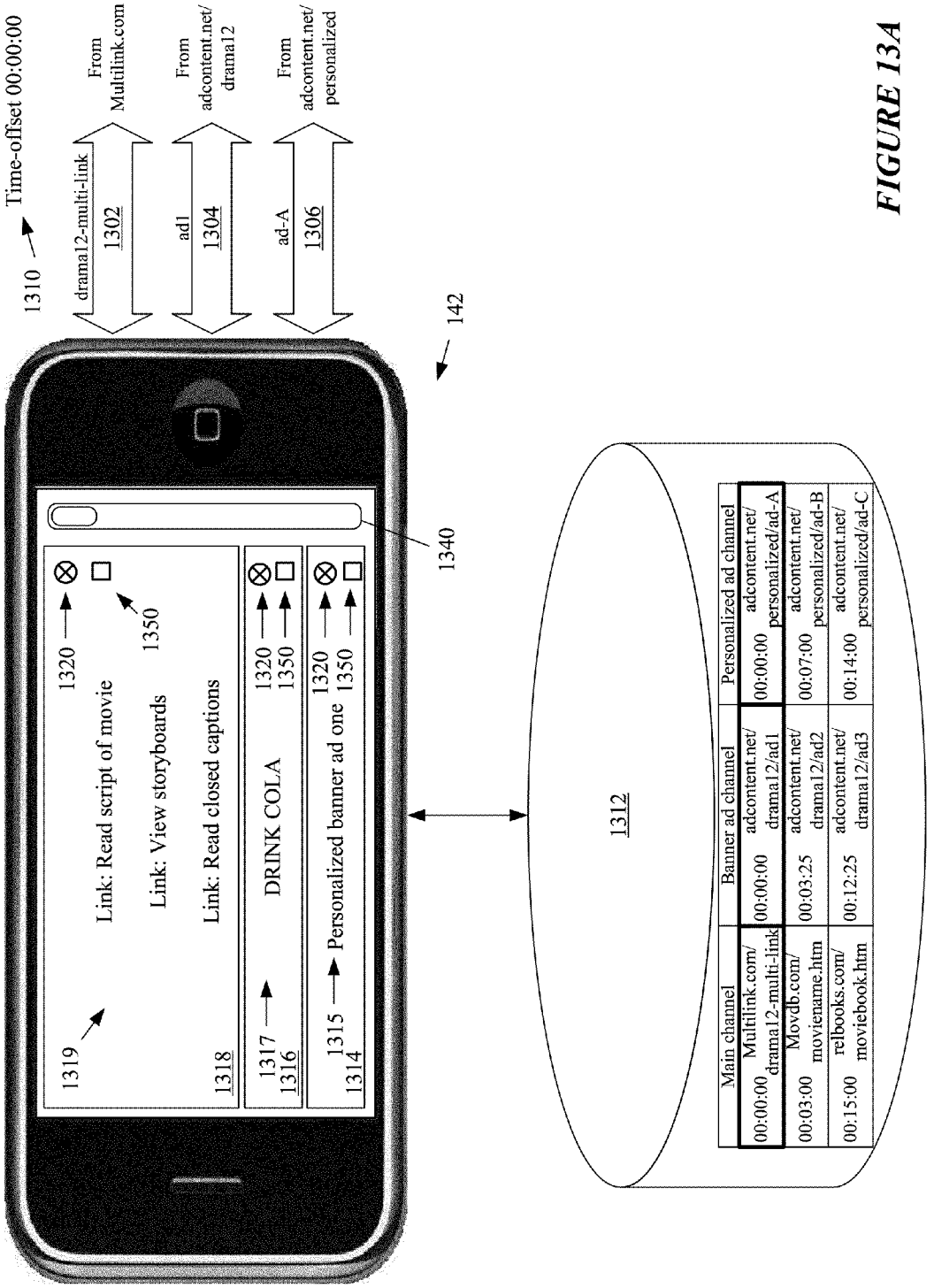

Time-offset 00:00:00
1310
drama12-multi-link
1302
From Multilink.com
ad1
1304
From adcontent.net/ drama12
ad-A
1306
From adcontent.net/ personalized
142
1340
1319
1320
Link: Read script of movie
1350
Link: View storyboards
Link: Read closed captions
1318
1317
1316
DRINK COLA
1320
1350
1315
1314
Personalized banner ad one
1320
1350
1312
Main channel
Banner ad channel
Personalized ad channel
00:00:00 Multilink.com/ drama12-multi-link
00:00:00 adcontent.net/ drama12/ad1
00:00:00 adcontent.net/ personalized/ad-A
00:03:00 Movdb.com/ movienarne.htm
00:03:25 adcontent.net/ drama12/ad2
00:07:00 adcontent.net/ personalized/ad-B
00:15:00 relbooks.com/ moviebook.htm
00:12:25 adcontent.net/ drama12/ad3
00:14:00 adcontent.net/ personalized/ad-C

FIGURE 13A

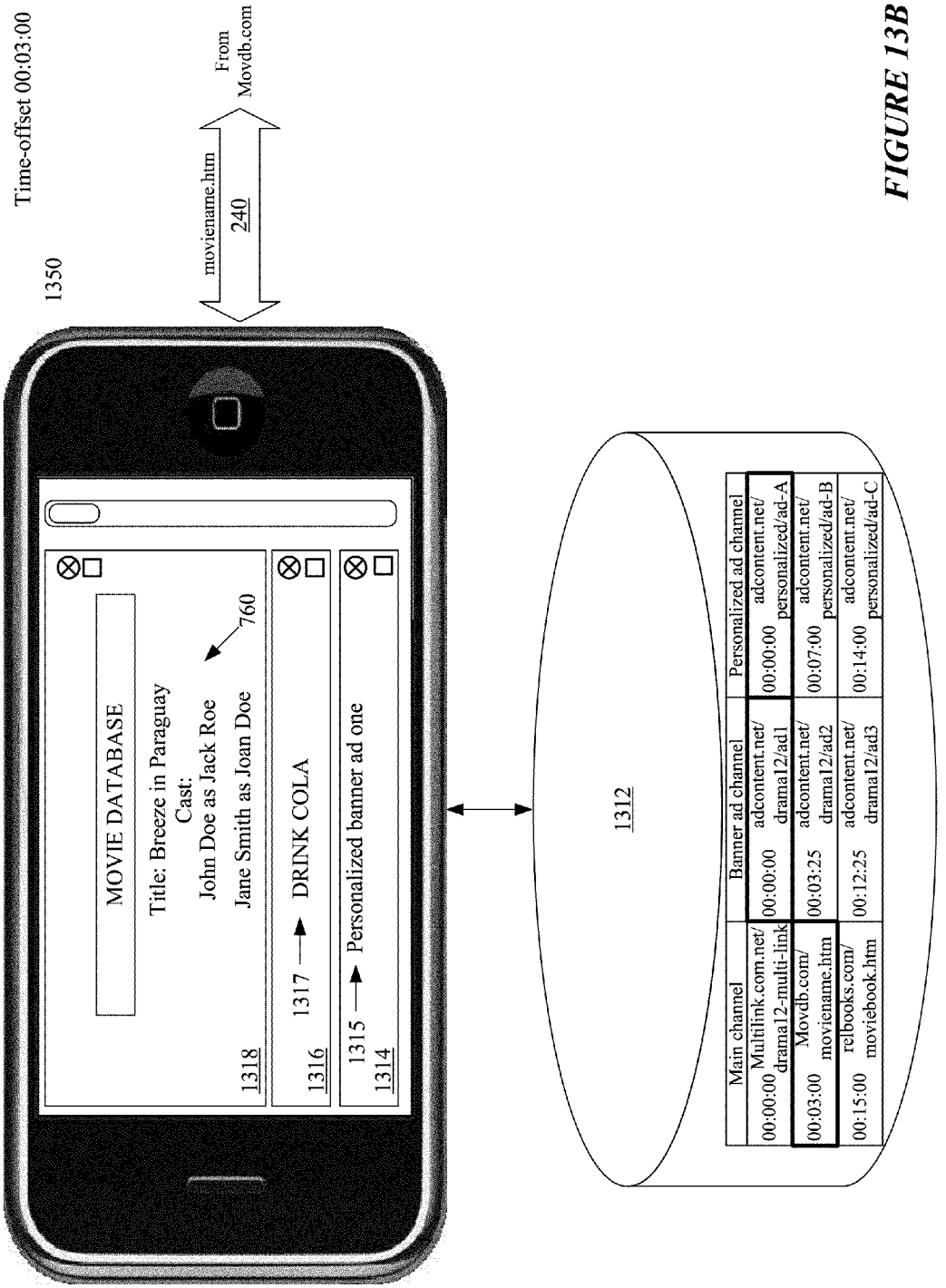

Time-offset 00:03:00
1350
moviename.htm
240
From
Movdb.com
MOVIE DATABASE
Title: Breeze in Paraguay
Cast:
John Doe as Jack Roe
Jane Smith as Joan Doe
760
1318
1317
DRINK COLA
1316
1315
Personalized banner ad one
1314
1312
Main channel
Banner ad channel
Personalized ad channel
00:00:00 Multilink.com.net/ drama12-multi-link
00:00:00 adcontent.net/ drama12/ad1
00:00:00 adcontent.net/ personalized/ad-A
00:03:00 Movdb.com/ moviename.htm
00:03:25 adcontent.net/ drama12/ad2
00:07:00 adcontent.net/ personalized/ad-B
00:15:00 relbooks.com/ moviebook.htm
00:12:25 adcontent.net/ drama12/ad3
00:14:00 adcontent.net/ personalized/ad-C

FIGURE 13B

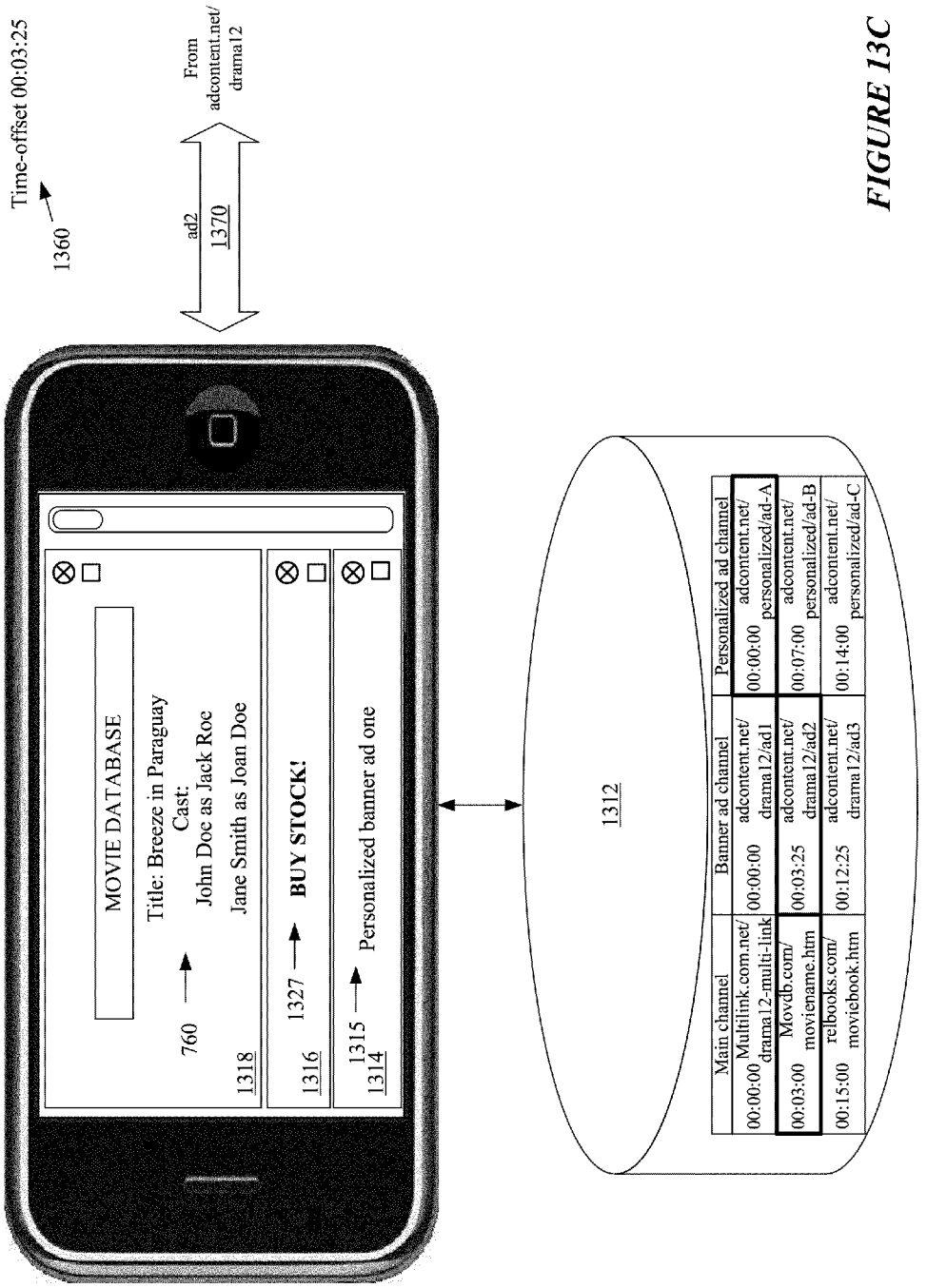

Time-offset 00:03:25
1360
ad2
1370
From adcontent.net/ drama12
MOVIE DATABASE
Title: Breeze in Paraguay
Cast:
John Doe as Jack Roe
Jane Smith as Joan Doe
760
1318
1327
BUY STOCK!
1316
1315
Personalized banner ad one
1314
1312
Main channel
00:00:00 Multilink.com.net/ drama12-multi-link
00:03:00 Movdb.com/ moviename.htm
00:15:00 relbooks.com/ moviebook.htm
Banner ad channel
00:00:00 adcontent.net/ drama12/ad1
00:03:25 adcontent.net/ drama12/ad2
00:12:25 adcontent.net/ drama12/ad3
Personalized ad channel
00:00:00 adcontent.net/ personalized/ad-A
00:07:00 adcontent.net/ personalized/ad-B
00:14:00 adcontent.net/ personalized/ad-C

FIGURE 13C

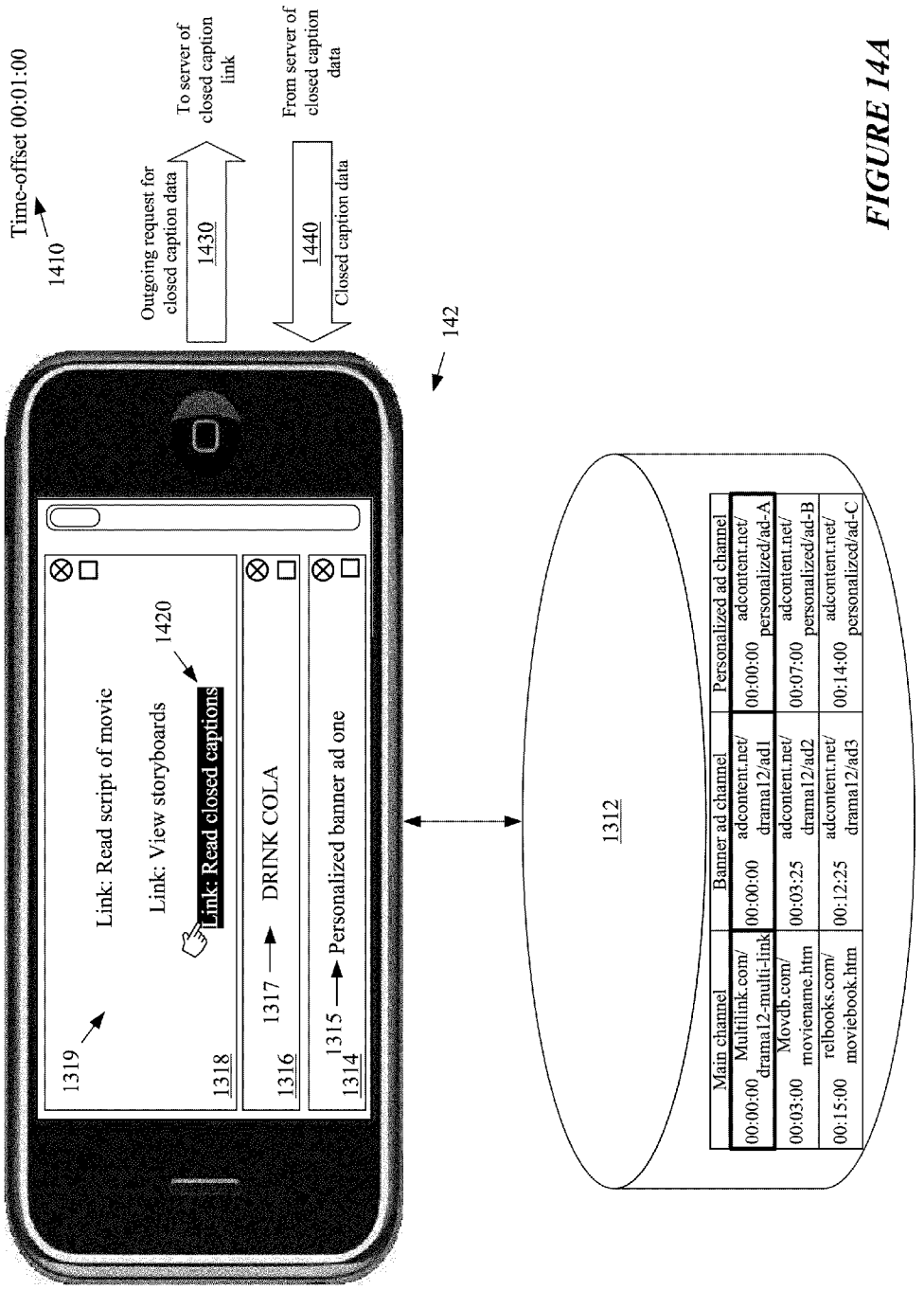

Time-offset 00:01:00
1410
Outgoing request for closed caption data
1430
To server of closed caption link
From server of closed caption data
1440
Closed caption data
142
Link: Read script of movie
Link: View storyboards
Link: Read closed captions
1420
1319
1318
1316
1317
DRINK COLA
1314
1315
Personalized banner ad one
1312
Main channel
Banner ad channel
Personalized ad channel
00:00:00 Multilink.com/drama12-multi-link
00:00:00 adcontent.net/drama12/ad1
00:00:00 adcontent.net/personalized/ad-A
00:03:00 Movdb.com/moviename.htm
00:03:25 adcontent.net/drama12/ad2
00:07:00 adcontent.net/personalized/ad-B
00:15:00 relbooks.com/moviebook.htm
00:12:25 adcontent.net/drama12/ad3
00:14:00 adcontent.net/personalized/ad-C

FIGURE 14A

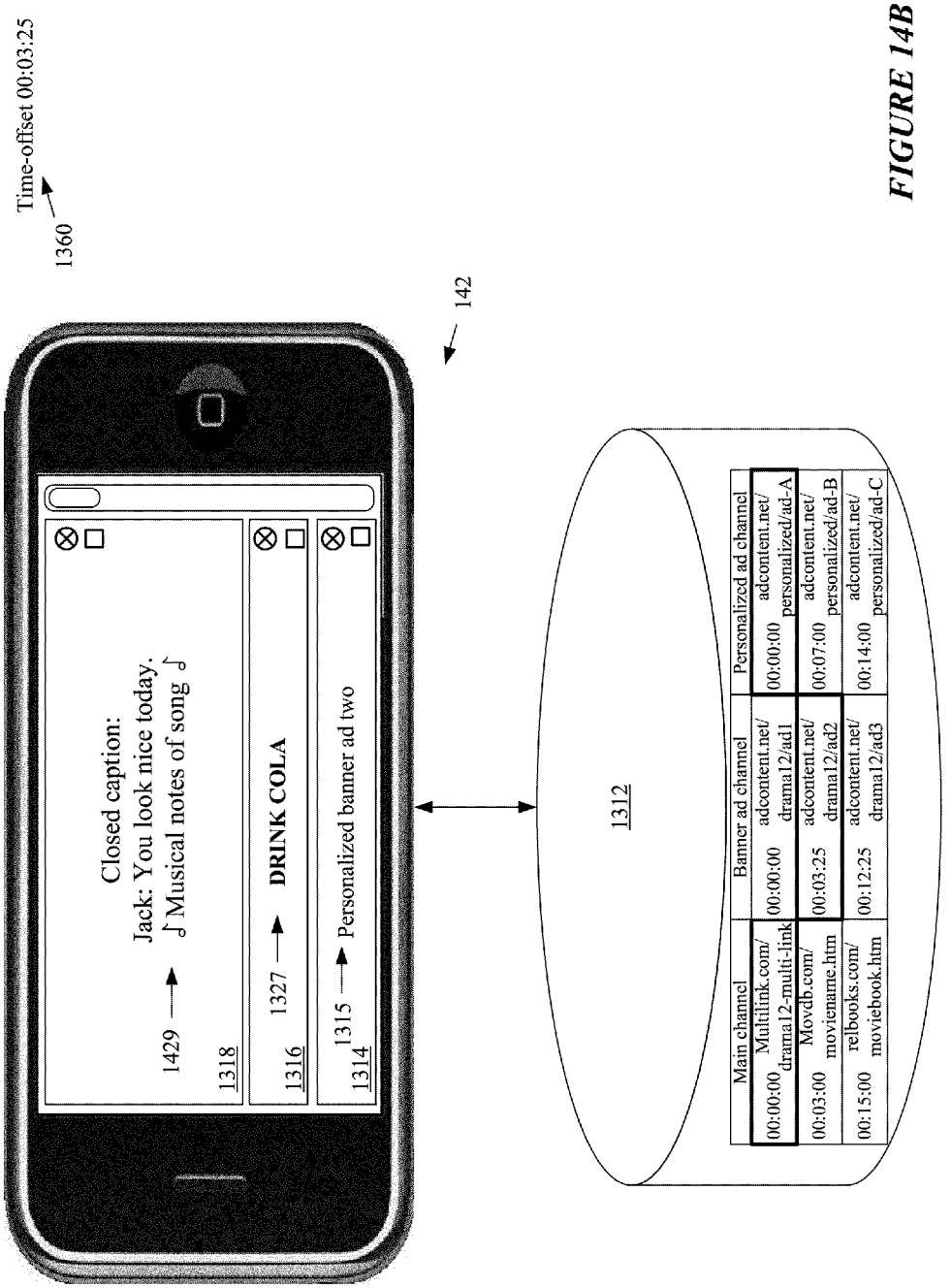

Time-offset 00:03:25
1360
142
Closed caption:
Jack: You look nice today.
♪Musical notes of song♪
1429
1318
1327
DRINK COLA
1316
1315
Personalized banner ad two
1314
1312
Main channel
Banner ad channel
Personalized ad channel
00:00:00 Multilink.com/drama12-multi-link 00:00:00 adcontent.net/drama12/ad1 00:00:00 adcontent.net/personalized/ad-A
00:03:00 Movdb.com/movienamne.htm 00:03:25 adcontent.net/drama12/ad2 00:07:00 adcontent.net/personalized/ad-B
00:15:00 relbooks.com/moviebook.htm 00:12:25 adcontent.net/drama12/ad3 00:14:00 adcontent.net/personalized/ad-C

FIGURE 14B

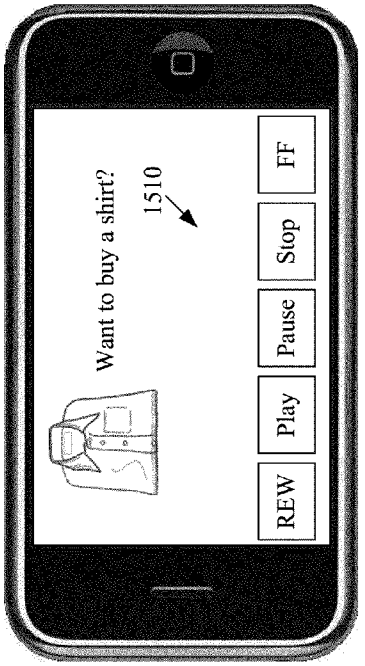


Figure 15

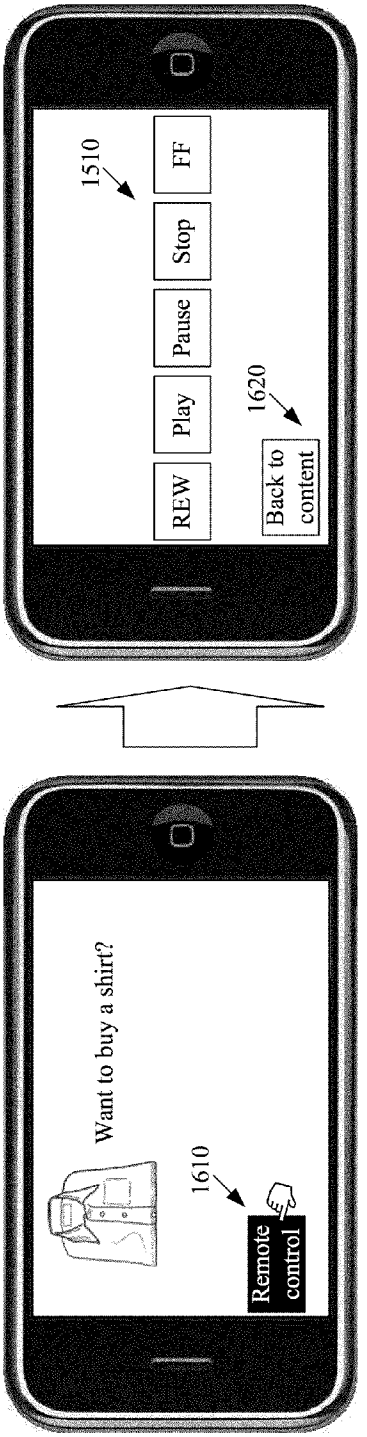


Figure 16

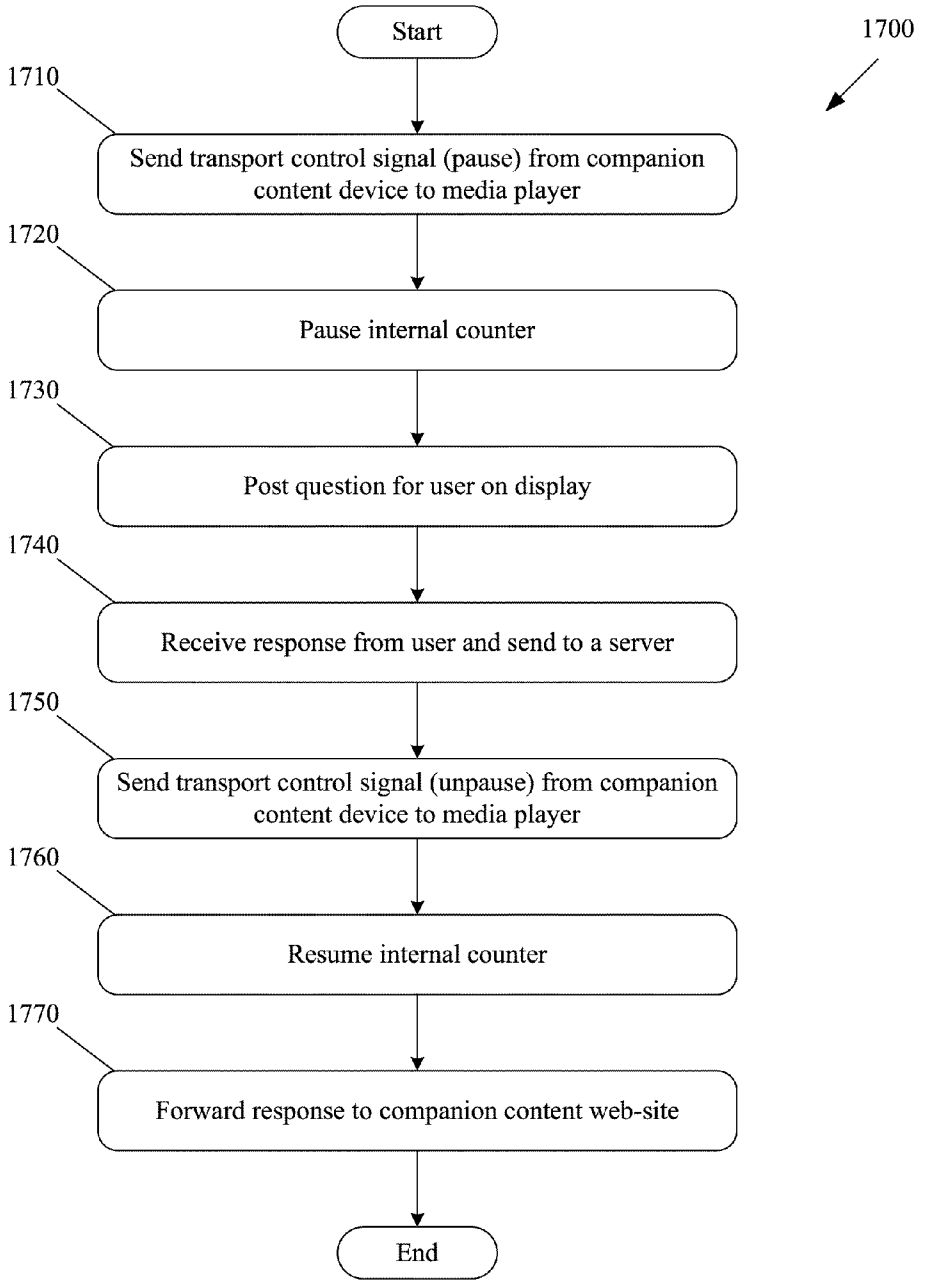

Start
1700
1710
Send transport control signal (pause) from companion content device to media player
1720
Pause internal counter
1730
Post question for user on display
1740
Receive response from user and send to a server
1750
Send transport control signal (unpause) from companion content device to media player
1760
Resume internal counter
1770
Forward response to companion content web-site
End

Figure 17

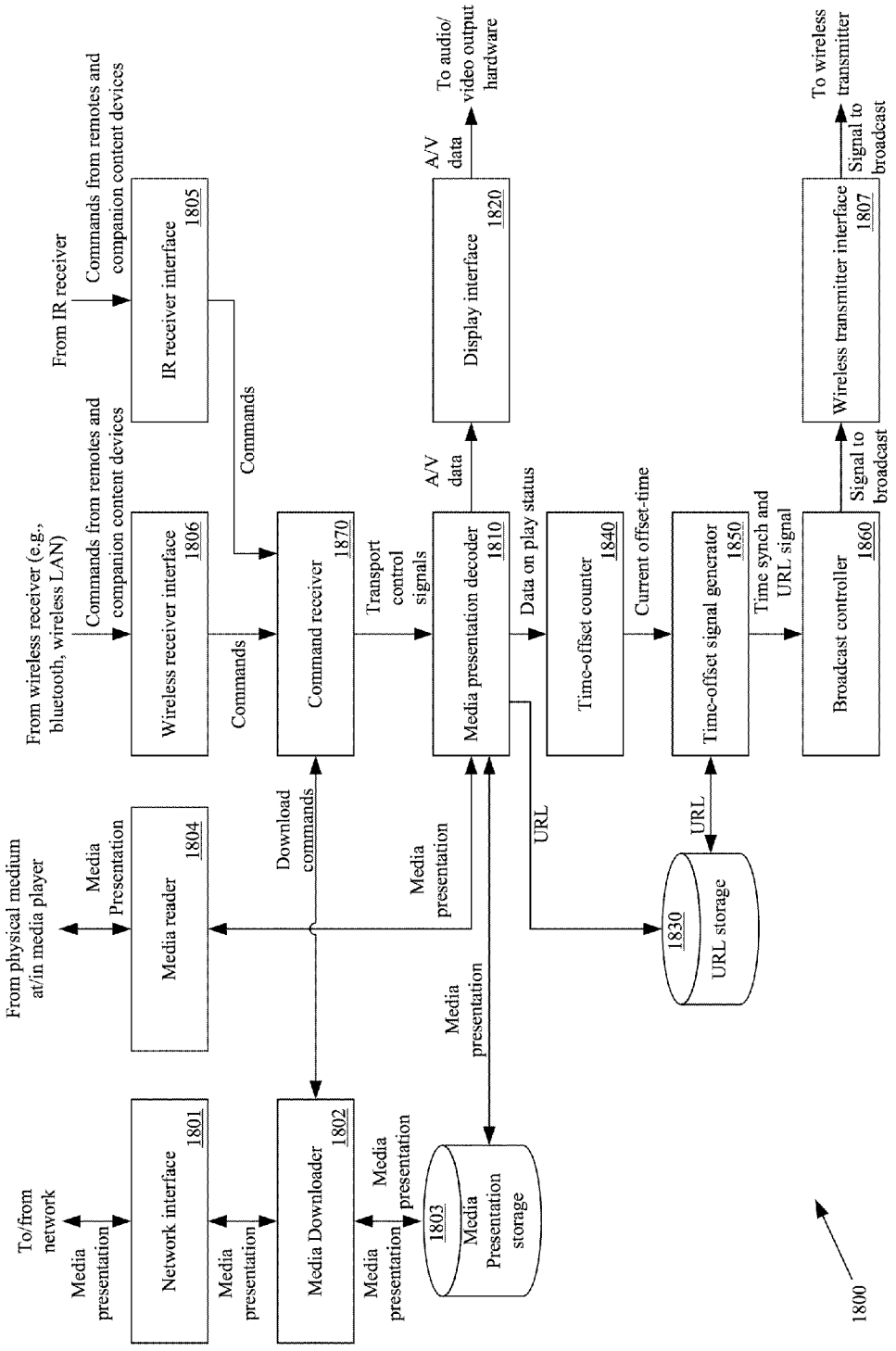

From wireless receiver (e.g., bluetooth, wireless LAN)
Commands from remotes and companion content devices
Wireless receiver interface 1806
From IR receiver
Commands from remotes and companion content devices
IR receiver interface 1805
Commands
Commands
Command receiver 1870
Transport control signals
Media presentation decoder 1810
A/V data
Display interface 1820
A/V data
To audio/ video output hardware
Data on play status
Time-offset counter 1840
Current offset-time
Time-offset signal generator 1850
Time synch and URL signal
Broadcast controller 1860
Signal to broadcast
Wireless transmitter interface 1807
Signal to broadcast
To wireless transmitter
From physical medium at/in media player
Media Presentation
Media reader 1804
Download commands
Media presentation
URL
URL
1830 URL storage
Media presentation
To/from network
Media presentation
Network interface 1801
Media presentation
Media Downloader 1802
Media presentation
Media presentation
1803 Media Presentation storage
1800

FIGURE 18

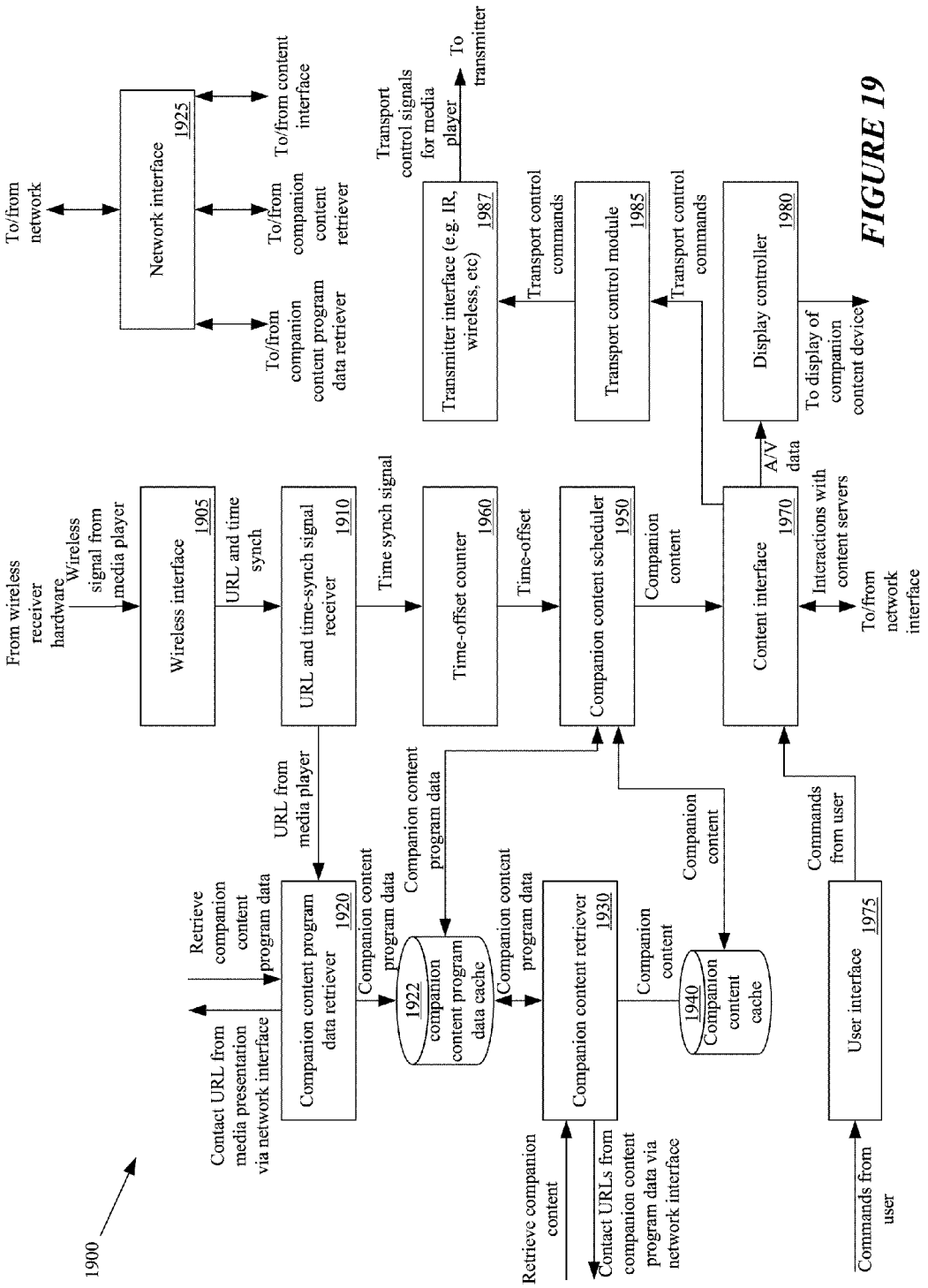

1900
From wireless receiver hardware
Wireless signal from media player
Wireless interface 1905
URL and time synch
URL and time-synch signal receiver 1910
Time synch signal
Time-offset counter 1960
Time-offset
Companion content scheduler 1950
Companion content
Content interface 1970
Interactions with content servers
To/from network interface
A/V data
Display controller 1980
To display of companion content device
Transport control commands
Transport control module 1985
Transport control commands
Transmitter interface (e.g. IR, wireless, etc) 1987
Transport control signals for media player
To transmitter
To/from network
Network interface 1925
To/from companion content program data retriever
To/from companion content retriever
To/from content interface
URL from media player
Companion content program data
Companion content program data
Companion content program data retriever 1920
Companion content program data cache 1922
Companion content program data
Companion content retriever 1930
Companion content
Companion content cache 1940
Companion content
Retrieve companion content program data
Contact URL from media presentation via network interface
Retrieve companion content
Contact URLs from companion content program data via network interface
Commands from user
User interface 1975
Commands from user

FIGURE 19

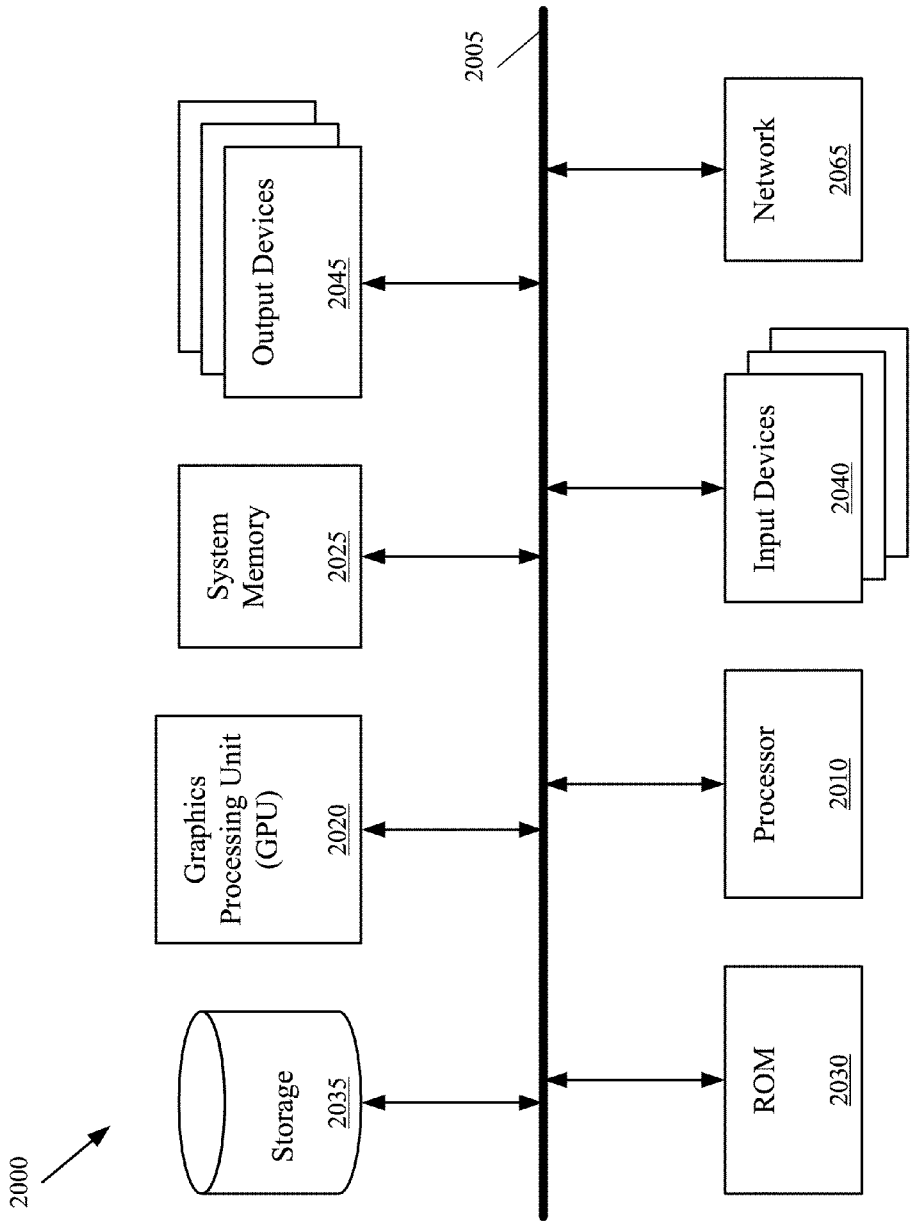

2000
Storage
2035
Graphics Processing Unit (GPU)
2020
System Memory
2025
Output Devices
2045
2005
ROM
2030
Processor
2010
Input Devices
2040
Network
2065

Figure 20

SYSTEM AND METHOD FOR DELIVERING COMPANION CONTENT

CLAIM OF BENEFIT TO PRIOR APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Patent Application 61/363,275, entitled "System and Method for Delivering Companion Content," filed Jul. 11, 2010. The content of U.S. Provisional Patent Application 61/363,275 is hereby incorporated by reference.

BACKGROUND

[0002] Media presentations (e.g., movies, television programs, slideshows, etc.) can contain a wealth of information, including images of actors, audio sound tracks, images of clothing and other goods. Information about the things seen and heard in a media presentation is not always discernable from the media presentation itself as it is playing. For example, the name of a particular song playing at a specific time in a movie may not be readily determined at the time it plays in the movie. Some viewers of a media presentation may want to have immediate access to more information about whatever images or sounds are playing in the media presentation at a given time.

[0003] In the existing art, there is no simple way to automatically link an external device to information about a particular part of a media presentation. Currently, some general information about a movie can be tracked down via a web search, but the specific products displayed and sound track songs played at particular times in the movie can rarely be found easily. For example, movies that list soundtrack songs in their end credits do not provide the specific times that these songs were played. Therefore, even if the songs are listed in order of appearance in the movie, one would have to rewatch the movie from the beginning to identify the songs that preceded the desired song. Furthermore, TV programs have limited time for end credits and often entirely omit any listing of sound track songs. Some systems provide locations to find information in media presentations, but these must be included before the media presentation leaves the control of the producer of the media presentation.

[0004] The producers of shows (e.g., movies, television shows, webisodes, straight to digital storage medium productions, online videos, etc.) often want to provide information to their viewers about items within the shows. Currently, such producers place advertisements of products within the context of the show itself. Such advertisements are called "product placements". These product placements are used as an alternative to separate commercial breaks. For television, and other media with commercial interruptions, product placements elude the commercial skipping and fast-forwarding features of recording devices such as digital video recorders, VCRs and DVD recorders.

[0005] When product placement is done well, such placements can enhance the viewer's experience. For example, when the script calls for a character to drink a canned beverage, the character may drink a beverage from a can with a distinct, recognizable color scheme or logo. Similarly, if a movie hero has to be thrown into an electronic billboard, it might as well be a billboard of a well known company that is sponsoring the movie. By using a product that the viewer would naturally expect to see in that situation rather than a product with a made up logo or a generic label such as "soda", the audience's suspension of disbelief becomes easier and the show becomes more enjoyable.

[0006] In contrast, the producers of shows can highlight products in an obtrusive manner. For example, a show could have a jarring non sequitur in which a character within the show suddenly praises the product in a manner that seems unnatural to the character or the situation. A direct mention of the product is the only effective means of product placement for products that are not readily identifiable while in use.

[0007] Accordingly, product placement for goods and services whose origin is not obvious from the image of the product itself creates a dilemma for the producers. They must interrupt the flow of the show to identify the goods sufficiently for an audience member to find and purchase the product. This can destroy the suspension of disbelief and make the show less enjoyable for audience members that are not interested in the product. A less enjoyable show can lead to lower sales of the show, lower ratings, etc. Furthermore, an overly obtrusive product placement can have the opposite of the intended effect. A viewer might resent the product for "ruining" the show and be less likely to purchase it than he was before. Similarly, some media producers have tried to overcome this problem by adding pop-up ads as overlays on some media presentations. The outcome, however, has not been very successful. The reason is that the pop-up ads can become so obtrusive and distractive that they render a reversed result and the viewer decides to boycott the product instead of showing interest in it.

[0008] As for the viewer who wishes to purchase a product placed in a show, he might not be able to get the product. The viewer would first have to identify the item, and then track down a seller of that item in order to purchase it. In the meantime, he would not know the price range of the item. For example, a viewer might admire the curtains in a scene, but assume that they would cost too much to be worth buying. Such a viewer would not bother to track them down and would never realize that the same curtains could be purchased for a price that he could afford.

[0009] The media producer may also want to provide non-product related information to interested viewers, such as storyboards of the media presentation or more information on the topic of the media presentation. Accordingly, there is a need for a better way to find content that relates to content shown at specific times in a media presentation.

BRIEF SUMMARY

[0010] Some embodiments provide a companion content device (sometimes called a "client") that downloads content associated with a media presentation playing on a media player and displays the downloaded content at times synchronized to time-offsets (measured from the start of the presentation) of the presentation by signals from a media player. Some embodiments include the media player as well as the companion content device.

[0011] In some embodiments, the companion content device is used in the same room with a TV set or other display device that displays a media presentation (e.g., a show). The media presentation includes an embedded resource location (e.g., a URL) unique to that media presentation (e.g., www.media-companion-content.com/movie/movie23512). All URLs herein are provided only as examples to illustrate some embodiments. The use of any URL in use by any entity is unintended and strictly co-incidental. The media player that plays the show (i.e., sends the show to the TV set or other

display device) broadcasts that URL in a limited area (e.g., the room where the media presentation is playing on the TV set or other display device). In some embodiments, the media player sends the URL together with other information (e.g., a time-offset synchronization signal, timecode, transport changes, etc.) to companion content devices through multicasting. One of the benefits of multicasting instead of broadcasting in some such embodiments is that it would allow only clients interested in the companion content to fully process the network packets thus reducing/eliminating network impact on network devices that are not participating in the communication at all. In addition, with a multicast, clients can "subscribe" to a multicast address and only those clients that have subscribed will get the traffic such as the program URL. Unless otherwise specified, all embodiments described in this specification that use broadcasting are also applicable to multicasting and vice versa.

[0012] The companion content device receives the URL from the media player and uses the URL to automatically download a list of URLs where companion content is found. The list includes associated times at which to display each item of companion content. The time is relative to the time-offset of the show. For example, an item on the list could specify that at 29 minutes, 10 seconds into the show, the companion content device should display content from URL: www.example.net/advertisement1. The companion content device displays each content item at the time indicated in the list. In some embodiments, the device caches the content before it is needed. In some embodiments, the displayed content includes links to other content. Some embodiments allow live interaction with the companion device (e.g., live voting, test taking, etc.). Examples of content to be displayed are ads for items in the show, links to buy a song played in the show, storyboards of the show, a movie/TV database entry for the show or specific actor in a scene, etc. Although the above description is in terms of a device, some embodiments include the entire system for providing companion content. Some embodiments include computer readable media storing programs with instructions to make a general purpose handheld device perform the described functions.

[0013] The preceding Summary is intended to serve as a brief introduction to some embodiments of the invention. It is not meant to be an introduction or overview of all inventive subject matter disclosed in this document. The Detailed Description that follows and the Drawings that are referred to in the Detailed Description will further describe the embodiments described in the Summary as well as other embodiments. Accordingly, to understand all the embodiments described by this document, a full review of the Summary, Detailed Description and the Drawings is needed. Moreover, the claimed subject matters are not to be limited by the illustrative details in the Summary, Detailed Description and the Drawing, but rather are to be defined by the appended claims, because the claimed subject matters can be embodied in other specific forms without departing from the spirit of the subject matters.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The novel features of the invention are set forth in the appended claims. However, for purpose of explanation, several embodiments of the invention are set forth in the following figures.

[0015] FIG. **1** illustrates a companion content system of some embodiments.

[0016] FIG. **2** conceptually illustrates downloading of companion content from computer servers in some embodiments.

[0017] FIG. **3** illustrates a process performed by a server of some embodiments for providing companion content program data to companion content devices.

[0018] FIG. **4** illustrates a process performed by a server of some embodiments for providing companion content to companion content devices.

[0019] FIG. **5** conceptually illustrates a process performed by a companion content device of some embodiments for downloading and displaying companion content.

[0020] FIGS. **6**A-**6**B illustrate the display of companion content at two time-offsets.

[0021] FIG. **7**A illustrates the display of another item of companion content at a later time.

[0022] FIG. **7**B conceptually illustrates caching and later displaying companion content of some embodiments.

[0023] FIGS. **8**A-**8**C illustrate an example of interaction with companion content of some embodiments.

[0024] FIG. **9** illustrates an example of a companion content device contacting multiple servers while interacting with an item of content.

[0025] FIG. **10** illustrates a method of some embodiments of resuming an interrupted schedule of companion content after a long disruption of the schedule by a user's interaction with item of companion content.

[0026] FIG. **11** illustrates another method of some embodiments of resuming an interrupted schedule of companion content after a long disruption of the schedule by a user's interaction with item of companion content.

[0027] FIG. **12**A illustrates a companion content browsing mode of some embodiments.

[0028] FIG. **12**B illustrates another embodiment of a companion content browsing mode.

[0029] FIGS. **13**A-**13**C illustrate multi-channel companion content program data and the display of items from different channels at different time-offsets.

[0030] FIGS. **14**A-**14**B illustrate different windows displaying different channels while a user interacts with companion content of one of the channels.

[0031] FIG. **15** illustrates a companion content device with user interface controls of some embodiments.

[0032] FIG. **16** illustrates a companion content device with hidden user interface controls of some embodiments.

[0033] FIG. **17** illustrates a process of some embodiments for content on the companion content device to pause a media player while awaiting a response from a user of the companion content device.

[0034] FIG. **18** conceptually illustrates a software architecture diagram of a media player of some embodiments.

[0035] FIG. **19** conceptually illustrates a software architecture diagram of a companion content device of some embodiments.

[0036] FIG. **20** conceptually illustrates a computer system with which some embodiments of the invention are implemented.

DETAILED DESCRIPTION

[0037] In the following description, numerous details are set forth for purpose of explanation. However, one of ordinary skill in the art will realize that the invention may be practiced without the use of these specific details. For instance, some of the examples illustrate specific handheld devices. One of

ordinary skill in the art will recognize that different handheld devices can replace this specific handheld device without departing from the invention.

[0038] I. Overview

[0039] Some embodiments provide a system for delivering content associated with a media presentation to devices that are auxiliary to the devices that play and display the media presentation. The auxiliary content devices are referred to herein as "companion content devices", "companion devices", or "clients". The associated content is referred to herein as "companion content".

[0040] FIG. **1** illustrates a companion content system **100** of some embodiments. The companion content system includes multiple components that operate in relatively close proximity (e.g., in the same room, or within 200 feet, or within 50 feet). The figure also illustrates some external devices that interact with the companion content system **100**. The external sources can be accessed in different ways by different companion content devices. FIG. **1** includes a media player **110**, a display device **120**, speakers **130**, companion content devices **140-148**, network **150**, computer server **160** with database **170** and computer servers **180** and **190**. Media player **110** delivers analog and/or digital data to a display device. Display device **120** accepts analog and/or digital data and displays visual portions of the data as visual images. Speakers **130** play audio portions of the data. In some embodiments, the media player **110**, display device **120**, and speakers **130** are integrated on a single device such as a computer, a laptop, an enhanced television, or an enhanced cell phone. In some such embodiments this media player device can also function as a companion content device (similar to any one of the companion content devices **140-148**) simultaneously. Some embodiments use a variety of different companion devices **140-148**. Here, the embodiment uses laptops/netbooks **140** and **146**, an enhanced cell phone **142**, a standard cell phone **144**, and a pad device **148**. Although the pad device **148** is not depicted with a stylus and the pad devices of some embodiments work with finger touches or other means, one of ordinary skill in the art will understand that pad devices of the same embodiments or other embodiments might have a stylus as a means for inputting data to the pad devices. Companion content devices **140-148** receive and display data related to the media presentation at times synchronized to the playback of the media presentation. Network **150** conceptually illustrates one or more networks through which the various companion devices **140-148** can connect to computer servers **160**, **180**, and **190**. Computer server **160** provides the companion devices **140-148** with data from the database **170**. Database **170** stores data about a plurality of media presentations. Computer servers **180** and **190** provide the companion devices with companion content. In some embodiments, computer servers **160**, **180**, and **190** are integrated on one machine that provides the companion devices with both companion data and companion content.

[0041] The media player **110** sends audio and/or video data for playing the media presentation to the display **120**. While the media presentation is playing, the media player **110** of some embodiments sends out time synchronization signals to identify what part of the media presentation is playing (the time-offset). The time synchronization signals from the media player **110** allow the companion content devices **140-148** to play companion content at time-offsets synchronized with the media presentation.

[0042] In some embodiments, companion content is downloaded from sources external to the area near media player **110**. In some such embodiments, the media player **110** broadcasts resource location data (e.g., a URL) to any companion content device **140-148** within range. In some other embodiments, the resource location data could also reference the media player which would instruct the client to request content program data and companion content from the media player. For brevity, URL, which stands for "Uniform Resource Locator", will be used herein in place of "resource location data". However, one of ordinary skill in the art will understand that other systems of identifying the location of resources besides URLs can be used in some embodiments. The broadcast URL allows the companion content devices **140-148** to find companion content for that media presentation. Companion content is content designated by the maker of the media presentation (or a third party) as being associated with that particular media presentation. The companion content can be generated by the producers of the media player or by third parties. Different media presentations can have different companion content with different URLs. The companion content devices **140-148** display a particular piece of companion content when the media presentation reaches time-offsets associated with that piece of companion content.

[0043] In some embodiments, the companion content devices **140-148** can receive signals from the media player **110** wirelessly or through a wired connection. Some embodiments allow both wired and wireless signals; while other embodiments allow only wired signals from the media player or only wireless signals from the media player. As shown in this figure, companion device **140** receives the signals through a wired connection from the media player **110**. Companion devices **142-148** receive the signals from the media player **110** wirelessly.

[0044] In some embodiments, the URL broadcast from media player **110** provides a URL to the companion devices **140-148**. In some embodiments, the broadcast URL points to companion content program data. Companion content program data in some embodiments is provided as one or more files containing information about the media presentation being played. The file(s) include(s) one or more program channels, each with a set of time-offsets from the start of the program and URLs from which to download content to display at those time-offsets.

[0045] The companion content devices **140-148** download companion content program data from the URL over the network **150**. In some embodiments, the individual companion content devices **140-148** use different networks from each other. Some companion content devices **140-148** are able to access multiple networks. For example, an enhanced cell phone **142** of some embodiments is able to access the file indicated by the URL through a cellular telephone network as well as a local wireless access network connected to the Internet. In some embodiments, the URL represents a resource (e.g. a file) that is (1) specific to the media presentation being played by media player **110** and (2) accessible through the database **170** on the computer server **160**.

[0046] When a companion content device (e.g. **140-148**) contacts computer server **160**, the computer server **160** accesses database **170** to download a set of data associated with the media presentation. The server **160** then sends the set of data to the companion content device. The set of data identifies a set of resource locations and a set of timecodes identifying particular time-offsets. Each resource location in

the set is associated with a particular time-offset. The set of resource locations identify one or more files on computer servers **180** and **190**. The companion devices **140-148** access the files on computer servers **180** and **190**. In some embodiments, if no companion content server can be reached, the media is treated as though it has no companion content. At the associated playback times, the companion content devices **140-148** display the companion content. One of ordinary skill in the art will understand that the set of resource locations may refer to files stored on more or fewer computer servers than are shown in FIG. **1**.

[0047] Unlike the varied companion content devices illustrated in FIG. **1**, the companion content devices illustrated in the following figures are all enhanced cell phones. However, this is merely for ease of illustration. Any of the following embodiments would work with any of the other companion content devices described herein or with other suitable companion content devices. Furthermore, the figures herein are not drawn to scale. Neither the relative sizes nor the aspect ratios of the illustration of any item in any figure should be considered to be a limitation unless otherwise indicated in the description of the item in the specification.

[0048] II. Retrieving Companion Content

[0049] As described in relation to FIG. **1**, in some embodiments, a media player **110** broadcasts a URL associated with the media presentation. The URL points to an external computer server that provides companion content program data. FIG. **2** conceptually illustrates downloading of companion content from computer servers. This method of retrieving content requires a limited amount of data from the media player **110** and allows revisions of companion content program data without altering the data embedded in the media presentation itself. FIG. **2** includes URL broadcast **210**, companion content program data download **220**, companion content downloads **230** and **240**, and companion content program data **250**. The URL broadcast **210** includes a URL that points to the companion content program data **250**. The companion content program data download **220** provides the companion content device **142** with the companion content program data **250**. The companion content program data **250** includes (1) multiple URLs, each pointing to an item of companion content and (2) a time-offset for each URL that identifies when the content associated with that URL should be displayed on the companion content device **142**. The companion content downloads **230** and **240** provide companion content to the companion content device **142**.

[0050] In the example illustrated in FIG. **2**, the media player is playing a dramatic media presentation. In some embodiments, the media presentation contains embedded data that includes a URL. The URL points to a file where the companion content program data **250** is found. In this example, as shown in broadcast **210**, the URL points to programdata.com/Drama12. The domain "programdata.com" identifies the address of the domain on which the file resides and "Drama12" identifies the particular file associated with the dramatic media presentation being played by the media player **110**. The database **170** contains file "Drama12" and also contains files "Action1" and "Sci-fi1". The server **160** retrieves the "Drama12" file from the database and supplies it to the companion content device **142**. The additional files ("Action1" and "Sci-fi1") contain companion content program data for other media presentations and will not be accessed by the companion content device **142** unless the media presentations associated with those files are played in the media player **110** or some other media player in the presence of companion content device **142**.

[0051] In some embodiments, the server **160** is a central clearinghouse that supplies companion content program data for all media presentations that use a particular companion content system. In some such systems, the media presentation producers provide the companion content program data, but the media player producers provide the servers that supply the companion content program data to the companion content devices. In other embodiments, each of a plurality of media presentation producers provides their own server(s) for their respective media presentations. In some such embodiment, the producer of the media players and/or the companion content devices provides a data format for the content program data to media producers or other parties that run servers. The multiple servers that store the content program data then provide the content program data in the supplied format so that the content program data will be usable by the companion content devices. Some embodiments provide for a central server for multiple producers of media presentations, but also allow media presentation producers to maintain their own separate servers if they choose to do so.

[0052] In some embodiments, the URL is sent out in a formatted set of data. Table 1, below, shows an example of pseudocode for a URL broadcast of some embodiments. As table 1 illustrates, in some embodiments, the media player uses a multicast to send the URL together with a time-offset synchronization signal (e.g., <mediaTC>), timecode which could be an identifier of the current actual time (e.g., the Coordinated Universal Time, UTCTime), and transport changes (e.g., play, pause, etc.). In some embodiments, such signals are sent out periodically and/or in response to some change in the status of the media presentation. In some embodiments, the time-offset synchronization signals and the URL broadcast are sent separately, but each is still sent periodically and/or when a transport change occurs.

TABLE 1

```
<?xml version="1.0"?>
<programControl>
    <programURL>http://programdata.com/Drama12</programURL>
    <transportControl>PLAY</transportControl>
    <UTCTime>21:00:17.12</UTCTime>
    <mediaTC>00:00:00:00</mediaTC>
</programControl>
```

[0053] The Drama12 file contains the companion content program data **250**. In FIG. **2**, the companion content program data **250** is shown next to companion content program data download **220** to indicate that the companion content program data **250** is provided in download **220**. The companion content program data **250** includes the URLs for two pieces of companion content: "adcontent.net/drama12-ad1" and "Movdb.com/moviename.htm". The first URL is associated with a time-offset of ten seconds. The second URL is associated with a time-offset of three minutes and fourteen seconds. Although the companion content program data **250** includes the URLs for only two pieces of companion content in this example, it will be clear to one of ordinary skill in the art that an actual set of companion content program data would have many more items of companion contents. The companion content device **142** downloads the companion content identified by the URLs in the companion content program data **250**. In some embodiments, the companion content device **142** downloads and caches the companion content from the URL before the media presentation reaches the associated time-offset. In some embodiments, the companion content device begins caching companion content as soon as the media presentation is selected, even before the media presen-

tation begins to play. As further described in section IV, below, the companion content device **142** then displays the companion content when the media presentation reaches the time-offsets associated with the respective items of companion content. In the example in FIG. **2**, the companion content device **142** would display content from the URL "adcontent.net/drama12-ad1" when the media presentation is at the ten second mark and the companion content device **142** would display content from URL "Movdb.com/moviename.htm" when the media presentation is at the three minutes and fourteen seconds mark.

[0054] Table 2, below, contains an example of pseudocode for companion content program data. The table includes metadata identifying the series and the episode of the media presentation. In some embodiments, this metadata can be accessed on the companion content device.

TABLE 2

```
<?xml version="1.0"?>
    <programExtras>
        <programMeta>
        <programURL>http://mde.company.com/d83h7df9</programURL>
            <programInfo>
            <series>Rows</series>
            <season>4</season>
            <episode>CHX05</episode>
            <name>Hysterical </name>
            <persistentID>05D6F42342ED860F</persistentID>
...
        </programInfo>
    </programMeta>
  <programChannel>
    <channelInfo>
      <channelName>Ads</channelName>
      <channelDescription>Content-specific advertisements</channelDescription>
    </channelInfo>
    <programElement>
        <mediaTC>00:00:05:08</mediaTC>
        <contentURL>http://ww.not.com/Rows/images/Rowslogo.png</contentURL>
    </programElement>
    <programElement>
        <mediaTC>00:00:14:14</mediaTC>
        <contentURL>http://www.not.com/rows/ads/club-golfing/</contentURL>
    </programElement>
...
  </programChannel>
  <programChannel>
    <channelInfo>
      <channelName>Storyboards</channelName>
      <channelDescription>Original storyboards that correspond to the action on-
      screen</channelDescription>
    </channelInfo>
    <programElement>
        <mediaTC>00:00:01:08</mediaTC>
        <contentURL>http://www.not.com/CHX05/storyboard/CH01S01.jpg</contentURL>
        <contentDescription>Opening shot</contentDescription>
    </programElement>
    <programElement>
        <mediaTC>00:00:01:14</mediaTC>
        <contentURL>http://www.not.com/CHX05/storyboard/CH01S01.jpg</contentURL>
        <contentDescription>Closeup of Mr. Jones</contentDescription>
    </programElement>
...
  </programChannel>
  <programChannel>
    <channelInfo>
      <channelName>Script</channelName>
      <channelDescription>Script</channelDescription>
    </channelInfo>
    <programElement>
        <mediaTC>00:00:01:00</mediaTC>
        <contentURL>http://ww.not.com/CHX05/script/CH01P01.html</contentURL>
        <contentDescription>Page 1 of the Script</contentDescription>
    </programElement>
    <programElement>
        <mediaTC>00:00:02:14</mediaTC>
        <contentURL>http://ww.not.com/CHX05/script/CH01P02.html</contentURL>
        <contentDescription>Page 1 of the Script</contentDescription>
    </programElement>
  </programChannel>
...
</programExtras>
```

[0055] Downloading the companion content program data from a server based on a single URL rather than embedding all URLs of the companion content within a media presentation has tremendous advantages over any currently available system. A server storing a companion content program database allows the companion content program data to be edited at any time. Editing the companion content program data instantly updates which companion content will be displayed when copies of the media presentation are played, including copies that have long since been distributed. Any URLs in the companion content program data that become obsolete can be removed or replaced at the server. The continuing control may result in a production company that would not otherwise be willing to embed companion content to agree to embed the content. For example, a family oriented filmmaker could be assured that a link in the companion content program data would be replaced if the domain name of the link was later purchased by an inappropriate site. Advertisement links could be sold on a continuing basis rather than permanently embedded. For example, one retail company could rent the advertisement space associated with a particular time-offset in the presentation for the first week after the presentation is released and a second retail company could rent the same advertisement space associated with that particular time-offset for the second week after the presentation is released.

[0056] In some embodiments, the companion content program data includes more data than just the location of the companion content URL(s). For example, in some embodiments, the companion content program data includes data that determines the size and position of the window in which the content will be displayed. In some embodiments, the companion content program data includes instructions to open a new item of companion content in a separate window from an already displayed item of companion content rather than replacing the previous companion content. In some embodiments, the companion content program data or downloaded companion content contains instructions that cause the companion content device to send a transport control signal to the media player, such as a signal to pause the presentation when a particular companion content is displayed on the companion content device.

[0057] The companion content program data may include instructions that are conditional. For example, the companion content program data may direct the companion content device to pause the media player if the realtime date is between two specific dates during which voting on the talent show is viable (in other words, only pause the presentation if the vote would count, not if the presentation is an old re-run).

[0058] FIG. **3** illustrates a process performed by servers of some embodiments for providing companion content program data to companion content devices. The process **300** receives (at **310**) a request from a companion content device to provide one or more files containing companion content data. As described above, in some embodiments this request is a request from a companion content device to access a particular URL. The process retrieves (at **320**) the file from a database of files containing companion content program data for multiple media presentations. The process sends (at **330**) the retrieved file to the companion content device. The process **300** then ends.

[0059] FIG. **4** illustrates a process performed by some servers for providing companion content to companion content devices. Process **400** receives (at **410**) one or more requests from a companion content device to provide one or more files containing companion content. As described above, in some embodiments this request is a request from a companion content device to access a particular URL. The process retrieves (at **420**) the file(s) from storage media accessible to the server (e.g., hard drives of the server). The process sends (at **430**) the retrieved file(s) to the companion content device. The process **400** then ends.

[0060] III. Companion Content Device

[0061] In some embodiments, the companion content devices download companion content program data, download companion content, and display the companion content at time-offsets specified by the companion content program data. Some such embodiments include counters that measure elapsed time since the start of a media presentation. In some embodiments, these counters do not merely start at zero and continue until stopped, but instead they synchronize and resynchronize with the time-offset of the media presentation that is playing.

[0062] FIG. **5** conceptually illustrates a process **500** performed by a companion content device of some embodiments for downloading and displaying companion content. The process **500** includes synchronization of a counter of the companion content device with the time-offset of a media presentation. The process **500** is a basic process that does not show all of the possible actions of the companion content device. For example, the process **500** does not describe user interactions with the companion content. One of ordinary skill in the art will understand that the actual processes performed by companion content devices of some embodiments are considerably more detailed and complicated. Additional features of the companion content devices of some embodiments are described in other sections.

[0063] Process **500** begins when the companion content device receives (at **505**) a URL from a media player. In some embodiments, the media player periodically sends out a signal that includes a URL associated with the particular media presentation that the media player is playing. As described above, the URL identifies the location of a set of companion content program data that includes URLs and associated time-offsets for the companion content of the particular media presentation. The process **500** downloads (at **510**) the companion content program data from the domain and file location specified by the received URL.

[0064] The process then downloads and caches (at **515**) the companion content. In some embodiments, the downloading and caching of the companion content takes place shortly after the companion content program data is downloaded. In some embodiments the downloading and caching proceeds in parallel with other operations of the process **500**. For example, the companion content device of some embodiments downloads and caches companion content that is scheduled for later time-offsets while displaying companion content scheduled for earlier time-offsets. In some embodiments, the downloading and caching continues until either all available cache memory is full or until all companion contents have been cached. In some embodiments, the companion content device caches companion content which is scheduled to be displayed within some set amount of lead time (e.g., within ten minutes of the current offset). For example, in some embodiments with a 10 minute lead time, the companion content device would wait until time-offset 05:12 to download and cache an item of companion content scheduled to be displayed at a time-offset of 15:12. In some other embodiments, the companion content device manages a memory or event-based buffer, caching the next certain number of companion contents which are scheduled to be displayed.

[0065] Process **500** continues when the companion content device receives (at **520**) a synchronization signal from the media player. In some embodiments, the media player periodically sends out a signal indicating the current time-offset of the media presentation. In some embodiments, a new synchronization signal is sent out whenever a media player resumes normal playing after the media presentation is paused, fast forwarded, rewound, and/or put in some other mode that interrupts the normal playing of the media presentation. In some embodiments, when the media player is in a normal play mode it steadily plays the media presentation, and steadily increments the time-offset at a rate of one time-offset second per second of real time. In some embodiments, the time synchronization signal always includes the URL identifying the location of the companion content program data. In other embodiments, some time synchronization signals include the URL and other time synchronization signals do not include the URL. In still other embodiments, the URL is sent out repeatedly, but independently of the time synchronization signals.

[0066] The companion content device then synchronizes (at **525**) a counter of the companion content device with the time-offset indicated by the received synchronization signal. The counter keeps track of the time-offset for the companion content device. The companion content device then increments (at **530**) its counter that tracks the time-offset. In other words, after the companion content device synchronizes the counter to the time-offset provided by the synchronization signal, the companion content device keeps track of time on the counter by using an internal clock of the companion content device until the next synchronization signal (or other signal that affects the time-offset) is received. In some embodiments, the incrementing of the counter based on an internal clock of the companion content device allows the companion content device to identify time-offsets between synchronization signals. For example, in some embodiments, the media player sends out a synchronization signal once every five minutes (e.g., at 0 minutes, 5 minutes, 10 minutes, etc.). The counter of some embodiments keeps track of the time-offsets between the synchronization signals so that if the companion content program data called for a piece of companion content to be displayed at 3 minutes and 14 seconds, the companion content device could display it at that time even though the media player did not provide a synchronization signal at that exact time.

[0067] The process **500** determines (at **535**) whether the time to display new companion content has arrived. In some embodiments, the companion content device determines whether the time has arrived by comparing the time-offset of the counter with the time-offset of the next item of companion content identified in the companion content program data. If the process determines (at **535**) that new companion content is scheduled for the current time, then the companion content device displays (at **540**) the new content (assuming nothing overrides the schedule, see section V et seq. for some exceptions). The process then moves on to operation **545**. If the process **500** determines (at **535**) that no new companion content is scheduled for the current time-offset, then the process **500** skips operation **540** and moves on to operation **545** directly.

[0068] The process **500** determines (at **545**) whether the companion content device has received a new media player signal. In some embodiments, new media player signals include new time synchronization signals. In some embodiments, the companion content device also receives signals from the media player that indicate that the media presentation has paused, ended, is being fast forwarded, reversed, or is otherwise not providing a steady progression of time-offsets in a normal playing mode. If the process determines (at **545**) that no new signal has been received, then the process loops back to increment (at **530**) the counter again. If the process determines (at **545**) that a new signal has been received, then the process determines (at **550**) whether the new signal indicates the end of the media presentation.

[0069] If the process determines (at **550**) that the new signal does not indicate the end of the media presentation, then the process determines (at **555**) whether the signal indicates that the media presentation is in a normal play mode. In some embodiments, when the media player is in a normal play mode, the media player sends out time synchronization signals that include information that indicates that the media player is in a normal play mode. In some embodiments, a new time synchronization signal by itself, without other information, indicates that the media player is in a normal play mode. As mentioned above, in some embodiments, the media player signal sometimes includes information that the media player is being fast forwarded, paused, reversed, or is otherwise not in a normal play mode. In some such embodiments, when the process **500** determines (at **555**) that the media player is not in a normal play mode, the companion content device pauses (at **560**) the counter until a new signal is received. The companion content device of some embodiments then enters a loop from **560** to **550** to **555** back to **560** until a signal is received that indicates the end of the media presentation (determined at **550**) or that normal play mode has resumed (determined at **555**). When the media player of some embodiments resumes normal play, the media player sends a signal that includes a time synchronization signal indicating the current time-offset. The signal indicates that normal play has resumed. In some embodiments, the time synchronization signal itself, without a specific "play resumed" signal, indicates that normal play has resumed. In some embodiments, an additional "play resumed" signal that indicates that normal play has resumed is sent with the time synchronization signal. When the process determines (at **555**) (e.g., after receiving the new signal from the media player) that normal play mode has resumed, the process loops back to synchronize (at **525**) the counter using the time synchronization data included in the signal that indicated that normal play mode had resumed and unpauses the counter.

[0070] If the process determines (at **550**) that a signal from the media player indicates the end of the media presentation, then the process **500** ends. The end of the media presentation means that either the media presentation has reached the end of its run time or has otherwise been stopped.

[0071] Although FIG. **5** illustrates the loop **530-545** in order for companion content device to display new companion content and to wait for a new media player signal, in some embodiments, a blocking mode is used instead. In some such embodiments, a timer is set to go off at the interval for the display of the next piece of companion content. The process then block-waits for either a new control message to come in or for the timer to expire, in which case the next companion content would be displayed.

[0072] IV. Displaying Companion Content

[0073] FIGS. **6**A-**6**B illustrate the display of companion content at two time-offsets. One of ordinary skill in the art will understand that the displayed content in these figures is

merely an example of content that could be displayed, and other content is displayed in some embodiments. In the example illustrated in these two figures, the same initial companion content is displayed on two different companion content devices when the time-offset of the media player reaches the time associated with that content by the companion content program data and maintained until the time-offset says it is time to display the next item of companion content. FIG. **6**A includes time-offset **610**, companion content program data **620**, and companion content devices **642**A and **642**B. The companion content devices **642**A and **642**B are displaying companion content **660**. The time-offset **610** represents the current time-offset of the media presentation at the moment illustrated in the figure. The companion content program data **620** symbolically represents the companion content program data stored in each companion content device **642**A and **642**B. The companion content program data includes URL **650**. The URL **650** represents the URL at which the companion content **660** is found. Companion content **660** is content downloaded by the companion content devices **642**A and **642**B from the drama12-ad1 file on adcontent.net server **180**, as specified by URL **650**. The companion content **660** is displayed on the companion content devices **642**A and **642**B. Companion content **660** is an advertisement that offers to sell a shirt similar to a shirt shown in the media presentation to the users of companion content devices **642**A and **642**B.

[0074] The time-offset **610** is provided to illustrate the time of the media presentation as tracked by both the media player **110** and the companion content devices **642**A and **642**B. In FIG. **6**A, the time-offset **610** has reached 00:00:10 (ten seconds). As shown by the companion content program data **620**, "00:00:10" is the time-offset associated with the URL **650** in the companion content program data **620**. Accordingly, the companion content devices **642**A and **642**B are displaying the companion content **660** downloaded from server **180**, file drama12-ad1, as specified by URL **650**. In this figure, and the other figures that include explicit companion content program data, the URL(s) associated with the currently displayed companion content is indicated (in the companion content program data **620**) by a thick black border, while any URLs whose associated content is not shown at that time-offset are indicated with a thin black border. In some embodiments, an item of companion content is displayed from the start time indicated next to the URL until the start time of the next item of companion content listed in the companion content program data. In the figures with explicitly shown companion content program data, there are a limited number of companion content items in the companion content program data. The limited numbers of items are for considerations of space in the figures. It will be clear to one of ordinary skill in the art that some embodiments can provide a much larger number of items of companion content in a particular set of companion content program data.

[0075] Though this figure shows content download **230** as happening at the same time as the content **660** is being displayed, in some embodiments, the content download **230** actually occurs before the time-offset specified in the companion content program data **620** is reached. In such embodiments, the companion content device downloads and caches the content before it is due to be displayed. Similarly, in many other figures described herein, companion content is shown being downloaded at the time of use. However, one of ordinary skill in the art will understand that for any such figures, unless otherwise specified, some embodiments cache the content before displaying it. In some embodiments, the content shown as downloaded at the same time it is displayed is actually downloaded once the companion content program data identifies the URL of the companion content.

[0076] In the illustrated embodiments, the URL **650** is not displayed on the companion content devices **642**A and **642**B. However, in some embodiments, the URL **650** is displayed on the companion content device **642**A and **642**B along with the companion content **660**. In still other embodiments, the URL **650** is displayed with some items of companion content and not displayed with other items of companion content. In this figure, none of the devices displays the time-offset. However, in some embodiments, a display of the time-offset will be provided on one or more of the companion content devices, the media player (e.g., as a front panel display), and/or the display device. In some such embodiments, for example, a viewer can use the time-offset associated with an item of companion content to rewind the media back to the time that the companion content was displayed and watch the scene that he might have missed because he was focusing on the companion content that was being displayed at that time. In some embodiments, the companion content device has a jump back mode that would jump playback to a few seconds before an item of companion content was displayed and start playing again. Some embodiments implement such a jump back mode through interactions with companion content and transport controls such as those which are described in sections V and VII below, respectively. In some embodiments, the time-offset will display some of the time, but not all of the time on one or more of the companion content devices, the media player (e.g., as a front panel display), and/or the display device.

[0077] FIG. **6**B shows the companion content devices at a later time-offset. FIG. **6**B includes time-offset **670**. This figure demonstrates that in some embodiments, an item of companion content **660** is displayed until the time-offset associated with the next item of companion content is reached. Time-offset **670** indicates that the media presentation has reached a time-offset of 00:03:13 (three minutes, thirteen seconds). That time-offset is one second before the time-offset associated with the second URL in companion content program data **620**. The media presentation has continued to play, as shown by the image displayed in the display **120**. The image in display **120** has changed from the man shown at time-offset **610** (in FIG. **6**A) to the woman shown at time-offset **670**. However, the companion content devices **642**A and **642**B still display the previous companion content **660** because the time to replace that content has not yet arrived. Specifically, as indicated in the companion content program data **620**, the next item of companion content is due to be displayed at 00:03:14, one second after the time-offset **670** of FIG. **6**B. In FIG. **6**B, the server **180** is not shown because in some embodiments the connection with the server providing companion content is severed once the companion content has been downloaded. However, in some embodiments, some items of companion content may require a constant connection to the server while the companion content is being displayed. In FIGS. **6**A-**6**B the companion content is shown as a static image, however, in some embodiments, at least some items of companion content change over time. For example, in some embodiments, the companion content linked to by the URL plays a video clip.

[0078] FIG. **7**A illustrates the same companion content devices **642**A and **642**B as FIGS. **6**A-**6**B, but at a later time-offset. At the time-offset illustrated in FIG. **7**A, the image on the display **120** has not changed since FIG. **6**B, but the companion content displayed on the companion content devices **642**A and **642**B has changed. The figure includes time-offset **710**, URL **750** and companion content **760**. The time-offset **710** has reached 00:03:14 (three minutes, fourteen seconds). That time-offset is the time-offset associated with URL **750**. Accordingly, the companion content devices **642**A and **642**B are displaying the companion content **760** downloaded from Movdb.com server **190**, file moviename.htm, as indicated by URL **750**. Specifically, the companion content **760** includes a web site of a movie database. In some embodiments, the companion content can be from URLs that are not affiliated with the producer of the media content, or the media player **110**. In this example, the movie database could be a website affiliated with the media presentation producer, the media player producer, or a third party. As illustrated in this figure, each element of the content **760** is being displayed immediately following the download of the content download **240**. In some embodiments, however, the content download **240** actually occurs before the associated time-offset specified in the companion content program data **620** is reached. In some such embodiments, the companion content device downloads and caches the content before it is due to be displayed. Some embodiments cache companion content as far ahead as possible.

[0079] FIG. **7**B conceptually illustrates caching and later displaying companion content of some embodiments. The companion content is retrieved from servers before it is needed, then displayed once it is needed. FIG. **7**B includes cache memory **770**, time-offset **772**, cached data **774**, **776**, and **778**, server **780**, data download **782**, data transfers **784** and **786**, and companion content device **788**. Cache memory **770** conceptually represents memory (e.g., memory hardware) in the companion content device **788** that is used to cache data. The time-offset **772** (00:00:00) represents a time before any companion content is scheduled to be displayed. Cached data **774**-**778** conceptually represents items of companion content that are downloaded from servers before the respective items are scheduled for display on the companion content device **788**. Server **780** provides companion content **778** from the fansite.com website as listed in companion content program **620** (as seen in FIGS. **6**A, **6**B, and **7**A). Data download **782** conceptually represents the transfer of the companion content **778** to cache memory **770**. Data transfers **784** and **786** conceptually represent the transfer of companion content **774** and **776**, respectively, from cache memory **770** to other parts (e.g., the processor(s), other memory, the display, etc.) of companion content device **788**.

[0080] In some embodiments, such as the embodiment illustrated in FIG. **7**B, the companion content device **788**, downloads items of companion content in advance (i.e., before the time offset specified in companion content program **620** for the display of the respective companion content items). In this figure, the downloads **230** and **240**, which retrieve companion content from adcontent.net and Movdb.com occur as soon as the media presentation begins playing the media presentation at time-offset **772** (00:00:00). Once the media presentation reaches time-offset **610** (00:00:10), the companion content device **788** draws the cached data **744**, scheduled for that time, from the cache memory **770** (e.g., through data transfer **784**). The data transfers **784** and **786** are internal transfers of data from cache memory **770** to other parts of the companion content device. Such internal transfers are different from downloads **230** and **240**, which download data from an external source (e.g., over the Internet or a cellular network). Internal transfers have several advantages, including reducing or eliminating delay times for displaying the content and compensating for possible intermittent or slow external connections (e.g., from being in a bad reception area).

[0081] The illustrated companion content device **788** is an embodiment that stores two items of companion content in its cache memory **770**. Accordingly, during or after the transfer **784**, the companion content device **788** downloads (to cache memory **770**) the next item of companion content in the companion content program (as shown in FIG. **7**A). In this case, the next item of companion content **778** is "John-doe.htm", from the fansite.com website. Therefore, the companion content device downloads companion content **778** from the fansite.com server **780** in download **782**. Although the download **782** is shown as going directly to the cache memory **770**, one of ordinary skill in the art will understand that it is the companion content device **788** that is downloading the data and storing the data in a cache. At later time-offset **710** (00:03:14), the companion content device retrieves (by data transfer **786**) the movie database item of companion content **776** from the cache memory **770**. The companion content device **788** then displays companion content item **776**.

[0082] The embodiments illustrated in FIG. **7**B begin caching at time offset **772** (00:00:00). However, one of ordinary skill in the art will understand that some embodiments may cache items at a later time. One of ordinary skill in the art will understand that caching takes a finite amount of time and that (depending on the network speed) the caching process may continue for some time. Additionally, in some embodiments, the media player broadcasts the location of the companion content program before the media item begins playing (e.g., the media player broadcasts a URL as soon as a media item is inserted into the media player, before the media player receives a command to play the media item). In such embodiments, the companion content device may begin caching companion content even before time-offset 00:00:00. The embodiments illustrated in FIG. **7**B cache the next two items of companion content. However, one of ordinary skill in the art will understand that in some embodiments, different numbers of items may be cached (e.g., 4 items at a time, 8 items at a time, etc.) Furthermore, some embodiments cache as many items of companion content as possible, given the size of the cache memory. Some embodiments provide dedicated cache memory hardware and some embodiments use multi-purpose memory hardware as cache memory **770**.

[0083] V. Interacting with Companion Content

[0084] The above section described the display of companion content in the absence of user interaction. An item of such companion content in some embodiments includes one or more of static images, text, video, and audio, interactive controls, etc. However, items of companion content in some embodiments also include optional images, text, audio, video, interactive controls, etc. that are displayed in response to user interaction with the item of companion content. The display of an item of companion content in some embodiments includes both (i) the initial display of the video, audio, etc. that are displayed whether or not the user interacts with the content and (ii) any optional images, text, audio, video,

interactive controls, etc. that are displayed in response to user interaction with the item of companion content.

[0085] The optional images, text, etc. of some embodiments are displayed when a user chooses to interact with the content. The user of a companion content device can select actions or click on links provided by the initial display of the companion content. In some embodiments, the interactive content is relevant to the media presentation that is being viewed or has just been viewed. For example, the interaction could involve voting, testing, or feedback about the viewed material. In some embodiments, the user's identity is noted and used to track input/responses to the companion content, surveys, voting, tests, etc. In some embodiments, the interactions are optionally anonymized. When different users select different options in the companion content, each user can have unique interactions with the companion content.

[0086] FIGS. **8**A-**8**C illustrate an example of interaction with companion content of some embodiments. These figures include the same companion content devices **642**A and **642**B and the same companion content program data **620** as shown in FIGS. **6**A, **6**B, and **7**A. However in FIGS. **8**A-**8**C the user of companion content device **642**A interacts with the first displayed companion content **660** so the items displayed on the companion content device **642**A are sometimes different than the items displayed in FIGS. **6**A, **6**B, and **7**A. FIG. **8**A illustrates the first action of a user to buy an advertised item. The figure includes cursor **810**, buy icon **820**, and buy command **830**. Cursor **810** represents the location of a click on the companion content. Buy icon **820** is a selectable user-interface item that when selected allows a user to buy the advertised shirt. Buy command **830** is a command sent to the adcontent.net server **180** from the companion content device **642**A.

[0087] The time-offset **670** shows that the media presentation is at time-offset 00:03:13, just before the time-offset at which the companion content is due to change to the next URL in the companion content program data **620**. Buy icon **820** shows by its inverted colors that a user has clicked on buy icon **820** with cursor **810** to indicate a desire to buy the advertised shirt. In some embodiments, this click is performed by a tap of a user's finger (not shown) on a touch sensitive screen of companion content device **642**A rather than a click of a cursor control device. In some such embodiments, no cursor is displayed. In response to the selection of buy icon **820**, the companion content device **642**A sends a buy command **830** to the server adcontent.net server **180**. The command is sent in whatever manner is specified by the companion content **660**. In some embodiments, the command may be sent to a server other than the original server of the companion content **660**. An example of a command being sent to a server other than the original server of the companion content is provided in FIG. **9**, below. On companion content device **642**B, companion content **660** remains the same as in FIG. **6**B because the user of companion content device **642**B has not clicked on the buy icon in companion content **660**.

[0088] FIG. **8**B illustrates a later part of an interaction with companion content. In this figure, the companion content devices **642**A and **642**B are behaving differently from one another due to the user's interaction with companion content device **642**A as shown in FIG. **8**A. FIG. **8**B includes shipping confirmation icon **840**, return button **845** (that are displayed on companion content device **642**A), and purchasing data **850**. The shipping confirmation icon **840** is a selectable user-interface item that when selected indicates the user's agreement to use the standard billing and shipping information to make the purchase. The return button **845** is an escape key to return to the scheduled companion content. The purchasing data **850** is sent to the server **180** to provide the server with the user's billing and shipping address.

[0089] In this figure, the time-offset **710** is at 00:03:14, the time-offset associated with companion content **760**, not companion content **660**. Accordingly, companion content device **642**B is retrieving companion content **760** from server **190** through content download **240** as specified by URL **750** in companion content program data **620**. Companion content device **642**B is also displaying companion content **760**. However the embodiment of FIG. **8**B holds over a previous piece of companion content if a user is interacting with that companion content when the time-offset associated with a new item of companion content arrives. Here, the user of companion content device **642**A is engaged in the purchase of a shirt, so companion content device **642**A holds over the shirt advertisement content until the purchase is finished. In some embodiments, the advertising web site or the companion content device **642**A itself stores shipping and billing information so that a user does not have to enter the information with every purchase. When the user clicks the icon **840**, purchasing data **850** is sent to the server **180** in order to continue the purchase of the shirt. In this figure, the user of companion content device **642**A only clicks the shipping confirmation icon **840**. However, one of ordinary skill in the art will understand that other steps may be involved in ordering and paying for the shirt (e.g., price information, size selection, etc.). In some embodiments, when a user begins to interact with an item of companion content, a return button **845** is displayed. The return button **845** allows the user to abort the interaction and return to the scheduled companion content right away. Some embodiments provide a bar that allows switching between (i) companion content with which the user is interacting and (ii) the scheduled companion content. In some embodiments, the user may see the companion content progressing in a pane above or below the main interaction window, so that the entire time that the user is interacting with the companion content the user can see the additional items (e.g. thumbnails and/or text summaries) displayed in a list.

[0090] FIG. **8**C illustrates the post ordering phase of an interaction with companion content. FIG. **8**C includes time-offset **860**. The time-offset **860** indicates that the media presentation has reached 00:04:45. As the time-offset has not yet reached the time-offset associated with the next URL after URL **750** (the URL associated with companion content **760**) in the companion content program data **620**, the companion content device **642**B continues to display companion content **760**. The companion content device **642**A, having finished the order, is downloading (in download **240** from server **190**) and displaying companion content **760**. In some embodiments, the companion content device **642**A automatically starts displaying the current companion content as soon as an interaction with the previous companion content is complete. In other embodiments, once an interaction with a piece of companion content begins, the companion content device **642**A continues to display that companion content until the user dismisses that companion content with some command (e.g., a click or a shake of the device, etc.).

[0091] The preceding figures showed the companion content device contacting the servers **180** and **190** as indicated in the URLs provided in the companion content program data. However, one of ordinary skill in the art will understand that

in any system where links from one domain to another are possible, the sources of various data in the companion content could be from any server or domain on the Internet or any other network linked to the companion content device **642**A. Furthermore, one of ordinary skill in the art will realize that some companion content may direct the companion content device **642**A to contact servers other than the servers in the URLs of the companion content program data. Accordingly, in some embodiments, retrieving and displaying an item of companion content can involve contacting one or more domain names that are not listed in the companion content program data. For example, the URL of an item of companion content may identify a web page or file that automatically redirects the companion content device to another URL. Also, a web page or file associated with a URL in the companion content program data may include linked or embedded items from other domains.

[0092] FIG. **9** illustrates (in sequential stages) companion content directing a companion content device to contact another domain. The figure illustrates the same sequence of events in which a user uses a companion content device **642**A to purchase a shirt as was shown in FIGS. **6**A, **8**A, and **8**B. However, in FIG. **9**, the companion content device **642**A contacts multiple servers in turn. FIG. **9** includes data upload **910** to server **920** and data download **930** from server **940**. Data upload **910** is a transmission of a purchasing command from the companion content device **642**A to the server **920**. Data download **930** is a transmission of a query about billing and shipping address from the server **940** to companion content device **642**A.

[0093] In this embodiment, the companion content **660** is received from server **180** in download **230** at time-offset **610** (00:00:10). The companion content **660** includes a buy icon **820**. The buy icon **820** allows a user to begin the process of purchasing a shirt. In this example, the buy icon **820** does not link back to the server **180** that originally provided the companion content **660**. Instead the buy icon **820** links to the Retailer.com server **920**. Accordingly, when the user clicks on the buy icon **820** at time-offset **670** (00:03:13), the companion content device **642**A sends a purchase command in data upload **910** to the Retailer.com server **920**. In the illustrated example, the Retailer.com server **920** does not handle purchase orders single-handedly. Instead, the Retailer.com server **920** utilizes another server's assistance for shipment processing purposes and redirects the user's purchase request to the Retailer.shipper.com server **940** for a reply to the request in the companion content device **642**A. The companion content device **642**A receives the reply at time-offset **710** (00:03:14) through data download **930**. The companion content device **642**A displays, also at time-offset **710** (00:03:14), the question "standard billing and shipping address?" to the user. In the process of completing one order, the companion content device **642**A receives an advertisement from one server **180**, sends an acceptance of the offer to another server **920**, and receives a query for transaction data from the third server **940**. Owing to limitations of space, FIG. **9** does not show the media player **110** or display **120**. The remaining figures, described below show many images of companion content devices, but do not show the media player **110**, display **120**, or any pictures of servers. However, one of ordinary skill in the art will understand that the companion content shown in the illustrated embodiments is retrieved from servers and is synchronized with media presentations played by a media player and displayed on a display. While FIG. **9** illustrates a sale in which the retailer's server redirects the request to a third party server, one of ordinary skill in the art will understand that in some embodiments, the retailer's server handles the entire user interaction single-handedly without redirecting the user's request to a third party server.

[0094] FIGS. **8**A-**8**C show how, in some embodiments, the companion content device returns to the schedule established in companion content program data **620** if a user is (1) still interacting with one item of companion content when the companion content program data specifies that a second item of companion content is scheduled to start, but (2) finishes the interaction before a third item is scheduled to start. However, when the user interaction with a first item of companion content takes long enough to cover the entire display period of the second item of companion content, some embodiments skip the second item of companion content entirely. When the interaction is over, such embodiments display whatever companion content is currently scheduled. FIG. **10** illustrates an example of such an approach.

[0095] FIG. **10** illustrates an embodiment that does not display an item of companion content if that item's entire scheduled time is used up while the user interacts with a prior item of companion content. This figure shows a sequence of companion content displays by a single companion content device at different time-offsets. In each step of the sequence, the time-offset during that step is shown above the companion content device. FIG. **10** includes time-offsets **1010**, **1020**, and **1030**, and companion content **1040**. Companion content **1040** is the third item of companion content specified in companion content program data **620**. Time-offset **1030** is the time-offset at which companion content **1040** is due to be displayed. Time-offset **1010** is a time-offset just before a user interaction with companion content **660** is completed. Time-offset **1020** is a time-offset after the user interaction is completed.

[0096] In the figure, the user begins interacting with the first companion content **660** of companion content program data **620** at time-offset **670** (00:03:13). Time-offset **670** (00:03:13) is just before the second companion content is due to be displayed (at 00:03:14) according to companion content program data **620**. The user interaction continues until time-offset **1010** (00:05:25). Time-offset **1010** (00:05:25) is after the time-offset **1030** (00:05:20) at which the third companion content **1040** is due to start, according to companion content program data **620**. Therefore, the user interaction spans the entire scheduled display time of the second item of companion content in companion content program data **620**. In the embodiment illustrated in this figure, the companion content program data **642**A simply skips the companion content whose scheduled time has been used up by the user interaction. Accordingly, after the user interaction is completed at time-offset **1010** (00:05:25) the companion content device **642**A displays the companion content **1040** at time-offset **1020** (00:05:26).

[0097] While the embodiment illustrated in FIG. **10** skips items of companion content entirely when the scheduled time for that content is used up by user interactions with a preceding item of companion content, other embodiments briefly display items of companion content whose scheduled time is used up. FIG. **11** illustrates such an embodiment.

[0098] FIG. **11** illustrates an embodiment that briefly displays an item of companion content even if that item's entire scheduled time is used up while the user interacts with a prior item of companion content. FIG. **11** shows an embodiment that tries to catch up with missed content. FIG. **11** includes

time-offset **1110**. Time-offset **1110** is a time-offset approximately thirty seconds after the user interaction is complete. The user interactions and companion content program data **620** are the same in this figure as in FIG. **10**. However, in this embodiment, the companion content device **642**A is programmed to display companion content items in order, even if one or more of them has missed their scheduled display time due to user interaction with a previously scheduled item of companion content. Therefore, at time-offset **1020** (00:05:26) the companion content device **642**A displays the second item of companion content in companion content program data **620**, companion content **760**. The companion content device **642**A displays the companion content **760** for thirty seconds, then displays the companion content **1040** at time-offset **1110** (00:05:56). One of ordinary skill in the art will realize that other embodiments could display the "missed" content for other amounts of time than thirty seconds. In some embodiments, where multiple items of companion content have been missed, the companion content device will display each missed item for some brief period of time. In some embodiments, the period of time for which missed items are displayed varies depending on the circumstances. In some embodiments, companion content program data can include data that determines whether a particular item will be skipped or briefly displayed if its scheduled display time is missed.

[0099] When an item of companion content takes too long to download, its allotted time can expire before the content is fully downloaded. In some cases, the content is fully downloaded within the allotted time, but with insufficient time remaining to fully display. For example, a one minute video clip could finish downloading with only 30 seconds remaining of its allotted time. This can happen when either the download is too slow even with caching or because of a sudden jump of the media presentation (fast forwarding or rewinding) to a time-offset that is not cached. In some embodiments, the companion content device moves on to the next item of companion content, cutting off the end of the late content or skipping it entirely, similar to the manner of dealing with extended user interaction shown in FIG. **10**. In other embodiments, the companion content device displays the content briefly before moving on to the next item of companion content. In still other embodiments, any content that is not fully cached by the scheduled start time of that content is skipped in favor of continuing to play the previous item of companion content.

[0100] In some embodiments, rather than skipping any content, the companion content device opens updated content in a separate window or in the background and allows the user to switch between content that the user is interacting with and the currently active content. In some embodiments, a companion content device can display multiple content items in a browser window.

[0101] Some embodiments include a browsing mode that allows a user to select from among all available items of companion content of a media presentation. FIG. **12**A illustrates an embodiment with a browsing mode. The figure includes browsing mode **1200** with browsing windows **1210**-**1230**, scroll bar **1240**, and companion content download **1250**. In some embodiments, each browsing window **1210**-**1230** displays a thumbnail image of an item of companion content. In some other embodiments the thumbnail image of the item of companion content can be accompanied by other information such as the URL and time-offset associated with the item of companion content. The scroll bar **1240** allows a user to shift the display to show browsing windows of later-scheduled or earlier-scheduled companion content. The companion content download **1250** is a download of companion content from the third URL of companion content program data **620**.

[0102] In some embodiments, the user can access any item of companion content by entering browsing mode **1200** and selecting the browsing window **1210**, **1220**, or **1230** that displays that item of content. The browsing windows **1210**-**1230** of some embodiments include thumbnails, which are small images of the companion content. The companion content that is displayed (in miniature) in the browser windows is the same companion content that is downloaded from the companion content servers with companion content downloads **230**, **240**, and **1250**. In some embodiments the thumbnail images are static images, even if the companion content they represent includes motion images. In other embodiments, some or all of the video or other time variant content an item of companion content is played in the browsing window corresponding to that item of companion content.

[0103] There are only three browsing windows displayed in FIG. **12**A. However, one of ordinary skill in the art will realize that in some embodiments larger numbers of browsing windows can be displayed and more than three items of companion content for a given media presentation can be provided by the companion content program data for that presentation. Although the figure shows the companion content device **642**A retrieving content from the servers (companion content downloads **230**, **240**, and **1250**), in some embodiments, the companion content device **642**A downloads the companion content in advance and caches the downloaded companion content.

[0104] FIG. **12**B illustrates another embodiment of a companion content browsing mode. In this figure, an interactive content window **1260** is displayed (and available for the user to interact with) on the same screen as companion content selector icons **1270**. In some embodiments, the companion content selector icons are available only upon a particular control being activated (e.g., double clicking on a button of the companion content device). In other embodiments, the companion content selector icons **1270** are available at all times. In still other embodiments, the companion selector icons are available unless deactivated by the use of a control of the companion content device.

[0105] VI. Multi-Channel Companion Content Program Data

[0106] The figures in the previous sections illustrated companion content devices that were displaying one channel of companion content. However, some embodiments provide and display multiple channels of companion content. For example, one channel could have advertisements, one channel could have related/additional content, etc. FIGS. **13**A-**13**C illustrate multi-channel companion content program data and the display of multiple channels at different time-offsets.

[0107] FIG. **13**A includes content downloads **1302**, **1304**, and **1306**, time-offset **1310**, multi-channel companion content program data **1312**, three channel display windows **1314**, **1316**, and **1318**, companion content **1315**, companion content **1317**, companion content **1319**, scroll bar **1340**, maximize-channel buttons **1350**, and close-channel buttons **1320**. The time-offset **1310** represents the time-offset of a media presentation (not shown). Multi-channel companion content program data **1312** shows the URLs of the companion content

related to the media presentation (not shown) and the times associated with each URL. The scroll bar **1340** allows a user to shift the display to show channel display windows of later-scheduled or earlier-scheduled companion contents. One of ordinary skill in the art will realize that the format of the companion content program data as a table is symbolic and that the data can be presented to the companion content device **142** in other formats than as a table (e.g., the companion content program data could be presented as html code).

[0108] The channel display window **1314** displays companion content from the banner ad channel of companion content program data **1312**. The channel display window **1316** displays companion content from the personalized ad channel of companion content program data **1312**. The main channel display window **1318** displays companion content from the main channel of companion content program data **1312**. The channel display windows **1314**, **1316**, and **1318** display the companion content **1315**, **1317**, and **1319**, respectively. Companion content **1315** is a banner advertisement. Companion content **1317** is a personalized advertisement. Companion content **1319** is a set of links to further information about the media presentation. The companion contents **1315**, **1317**, and **1319** have been downloaded through the downloads **1302-1306**, from the URLs indicated for time-offset **1310** in their respective channels in the companion content program data **1312**. Maximize-channel buttons **1350** of some embodiments enable the user to maximize the display window of their respective channels in order to display additional information related to the corresponding companion contents (e.g., a "buy now" icon, etc.). Close-channel buttons **1320** enable the user to close the display windows of their respective channels.

[0109] This figure shows three channels of companion content displayed in three display windows **1314**, **1316**, and **1318**. The display windows **1314**, **1316**, and **1318** are displaying the contents associated with time-offset 00:00:00 in their respective channels in the companion content program data **1312**. Specifically, display window **1314** is displaying personalized banner ad one, downloaded from URL adcontent.net/drama12/ad1. Although a specific URL is listed, some embodiments can track user patterns and customize content to the user. In some embodiments, the tracking feature uses web analytics to track the interactions of the user with the companion content device **142**. For example, the analytics could track the types of movies the user watches while using the companion content device **142** or the types of products the user has bought in the past from various advertisements on the companion content device **142**. In some embodiments, the tracking is performed on the servers being contacted, which provide the personalized ads based on information previously collected by that server or other servers. In some embodiments, the companion content program data **142** performs the tracking and the URL links to a page that accesses the tracking data on the companion content device **142** and provides an appropriate personalized advertisement based on the tracking data from the companion content device **142**. In some embodiments, the tracking feature includes an option for the user to temporarily or permanently block tracking.

[0110] Display window **1316** displays companion content **1317**, an advertisement related to a specific aspect of the media presentation between time-offsets 00:00:00 and 00:03:25 (the start and end of the display of that advertisement according to the companion content program data **1312**), downloaded from URL adcontent.net/personalized/ad-A. For example, the banner advertisement could be an advertisement of a product shown on the media presentation sometime between those two time-offsets such as a set of curtains, a pair of glasses, or as it is illustrated in this example, a "DRINK COLA" advertisement. The banner advertisement in companion content **1317** could include an interactive aspect such as a "learn more" or "buy now" buttons (not shown). Display window **1318** displays companion content **1319**, a set of links to more information that may be of interest to the user of the media presentation. The links include a link to read a script of the movie, a link to view storyboards, and a link to closed captions.

[0111] In some embodiments, the channels can be closed by close channel buttons **1320**. In some embodiments, some channel displays are closeable, but other channels cannot be closed by the user. For example, in some embodiments the main channel display window **1318** is closeable and the advertisement channel windows **1314** and **1316** are non-closeable.

[0112] FIG. **13**B illustrates the companion content device **142** at a later time. The figure shows that the companion content displayed on one channel can be updated independently of the companion content on other channels. The figure includes time-offset **1350**. Time-offset **1350** shows that the time-offset of the media presentation is at 00:03:00.

[0113] Time-offset **1350** (00:03:00) is the time-offset indicated in companion content program data **1312** as the time to update the main channel from multi-links companion content **1319** to the companion content **760** at Movdb.com/moviename.htm. Accordingly, the companion content device **142** has performed download **240** to retrieve companion content **760** and is displaying companion content **760** in main channel display window **1318**. The border around the corresponding URL in the companion content program data **1312** is thicker to indicate that it is the active URL. As for the personalized ad channel, the time-offset has not yet reached the time-offset associated with the second companion content item in the personalized ad display channel. In this embodiment, the channels update independently from each other. Therefore, the personalized ad channel display window **1314** still displays companion content **1315**, even though the main channel display window **1318** has updated its display from companion content **1319** to companion content **760**. Similarly, the time-offset has not yet reached the time-offset associated with the second companion content item in the banner ad display channel. Therefore, the banner ad channel display window **1316** still displays companion content **1317**, even though the main channel display window **1318** has updated its display. The active companion content for the personalized ad channel and the banner ad channel are also shown by the thickened borders of the corresponding URLs in companion content program data **1312**, which indicate that the first URLs of the personalized ad channel and the banner ad channel are active.

[0114] FIG. **13**C shows the update of a second channel of companion content. The figure includes companion content **1327**, time-offset **1360**, and download **1370**. Companion content **1327** includes a different banner ad than the banner ad in companion content **1317** in FIG. **13**A. Time-offset **1360** shows that the time-offset of the media presentation is at 00:03:25. Download **1370** is a download of banner ad **1327**.

[0115] At the time-offset **1360** (00:03:25), the companion content program data **1312** shows (via thickened border) that the banner ad channel has reached the time-offset (00:03:25)

corresponding to the second companion content item of that channel. The companion content **1327** had been retrieved through download **1370**. The companion content **1327** is displayed in banner ad channel display window **1316**. As described above, each channel updates independently of the others. Accordingly, as the time-offset (00:07:00) for the second companion content of the personalized ad channel has not been reached (time-offset **1360** is 00:03:25, which is before 00:07:00), the personalized ad channel display window **1314** still displays companion content **1315**. Similarly, as the time-offset (00:15:00) for the third companion content of the main channel has not been reached, the main channel display window **1318** still displays companion content **760**.

[0116] In some embodiments, the sizes and positions of the display windows **1314**, **1316**, and **1318** are determined by additional data (not shown) in the companion content program data **1312**. In some embodiments, the size and position of the display windows can change at different time-offsets, according to additional data (not shown) in the companion content program data rather than being set for the channel once and remaining at that setting through the playing of the media presentation. Yet in other embodiments, the user can maximize the size of each display window through maximize-channel buttons to display more information on the screen as described above in FIG. **13**A.

[0117] FIGS. **14**A-**14**B illustrate different windows displaying different channels while a user interacts with companion content of one of the channels. FIG. **14**A includes time-offset **1410**, link **1420**, data request **1430**, and data transfer **1440**. Time-offset **1410** is 00:01:00. Link **1420** is a link to downloadable closed captions. Data request **1430** is a request to download the closed captions from a URL embedded in link **1430**. Data transfer **1440** is a transfer of closed caption data to the companion content device **142**.

[0118] At time-offset **1410** (00:01:00) all channels in companion content program data **1312** are on their first items of companion content. The main channel displays companion content **1319** which includes a set of links. The link **1420** has been clicked by a user. As a result of that click, a data request **1430** for closed caption companion content has been sent to a server using a URL embedded in the link. In response to the data request **1430**, the server has sent the closed caption companion content to the companion content device **142** through data transfer **1440**. In some embodiments, the closed caption companion content is provided in a format that allows it to be displayed at time-offsets synchronized with the media presentation. That is, in some embodiments, the closed caption companion content associates each block of text in a closed caption file with a specific time-offset of the media presentations in a manner similar to the association of URLs with time-offsets in the companion content program data.

[0119] Some embodiments allow companion content to include actions to be performed at specific time-offsets synchronized with the media presentation. Two ways of allowing companion content to perform specific actions at specific times are described in the following two paragraphs with respect to the closed caption companion content. However, one of ordinary skill in the art will understand that the described methods of performing actions at time-offsets specified by an item of companion content at specific time-offsets is not limited to the display of closed captions, but is a feature that some embodiments provide to allow any item of companion content to perform actions at specific time-offsets.

[0120] The companion content device **142** of some embodiments performs specific actions at specific time-offsets determined by an item of companion content. In such embodiments, the companion content device **142** accesses the time-counter that it uses to track time-offsets and performs each action specified by the item of companion content at the time-offsets associated with that instruction in the item of companion content. For example, in such embodiments, the companion content device performs the action of displaying specific blocks of closed caption text at specified time-offsets.

[0121] In some embodiments, the companion content device allows companion content that includes plug-ins or applications. For example, in some embodiments, a closed caption companion content includes a reader application or plug-in that is designed to access the time-counter of the companion content device. In such embodiments, the application or plug-in displays each block of closed caption text at time-offsets associated with that block of text in the closed caption file. In some embodiments, while an item of companion content is providing time-offset based data, that companion content is treated as though the user is continuing to interact with it. For example, in some embodiments, once a closed caption display is started, it will continue to be displayed for the rest of the media presentation (unless the user deactivates it), overriding later scheduled items in the same channel.

[0122] FIG. **14**B includes closed caption display **1429**. Closed caption display **1429** displays closed captions for the media presentation (not shown). At time-offset **1360** (00:03:25), the second companion content of the main channel in companion content program data **1312** has been reached (00:03:25 is after 00:03:00). However, because the closed caption link was clicked (as shown in FIG. **14**A), and the closed caption display is treated as an ongoing interaction, the main channel has not moved on to display the second companion content item in companion content program data **1312**. That is, the main channel display window **1318** is showing the closed captions display **1429** instead of the content scheduled for the main channel at time-offset **1360**.

[0123] At the time-offset **1360** (00:03:25), the companion content program data **1312** shows that the banner ad channel has reached the time-offset corresponding to the second banner advertisement at (at URL example.net/drama12/ad2). If the closed captions **1429** were on the same channel as banner ad **1315**, then some embodiments would continue to show the closed captions **1429** instead of switching to banner ad of companion content **1315** because (in those embodiments) user interaction overrides the companion content program data. However, the closed captions **1429** and banner ad of companion content **1315** are on different channels. The separate display windows for the separate channels allow the companion content device **142** to still have areas where it continues to display time specific content, under (or over or around in some embodiments) the main channel display window **1318**. Therefore, the banner ad of companion content **1315** is displayed in the banner ad channel display window **1314** at the same time as the closed captions **1429** are displayed in the main channel display **1318**.

[0124] One of ordinary skill in the art will realize that the specific companion content channels illustrated herein are not an exhaustive list of possible channels within the scope of some embodiments. Other channels are possible within the scope of some embodiments. For example, some embodiments include a channel that displays a copy of the main

media program that is streamed to the companion content device or cached on the companion content device. In some embodiments, the copy is broadcast from the media player. In other embodiments, the copy is received over a network. The copy allows the user to keep watching the program while looking at the companion content device.

[0125] Different embodiments encode the data in different ways to display multiple channels of companion content. For example, in some embodiments, each entry in the list of companion data indicates what channel it belongs to, and the corresponding time-offset and URL. Table 3, below, shows an example of pseudocode for such data encoding of displaying multiple channels of companion content.

TABLE 3

```
<content>
time, channel, URL
time, channel, URL
time, channel, URL
</content>
```

[0126] Some other embodiments encode the data differently. In some such embodiments, each entry in the list of companion data consists of multiple columns. Each column is allocated to a different channel. Each entry in the channel column will then indicate the time-offset and the URL that belong to that channel. The companion content program data **1312** illustrated in FIGS. **13**A-**14**B is an example of this type of encoding. Table 4, below, shows an example of pseudocode for such data encoding of displaying multiple channels of companion content.

TABLE 4

```
<content>
<channel1>
time, URL
time, URL
</content>
</channel1>
<channel2>
time, URL
time, URL
</channel2>
</content>
```

[0127] While the above described embodiments include channels that are opened according to companion content program data, one of ordinary skill in the art will understand that in some embodiments, channels can be opened and/or closed in response to user interaction (in addition to or instead of opening channels based on the companion content program data). In some embodiments, selecting a link results in the replacement of the channel that the link was in with a channel that contains data specified by the link. In some embodiments, the new channel is added to the existing channels, rather than replacing an existing channel of companion content.

[0128] New channels are opened, for instance, by the selection of the links that refer to content that is not directly referenced in the companion content program data in some embodiments. For example, in some such embodiments, rather than being opened automatically while the media presentation is playing, channels associated with script data, storyboards, and/or closed captions are opened if and when the user selects these items of content. In some embodiments, when the user selects any of these types of content which do not initially have open channels dedicated to them, the links used to select these types of content provide a URL (e.g., additional metadata) that indicates to the companion content device that the data from the URL should be loaded and interpreted as a companion content data channel, either adding a new channel of program data or replacing an existing channel. Furthermore, some embodiments include an "add window" option for a window that can be opened or closed without selecting a specific link before opening the new window.

[0129] VII. Transport Controls

[0130] In some embodiments, at least some companion content devices include the ability to transmit commands to the media player. In some embodiments these commands are carried by an infra-red (IR) signal. In some embodiments these commands are carried by a wireless (radio) signal. In some embodiments, the companion content device includes user interface controls for sending commands to the media player. FIG. **15** illustrates a companion content device with user interface controls of some embodiments. The figure includes transport controls **1510**. Transport controls **1510** include a stop icon, a pause icon, a rewind icon, a fast forward icon and a play icon. In the illustrated embodiment, the transport controls **1510** are constantly present in a bar along one side of the companion content device display while content is being shown. When one of the controls is activated the companion content device sends out a signal corresponding to that control.

[0131] FIG. **16** illustrates a companion content device with hidden user interface controls of some embodiments. The figure includes remote control icon **1610** and back to content icon **1620**. In the illustrated embodiment, the transport controls **1510** are hidden until a user selects the remote control icon **1610**. Once the remote control icon **1610** has been selected, the transport controls **1610** are displayed and the usual content is hidden. After the remote control icon **1610** is selected, along with the transport controls **1510**, the companion content device displays the back to content icon **1620**. When the back to content icon **1620** is selected, the companion content device returns to the previous state with the content shown and the transport controls **1510** not shown.

[0132] In some embodiments, the companion content device issues transport commands as directed by the companion content. FIG. **17** illustrates a process **1700** of some embodiments in which an item of companion content controls the media player. The process **1700** pauses the presentation in order to allow the user to answer a question on the companion content device. The process sends (at **1710**) a transport control signal from the companion content device to the media player. The transport control signal commands the media player to pause the media presentation. In some embodiments, the transport control signal can be sent over IR, wireless communications, or wired communications. Some embodiments provide companion content devices and media players that can use more than one type of signal for the transport control signal. The process then pauses (at **1720**) the internal counter of the companion content device.

[0133] In some embodiments, the process does not pause the counter directly after sending the transport control signal to pause, but instead pauses the counter after receiving a signal from the media player indicating that the presentation has paused. In some embodiments, the pause signal is sent (at **1710**) repeatedly until the media player acknowledges that

the media presentation has paused. The companion content device then displays (at **1730**) a question for the user. For example, the question could be who to vote for in a reality TV show. The question could also be an academic question based on the media presentation so far. The process receives (at **1740**) a response from the user and the companion content device sends the user's selection to a remote server through a URL specified in the companion content. In some embodiments, the user's selection is sent to a local server on the media player device instead of a remote server in order for the information to be collected and processed locally. The process of some embodiments, in addition to the user's selection, sends other information to the remote or local server to be processed. Such information, for instance, in some such embodiments can include the identity information of the user (e.g., for a voting scenario in which there are a limited numbers of votes per user).

[0134] Once a response has been received, the process then allows the media presentation to continue. The process sends (at **1750**) a transport signal to the media player to resume playing. The process then resumes (at **1760**) the counting of the time-offset counter. In some embodiments, the process waits for confirmation from the media player that the media presentation has resumed before the process resumes the counting of the time-offset counter. The process then forwards (at **1770**) the user's response to the companion content web-site. The process then ends.

[0135] In some embodiments, the process treats the user's response in a different manner. For example, in some embodiments, the process stores the user's response locally. Storing the response locally could be used when the user is trying to test himself, such as by playing along with a quiz show. Some embodiments store or send the response as directed by the companion content. Furthermore, in some embodiments, instead of one companion content device asking one user a question, multiple companion content devices of multiple users (all watching the same media presentation) ask their respective users a question. In such embodiments, multiple users respond (at **1740**). In some such embodiments, the transport controls are handled democratically. The media player resumes the presentation once some percentage of the companion content devices present have received a response. Some embodiments provide a media player that can detect the number of companion content devices present in order to determine the percentage of users that have responded. In other embodiments, with a media player that can't count votes, but with companion content devices that are capable of communicating with each other, the companion content on each companion content device communicates with the companion content on the other companion content devices to determine when the threshold percentage has been reached. Then one of the companion content devices is designated to send the transport commands to the media player.

[0136] VIII. Software Architecture

[0137] Some embodiments implement the functions described above through software stored on computer readable media. The media players of some embodiments and the companion content devices of some embodiments include software that has various modules. The software modules of some embodiments are described below.

[0138] FIG. **18** conceptually illustrates a software architecture diagram **1800** of a media player of some embodiments. The diagram shows functions of the media player of some embodiments, and types of data that the media player sends and receives in some embodiments. The diagram **1800** includes a network interface **1801**, a media downloader **1802**, a media presentation storage **1803**, a media reader interface **1804**, an IR receiver interface **1805**, a wireless receiver interface **1806**, and a wireless transmitter interface **1807**, a media presentation decoder **1810**, a display interface **1820**, a URL storage **1830**, a time-offset counter **1840**, a time-offset signal generator **1850**, a broadcast controller **1860** and a command receiver **1870**.

[0139] The network interface **1801** connects the media player to the network (through network hardware, not shown). The media downloader **1802** uses the network interface **1801** to connect to servers that store media presentations and downloads the media presentations. The media presentation storage **1803** stores the media presentations downloaded from the servers. Some embodiments include a media reader interface **1804** for a media reader that reads tangible media such as DVDs, CDs, or Blu-ray® disks. The IR receiver interface **1805** receives commands from infra-red remote controls including companion content devices with infra-red transmitters. The wireless receiver interface **1806** receives commands from wireless controllers (e.g., through Bluetooth or wireless LAN). The wireless transmitter interface **1807** broadcasts signals to nearby wireless receivers (e.g., to companion content devices). The media presentation decoder **1810** receives media presentation data from the media presentation storage **1803** and/or from the media reader interface **1804**. The media presentation decoder **1810** decodes the media presentation data and sends the decoded data to the display interface **1820**. The display interface **1820** receives the decoded information from the media presentation decoder **1810** and passes it to the display through whatever hardware (not shown) connects the display to the media player. The media presentation decoder **1810** also provides the current time-offset to the time-offset counter **1840**.

[0140] The media presentation decoder **1810** also extracts URLs from the media presentations and sends the URLs to the URL storage **1830**. The URL storage **1830** receives the URLs from the media presentation decoder **1810**. The URL storage **1830** provides the URL to the time-offset signal generator **1850** so that the URL can be included in the time synchronization signals sent out by the media player. The media presentation decoder of some embodiments extracts a media ID (i.e., a unique identifier for the media item) from the media presentation. In some such embodiments, the media player always checks one or more program directory servers to see if there is a new URL that should be used for the media currently being played. This would enable a level of flexibility that would allow the media player to be configured with the companion content directory server. In some such embodiments, when a new media item is selected, the media player would get the media ID and send a query to the directory server with that media ID. Sending the media ID constitutes a request for the URL at which the companion content program data associated with that media ID can be found. Then the companion content is requested via the URL that was supplied by the directory server. In short, in such embodiments, the media player retrieves, from a program directory server, the URL that the media player then broadcasts to the companion content device, rather than retrieving that URL from the media item directly.

[0141] The time-offset signal generator **1850** receives data identifying the current time-offset from the time-offset counter **1840**. In some embodiments, the time-offset signal

generator then encodes the time-offset from the time-offset counter **1840** and the URL from the URL storage **1830** into a coded signal. In some embodiments, the coded signal is similar to the coded signal shown in Table 1, above. In some other embodiments, the time synchronization signal and the URL are encoded and sent separately. The time-offset signal generator **1850** then passes the encoded signal to the broadcast controller **1860**, which passes the encoded signal to the broadcast hardware (not shown) through wireless transmitter **1807**. The encoded signal is then broadcast to the companion content devices in proximity to the media player. In some embodiments, the media presentation decoder **1810** receives transport control signals from the command receiver **1870**. The command receiver **1870** in some embodiments receives commands from the user through one or more interfaces, such as the wireless receiver interface **1806** and the IR receiver interface **1805**. In some embodiments, the same IR receiver that receives IR signals from remote controls also receives IR signals from companion content devices with IR transmitters.

[0142] After the IR or wireless signals are received by the wireless receiver interface **1806** or the IR receiver interface **1805**, they are passed to a command receiver **1870** to determine what the commands mean in the context of the present state of the media player. Some commands are sent from the command receiver **1870** to the media presentation decoder **1810** to control the playing of a presentation. Other commands are sent to the media downloader **1802** to command it to order a new presentation from a server through the network interface **1801**. The commands include, but are not limited to "play", "stop", "pause", skip to next/previous chapter, "fast forward" and "rewind". In some embodiments, the command receiver **1870** can get these commands from the user through one or more of an external remote control, controls on the media player itself, or a companion content device. In some embodiments, the network interface **1801** communicates with the network through a wireless transmitter and a wireless receiver. In some embodiments, the same wireless receiver interface and transmitter interface that receive and transmit signals from/to the companion content devices are used as the network interface **1801**.

[0143] FIG. **19** conceptually illustrates a software architecture diagram **1900** of a companion content device of some embodiments. The diagram shows some of the functions of the companion content device and some of the types of data that the companion content device sends and receives. The architecture diagram **1900** includes wireless interface **1905**, URL and time-synchronization signal receiver **1910**, companion content program data retriever **1920**, companion content program data cache **1922**, network interface **1925**, companion content retriever **1930**, companion content cache **1940**, companion content scheduler **1950**, time-offset counter **1960**, content interface **1970**, user interface **1975**, display controller **1980**, transport control module **1985**, and transmitter interface **1987**.

[0144] The wireless interface **1905** receives signals from a media player. The signals contain the URL for the companion content program data of the media presentation being played by the media player and a time synchronization signal encoded in the wireless transmission. The wireless interface **1905** decodes the signals into electronic data and passes the electronic data to the URL and time-synch signal receiver **1910**. The signal receiver **1910** receives the URL signals and time-synchronization signals from the wireless interface and passes the signals to the appropriate modules. The signal receiver **1910** passes the URL to the companion content program data retriever **1920**. The companion content program data retriever **1920** contacts the URL that was received from the media player to download the companion content program data. In some embodiments, the companion content program data retriever **1920** contacts the specified URL through the network interface **1925**. In some embodiments, the network interface **1925** controls one or more wireless transmitters and receivers such as Bluetooth, cellular phone technology, or wireless LAN signals. In some embodiments the network interface **1925** uses wired hardware, such as Ethernet, to connect to the network. In some embodiments, the wireless interface **1905** and the transmitter interface **1987** are part of the network interface **1925**, or the network interface **1925** is used instead of one or both of the wireless interface **1905** and the transmitter interface **1987**. In other embodiments, different network interfaces are used for different tasks such as downloading companion content program data, downloading companion content, and controlling the media player.

[0145] The companion content program data retriever **1920** passes the companion content program data to the companion content program data cache **1922**. The companion content program data cache **1922** provides (upon request) the companion content program data to the companion content retriever **1930** and to companion content scheduler **1950**.

[0146] In some embodiments, the companion content retriever **1930** downloads and caches the content identified in the companion content program data once the retriever **1920** receives the companion content program data. Some embodiments download the companion content shortly before it is needed, or some set amount of time before it is needed. The companion content retriever of some embodiments downloads the companion content through the network interface **1925**. The companion content retriever sends the downloaded companion content to the companion content cache **1940**. The companion content cache **1940** stores the companion content until it is needed.

[0147] When an item of companion content is needed (e.g., when the time-offset of the media presentation matches the time-offset associated with the item of companion content by the companion content program data) the companion content scheduler **1950** retrieves the companion content from the companion content cache **1940**. The companion content scheduler **1950** identifies the times when particular items of companion content are needed by comparing the time-offsets in the companion content program data received from the companion content program data cache **1922** with the time-offset received from the time-offset counter **1960**. The time-offset counter **1960** receives synchronization signals from the media player through the wireless interface **1905** and the signal receiver **1910**. Synchronization is further described as part of section III, above.

[0148] The companion content scheduler **1950** sends the content to the content interface **1970** when that item of content is needed. The content interface **1970** receives the content from companion content scheduler **1950** and sends the audio and visual parts of the companion content to the display controller **1980**. The display controller **1980** controls the electronic visual and audio display of the companion content device. The display controller **1980** passes the signals from the content interface to the display and speakers/headphone jack of the companion content device. In some embodiments,

the display controller **1980** only handles visual data and a separate controller is used for audio data.

[0149] The content interface **1970** also handles user interaction with the content. When the images of the companion content are on the display of the companion content device, the user can interact with the companion content. The content interface **1970** receives these interactions from a user interface that interprets user commands (e.g., taps, clicks, etc.) from a user. The content interface **1970** passes the user commands and any other interactive signals to the network interface **1925** for any further network communication if necessary (e.g., when a "buy now" button is clicked). In some embodiments, the user commands may result in further network communication to complete a task. For example, further network communication would be used to execute a one-click purchase via an HTTP request and response.

[0150] When the user commands received by the user interface **1975** are intended to control the media player, or when an item of companion content needs to control the media player (e.g., pausing the presentation to ask the user a question), the content interface **1970** passes the commands to the transport control module **1985**. The transport control module **1985** then sends the commands to the media player through a transmitter interface **1987**. In some embodiments, the transmitter interface **1987** controls an IR transmitter. In some embodiments, the transmitter interface **1987** controls a wireless transmitter such as Bluetooth or a wireless LAN. In some embodiments, separate transmitter interfaces are provided for each type of IR or wireless transmission. In some embodiments, the transmitter interface uses the same transmitter as the network interface **1925**. Some embodiments use the network interface **1925** to send transport control commands to the media player rather than providing a separate transmitter interface **1987**. While Bluetooth and wireless LAN transmissions have been provided as an example of wireless transmissions, one of ordinary skill in the art will realize that in some embodiments, any type of wired or wireless communication can be used instead.

[0151] While many of the features described in relation to FIGS. **18** and **19** have been described as being performed by one module, one of ordinary skill in the art will recognize that the functions described herein might be split up into multiple modules. Similarly, functions described as being performed by multiple different modules might be performed by a single module in some embodiments (e.g., the scheduling and report generation functions). Also, in some embodiments, as mentioned before, the media player and the companion content device could both operate on the same machine (e.g. different applications or subsystems of the same application would run on one machine).

[0152] The present application describes a graphical user interface that provides users with numerous ways to perform different sets of operations and functionalities. In some embodiments, these operations and functionalities are performed based on different commands that are received from users through different input devices (e.g., keyboard, trackpad, touchpad, mouse, etc.). For example, the present application illustrates the use of a cursor in the graphical user interface to control (e.g., select, move) objects in the graphical user interface (FIGS. **8-11**). However, in some embodiments, objects in the graphical user interface can also be controlled or manipulated through other controls, such as touch control. In some embodiments, touch control is implemented through an input device that can detect the presence and location of touch on a display of the input device. An example of a device with such functionality is a touch screen device (e.g., as incorporated into a smart phone, a tablet computer, etc.). In some embodiments with touch control, a user directly manipulates objects by interacting with the graphical user interface that is displayed on the display of the touch screen device. For instance, a user can select a particular object in the graphical user interface by simply touching that particular object on the display of the touch screen device. As such, when touch control is utilized, a cursor may not even be provided for enabling selection of an object of a graphical user interface in some embodiments. However, when a cursor is provided in a graphical user interface, touch control can be used to control the cursor in some embodiments.

[0153] IX. Electronic System

[0154] Many of the above-described features and applications are implemented as software processes that are specified as a set of instructions recorded on a computer readable storage medium (also referred to as computer readable medium). When these instructions are executed by one or more computational or processing unit(s) (e.g., one or more processors, cores of processors, or other processing units), they cause the processing unit(s) to perform the actions indicated in the instructions. Examples of computer readable media include, but are not limited to, CD-ROMs, flash drives, random access memory (RAM) chips, hard drives, erasable programmable read only memories (EPROMs), electrically erasable programmable read-only memories (EEPROMs), etc. The computer readable media does not include carrier waves and electronic signals passing wirelessly or over wired connections.

[0155] In this specification, the term "software" is meant to include firmware residing in read-only memory or applications stored in magnetic storage which can be read into memory for processing by a processor. Also, in some embodiments, multiple software inventions can be implemented as sub-parts of a larger program while remaining distinct software inventions. In some embodiments, multiple software inventions can also be implemented as separate programs. Finally, any combination of separate programs that together implement a software invention described here is within the scope of the invention. In some embodiments, the software programs when installed to operate on one or more electronic systems, define one or more specific machine implementations that execute and perform the operations of the software programs.

[0156] FIG. **20** conceptually illustrates an electronic system **2000** with which some embodiments of the invention are implemented. The electronic system **2000** may be a computer (e.g., a desktop computer, personal computer, tablet computer, etc.), phone, PDA, or any other sort of electronic device. Such an electronic system includes various types of computer readable media and interfaces for various other types of computer readable media. Electronic system **2000** may include, but is not limited to a bus **2005**, processing unit(s) **2010**, a graphics processing unit (GPU) **2020**, a system memory **2025**, a network **2065**, a read-only memory **2030**, a permanent storage device **2035**, input devices **2040**, and output devices **2045**.

[0157] The bus **2005** collectively represents all system, peripheral, and chipset buses that communicatively connect the numerous internal devices of the electronic system **2000**. For instance, the bus **2005** communicatively connects the

processing unit(s) **2010** with the read-only memory **2030**, the GPU **2020**, the system memory **2025**, and the permanent storage device **2035**.

[0158] From these various memory units, the processing unit(s) **2010** retrieve instructions to execute and data to process in order to execute the processes of the invention. The processing unit(s) may be a single processor or a multi-core processor in different embodiments. Some instructions are passed to and executed by the GPU **2020**. The GPU **2020** can offload various computations or complement the image processing provided by processing unit(s) **2010**. In some embodiments, such functionality can be provided using CoreImage's kernel shading language.

[0159] The read-only-memory (ROM) **2030** stores static data and instructions that are needed by the processing unit(s) **2010** and other modules of the electronic system. The permanent storage device **2035**, on the other hand, is a read-and-write memory device. This device is a non-volatile memory unit that stores instructions and data even when the electronic system **2000** is off. Some embodiments of the invention use a mass-storage device (such as a magnetic or optical disk and its corresponding disk drive) as the permanent storage device **2035**.

[0160] Other embodiments use a removable storage device (such as a floppy disk, flash memory device, etc., and its corresponding disk drive) as the permanent storage device. Like the permanent storage device **2035**, the system memory **2025** is a read-and-write memory device. However, unlike storage device **2035**, the system memory is a volatile read-and-write memory, such a random access memory. The system memory stores some of the instructions and data that the processor needs at runtime. In some embodiments, the invention's processes are stored in the system memory **2025**, the permanent storage device **2035**, and/or the read-only memory **2030**. For example, the various memory units include instructions for processing multimedia clips in accordance with some embodiments. From these various memory units, the processing unit(s) **2010** retrieve instructions to execute and data to process in order to execute the processes of some embodiments.

[0161] The bus **2005** also connects to the input and output devices **2040** and **2045**. The input devices enable the user to communicate information and select commands to the electronic system. The input devices **2040** include alphanumeric keyboards and pointing devices (also called "cursor control devices"), cameras (e.g., webcams), microphones or similar devices for receiving voice commands, etc. The output devices **2045** display images generated by the electronic system or otherwise output data. The output devices include printers and display devices, such as cathode ray tubes (CRT) or liquid crystal displays (LCD), as well as speakers or similar audio output devices. Some embodiments include devices such as a touchscreen that function as both input and output devices.

[0162] Finally, as shown in FIG. **20**, bus **2005** also couples electronic system **2000** to a network **2065** through a network adapter (not shown). In this manner, the electronic can be a part of a network of computers (such as a local area network ("LAN"), a wide area network ("WAN"), or an Intranet, or a network of networks, such as the internet. Any or all components of electronic system **2000** may be used in conjunction with the invention.

[0163] Some embodiments include electronic components, such as microprocessors, storage and memory that store computer program instructions in a machine-readable or computer-readable medium (alternatively referred to as computer-readable storage media, machine-readable media, or machine-readable storage media). Some examples of such computer-readable media include RAM, ROM, read-only compact discs (CD-ROM), recordable compact discs (CD-R), rewritable compact discs (CD-RW), read-only digital versatile discs (e.g., DVD-ROM, dual-layer DVD-ROM), a variety of recordable/rewritable DVDs (e.g., DVD-RAM, DVD-RW, DVD+RW, etc.), flash memory (e.g., SD cards, mini-SD cards, micro-SD cards, etc.), magnetic and/or solid state hard drives, read-only and recordable Blu-Ray® discs, ultra density optical discs, any other optical or magnetic media, and floppy disks. The computer-readable media may store a computer program that is executable by at least one processing unit and includes sets of instructions for performing various operations. Examples of computer programs or computer code include machine code, such as is produced by a compiler, and files including higher-level code that are executed by a computer, an electronic component, or a microprocessor using an interpreter.

[0164] While the above discussion primarily refers to microprocessor or multi-core processors that execute software, some embodiments are performed by one or more integrated circuits, such as application specific integrated circuits (ASICs) or field programmable gate arrays (FPGAs). In some embodiments, such integrated circuits execute instructions that are stored on the circuit itself. In addition, some embodiments execute software stored in programmable logic devices (PLDs), ROM, or RAM devices. As used in this specification and any claims of this application, the terms "computer", "server", "processor", and "memory" all refer to electronic or other technological devices. These terms exclude people or groups of people. For the purposes of the specification, the terms display or displaying means displaying on an electronic device. As used in this specification and any claims of this application, the terms "computer readable medium," "computer readable media," and "machine readable medium" are entirely restricted to tangible, physical objects that store information in a form that is readable by a computer. These terms exclude any wireless signals, wired download signals, and any other ephemeral signals.

[0165] While the invention has been described with reference to numerous specific details, one of ordinary skill in the art will recognize that the invention can be embodied in other specific forms without departing from the spirit of the invention. In addition, a number of the figures (including FIGS. **3**, **4**, **5**, **17**) conceptually illustrate processes. The specific operations of these processes may not be performed in the exact order shown and described. The specific operations may not be performed in one continuous series of operations, and different specific operations may be performed in different embodiments. Furthermore, the process could be implemented using several sub-processes, or as part of a larger macro process. Thus, one of ordinary skill in the art would understand that the invention is not to be limited by the foregoing illustrative details, but rather is to be defined by the appended claims.

1-24. (canceled)

25. A method of receiving a response through a companion content device during a media presentation provided by a media player separate from the companion content device, the method comprising:

sending, from the companion content device, a first transport control signal to the media player to pause the media presentation;

displaying a question on the companion content device;

receiving the response to the question at the companion content device; and

sending, from the companion content device, a second transport control signal to the media player to resume the media presentation.

26. The method of claim **25**, wherein the media presentation is displayed on a display separate from the companion content device.

27. The method of claim **25**, wherein the first transport control signal from the companion content device is sent automatically in response to a command from an item of companion content on the companion content device.

28. The method of claim **27**, wherein the item of companion content comprises instructions received over the Internet.

29. The method of claim **25** further comprising:

before receiving the response, pausing an internal counter of the companion content device; and

after receiving the response, unpausing the internal counter of the companion content device.

30. The method of claim **25** further comprising sending the response to a server.

31. The method of claim **30**, wherein the server is a remote server.

32. A method of receiving responses through companion content devices during a media presentation provided by a media player separate from the companion content devices, the method comprising:

sending, from a first companion content device, a first transport control signal to the media player to pause the media presentation;

displaying a question on each of the companion content devices;

receiving responses to the question at at least a threshold percentage of the companion content devices; and

sending, from a second companion content device, a second transport control signal to the media player to resume the media presentation.

33. The method of claim **32** further comprising sending and receiving signals among the companion content devices to determine when the threshold percentage of responses has been received.

34. The method of claim **33**, wherein the second companion content device sends the second transport control signal to the media player in response to said determination.

35. The method of claim **32**, wherein the first companion content device is the same companion content device as the second companion content device.

36. The method of claim **32** further comprising sending, from each companion content device in the threshold percentage of companion content devices, to the media player, a transport control signal indicating that the companion content device has received a response, wherein the media player unpauses the media presentation in response to receiving the transport control signals indicating that each companion content device in the threshold percentage of companion content devices has received the response.

37. The method of claim **36**, wherein each of the companion content devices sends a signal to the media player to indicate the presence of the companion content device.

38. The method of claim **32** further comprising sending the received responses to a server.

39. The method of claim **32** further comprising:

after said sending the first transport control signal, pausing an internal counter of each of the companion content devices; and

after said sending the second transport control signal, unpausing the internal counter of each of the companion content devices.

40. A non-transitory machine readable medium storing a program, which when executed by at least one processing unit of a companion content device receives a response through the companion content device during a media presentation provided to an electronic display separate from the companion content device by a media player separate from the companion content device, the program comprising sets of instructions for:

sending, from the companion content device, a first transport control signal to the media player to pause the media presentation;

receiving, at the companion content device, the response to a question displayed on the electronic display; and

sending, from the companion content device, a second transport control signal to the media player to resume the media presentation.

41. The non-transitory machine readable medium of claim **40**, wherein the question is also displayed on the companion content device.

42. The non-transitory machine readable medium of claim **40**, wherein the first transport control signal from the companion content device is sent automatically in response to a command from an item of companion content on the companion content device.

43. The non-transitory machine readable medium of claim **42**, wherein the item of companion content comprises instructions received from an Internet site.

44. The non-transitory machine readable medium of claim **40**, wherein the program further comprises sets of instructions for:

before receiving the response, pausing an internal counter of the companion content device; and

after receiving the response, unpausing the internal counter of the companion content device.

45. The non-transitory machine readable medium of claim **40**, further comprising a set of instructions for sending the response to a server, wherein the server is a local server on the media player.

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