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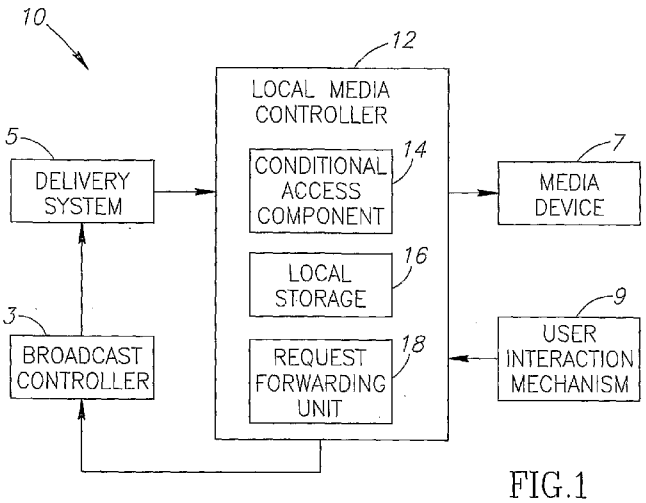

FIG.1

(57) Abstract: A local media controller for a multi-user financial transaction system is described. The local media controller includes a request database and an interactive television conditional access component. The request database stores at least one request from a first user. The interactive television conditional access component creates at least one user view of at least one stored request to present to a second user for approval. The user view includes a digital representation of the at least one stored request. Related apparatus and methods are also described.

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FINANCIAL TRANSACTION CONTROLLED SYSTEM

FIELD OF THE INVENTION

The present invention relates to control of a financial transaction in a domestic environment in general, and in a multi-user environment in particular.

BACKGROUND OF THE INVENTION

In today's information age, content is disseminated to users of various media; such content includes, for example, content accessible on televisions, computers, and telephones. Content may be transmitted, for example, by satellite, terrestrial, cable, cellular, land-line, asymmetric digital subscriber loop (ADSL) or digital subscriber loop (xDSL) networks. Content that is sold and disseminated directly to users over public networks is preferably protected from unauthorized users.

Conditional access solutions, well known in the art, are a form of security technology used to control access to transmitted information, including for example, video and audio, interactive services, etc. Access is restricted to authorized users through the transmission of encrypted signals and the regulation of their decryption. Conditional access solutions often involve a combination of software and special hardware that may be located on the provider side and / or on the user side. Conditional access to paid television content is often controlled at the user end within the set-top box. The set-top box is the receiver unit that includes an internal decoder and is connected to a television set. The set-top box receives and demultiplexes the incoming television signal and decrypts it, for example, when provided a control word by the viewing card. An exemplary conditional access set-top box solution is iVideoGuard (commercially available from NDS Limited, 1 Heathrow Boulevard, 286 Bath Road, West Drayton, Middlesex UB7 0DQ, UK). Persons skilled in the art will appreciate that set-top boxes are named by their usual location on top of a television set, but that the term "set-top box" is not meant to limit the location of the set-top box relative to a television set with which the set-top box is associated, it being further appreciated that televisions with integrated set-top box functionality are also known in the art.

Conditional access solutions are used by personal computers to protect personal data such as credit card information or proprietary information on the

local drives and / or during transmission over a network. An exemplary conditional access solution for computers is the PGP™ family of software (available from PGP™ Corporation, www.pgp.com). Another exemplary conditional access solution for computers is the family of security solutions available from RSA Security Incorporated (www.rsasecurity.com). Cellular telephones use SIM cards to control access.

Interactive applications are available on many media including televisions, computers, and telephones. Example applications include games, photo albums, shopping, music, and time-shifted television services. For example, interactive applications may allow an audience to play along with game shows, vote, or request information through an interactive advertisement.

The following references are also believed to be of relevance in understanding the state of the art:

US Patents 5,282,249 and 5,481,609, both to Cohen et al;

US Patent 6,178,242 to Tsuria; and

PCT Patent Application PCT/IL99/00344 of NDS Limited (published as PCT Published Patent Application WO 00/01149) and corresponding US Patent Application 09/515,118 of Wachtfogel et al.

The disclosures of all references mentioned above and throughout the present specification, as well as the disclosures of all references mentioned in those references, are hereby incorporated herein by reference.

SUMMARY OF THE INVENTION

The present invention, in preferred embodiments thereof, seeks to provide a multi-user financial transaction system and method for use in a domestic media environment. The system, preferably implemented on a local media controller, may be an interactive semi-automatic system wherein transaction request(s) of a user(s) are saved and automatically later presented to other user(s) for approval. Presentation of offer(s) and notification of the existence of a set of requests for review are generally an automatic process. An offer(s), optionally stored locally, is preferably presented only when preset conditions are met. The set of requests needing review is stored locally and can be reviewed only when preset conditions are met. The creation of request(s) and their review comprise an interactive process. The status of request(s) are automatically updated and appropriate action(s) automatically taken.

The method preferably comprises at least three conceptual portions: an interaction with a first user, an interaction with a second user, and an automatic review process of all requests and / or responses comprised in a request database. In a further preferred embodiment of the present invention, the method may further comprise an automatic review of a content database for appropriate stored offers, advertisements, etc. In a further preferred embodiment of the present invention, interactions involving more than two users may be possible and the local media controller may create additional user views.

There is thus provided in accordance with a preferred embodiment of the present invention, a local media controller for a multi-user financial transaction system. The local media controller includes a request database to store at least one request from a first user, and an interactive television conditional access component to create at least one user view of at least one stored request to present to a second user for approval. The user view includes a digital representation of the at least one stored request.

Additionally, in accordance with a preferred embodiment of the present invention, the at least one stored request is presented to the second user for approval when preset conditions limiting access are met.

Furthermore, in accordance with a preferred embodiment of the present invention, a broadcast stream received by the controller includes an offer and the interactive television conditional access component creates a first user view to present to the first user. The first user view includes a digital representation of at least a portion of the offer.

Moreover, in accordance with a preferred embodiment of the present invention, the controller includes a content database including media content including at least one offer to present to the first user when preset conditions limiting access are met.

Additionally, in accordance with a preferred embodiment of the present invention, the controller includes a request forwarding unit operably associated with a broadcast controller by a return path mechanism, the request forwarding unit handling requests approved by the second user and the broadcast controller processing the requests.

Furthermore, in accordance with a preferred embodiment of the present invention, the request database includes at least one set of requests, each one set of requests corresponds to a predefined category of request.

Moreover, in accordance with a preferred embodiment of the present invention, the first user view presented to the first user and the at least one user view presented to the second user are identical.

Still further, in accordance with a preferred embodiment of the present invention, the second user includes at least two users.

There is thus further provided, in accordance with a preferred embodiment of the present invention, a multi-user financial transaction method including receiving a request for a financial transaction from a first user of an interactive television system, storing the request in a local request database, presenting at least one stored request to a second user of the interactive television system for review, and handling the at least one stored request.

Additionally, in accordance with a preferred embodiment of the present invention, the receiving further includes presenting a first view to the first user when preset conditions limiting access are met. The view includes a digital representation of special content.

Furthermore, in accordance with a preferred embodiment of the present invention, the receiving further includes generating the request from the special content interactively with the first user.

Moreover, in accordance with a preferred embodiment of the present invention, the presenting further includes reviewing the at least one stored request interactively with the second user.

Still further, in accordance with a preferred embodiment of the present invention, the presenting further includes updating the at least one stored request according to modifications from the second user.

Additionally, in accordance with a preferred embodiment of the present invention, the handling includes checking the status of each request in a stored set of requests.

Furthermore, in accordance with a preferred embodiment of the present invention, the handling further includes instructing a request forwarding unit to send requests with a status of "approved" for processing.

Moreover, in accordance with a preferred embodiment of the present invention, the presenting includes determining an appropriate time by comparing current conditional access parameters to predefined criteria.

Still further, in accordance with a preferred embodiment of the present invention, the presenting includes finding the special content in a content database.

Additionally, in accordance with a preferred embodiment of the present invention, the presenting includes automatically presenting to the second user when preset conditions limiting access are met.

Furthermore, in accordance with a preferred embodiment of the present invention, the presenting includes the second user initiating the presenting.

There is thus further provided, in accordance with a preferred embodiment of the present invention, an interactive television set-top box including a request database to store at least one request from a first user of the set-top box for a financial transaction requiring approval from a second user of the set-top box, a request forwarding unit to package approved requests for transmission to a third party from the interactive television set-top box, and a

conditional access component to coordinate presentation of the at least one offer including special content and to maintain the request database. The at least one request is created from at least one offer.

Moreover, in accordance with a preferred embodiment of the present invention, the set-top box includes a content database to store special content media for display when preset conditions limiting access are met.

Still further, in accordance with a preferred embodiment of the present invention, the set-top box includes a first view and a second view of the at least one offer created by the conditional access component, each user view includes a digital representation of the at least one offer.

Additionally, in accordance with a preferred embodiment of the present invention, the second view is identical to the first view.

Furthermore, in accordance with a preferred embodiment of the present invention, the conditional access component presents the at least one offer when preset conditions limiting access are met.

There is thus further provided in accordance with a preferred embodiment of the present invention, a method for controlling a local media controller in a multi-user financial transaction system. The method includes storing at least one request from a first user in a request database, creating at least one user view of the at least one stored request, and presenting the user view to a second user for approval. The user view includes a digital representation of the at least one stored request. The creating is by an interactive television conditional access component.

Moreover, in accordance with a preferred embodiment of the present invention, the presenting for approval is when preset conditions limiting access are met.

Further, in accordance with a preferred embodiment of the present invention, the set-top box includes creating a first user view to present to the first user from a broadcast stream including an offer, the first user view including a digital representation of at least a portion of the offer.

Still further, in accordance with a preferred embodiment of the present invention, the method includes having media content including at least one

offer to present to the first user when preset conditions limiting access are met. The media content is stored in a content database.

Additionally, in accordance with a preferred embodiment of the present invention, the method includes handling requests approved by the second user by a request forwarding unit and processing the requests by a broadcast controller. The broadcast controller is operably associated with the request forwarding unit by a return path mechanism.

Furthermore, in accordance with a preferred embodiment of the present invention, the request database includes at least one set of requests, each one set of requests corresponding to a predefined category of request.

Moreover, in accordance with a preferred embodiment of the present invention, the first user view presented to the first user and the at least one user view presented to the second user are identical.

Still further, in accordance with a preferred embodiment of the present invention, the second user includes at least two users.

There is thus further provided in accordance with a preferred embodiment of the present invention, a local media controller for a multi-user financial transaction system. The system includes a local request database to store a request for a financial transaction from a first user of an interactive television system, a conditional access component to present at least one stored request to a second user of the interactive television system for review, and a request forwarding unit to handle at least one request approved by the second user.

Further, in accordance with a preferred embodiment of the present invention, the conditional access component presents a first view to the first user when preset conditions limiting access are met. The view includes a digital representation of special content.

Additionally, in accordance with a preferred embodiment of the present invention, the conditional access component generates the request from the special content interactively with the first user.

Furthermore, in accordance with a preferred embodiment of the present invention, the conditional access component controls the second user interactively reviewing the at least one stored request.

Moreover, in accordance with a preferred embodiment of the present invention, the conditional access component updates the at least one stored request according to modifications from the second user.

Still further, in accordance with a preferred embodiment of the present invention, the conditional access component checks the status of each request in a stored set of requests.

Additionally, in accordance with a preferred embodiment of the present invention, the controller includes a request forwarding unit to send requests with a status of "approved" for processing.

Furthermore, in accordance with a preferred embodiment of the present invention, the conditional access component determines an appropriate time by comparing current conditional access parameters to predefined criteria.

Moreover, in accordance with a preferred embodiment of the present invention, the conditional access component finds the special content in a content database.

Still further, in accordance with a preferred embodiment of the present invention, the conditional access component automatically presents the at least one stored request to the second user when preset conditions limiting access are met.

Additionally, in accordance with a preferred embodiment of the present invention, the second user initiates the review.

There is thus further provided in accordance with a preferred embodiment of the present invention, a method for controlling an interactive television set-top box. The method includes storing in a request database at least one request from a first user of the set-top box for a financial transaction requiring approval from a second user of the set-top box, the at least one request including at least one offer, coordinating presentation of the at least one offer including special content and maintaining the request database by a conditional access component, and packaging approved requests for transmission to a third party from the interactive television set-top box by a request forwarding unit.

Moreover, in accordance with a preferred embodiment of the present invention, the method includes storing special content media in a content database for display when preset conditions limiting access are met.

Still further, in accordance with a preferred embodiment of the present invention, the method includes creating a first view and a second view of the at least one offer by the conditional access component, each user view including a digital representation of the at least one offer.

Furthermore, in accordance with a preferred embodiment of the present invention, the second view is identical to the first view.

Moreover, in accordance with a preferred embodiment of the present invention, coordinating presentation includes presenting the at least one offer when preset conditions limiting access are met.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be understood and appreciated more fully from the following detailed description, taken in conjunction with the drawings in which:

Fig. 1 is a simplified data flow illustration of a multi-user home media financial transaction system, operative in accordance with a preferred embodiment of the present invention;

Fig. 2 is a more detailed block diagram illustration of the local media controller of Fig. 1, operative in accordance with a preferred embodiment of the present invention;

Fig. 3 is a flow chart diagram of semi-automatic interactive creation of a request by userA, operative in accordance with a preferred embodiment of the present invention;

Fig. 4 is a flow chart diagram of semi-automatic interactive review of a request by userB, operative in accordance with a preferred embodiment of the present invention;

Fig. 5 is a flow chart diagram of automatic storage of a request generated by userA, operative in accordance with a preferred embodiment of the present invention;

Fig. 6 is a flow chart diagram of automatic update of a request after review by userB, operative in accordance with a preferred embodiment of the present invention;

Fig. 7 is a flow chart diagram of a method performed by the local media controller to enable the automatic review and handling of a set of requests and responses, operative in accordance with a preferred embodiment of the present invention;

Fig. 8 is a data flow illustration of the multi-user home media financial transaction system of Figs. 1 and 2 in an embodiment for interactive television, operative in accordance with a preferred embodiment of the present invention; and

Figs. 9A and 9B, taken together, comprise a figurative illustration of a portion of an exemplary embodiment of the multi-user home media financial

transaction system, operative in accordance with a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

The present invention, in preferred embodiments thereof, comprises a multi-user financial transaction system and method for use in a domestic media environment. The system, implemented on a local media controller, may be an interactive semi-automatic system wherein transaction request(s) of a user(s) are saved and automatically later presented to other user(s) for approval. Presentation of offer(s) and notification of the existence of a set of requests for review are generally an automatic process. An offer(s), optionally stored locally, is presented only when preset conditions generally limiting access are met. The set of requests needing review is stored locally and can be reviewed only when preset conditions generally limiting access are met. The creation of request(s) and their review comprise an interactive process. The status of request(s) are automatically updated and appropriate action(s) automatically taken.

Fig. 1, to which reference is now made, is a simplified data flow illustration of a multi-user home media financial transaction system 10 comprising a broadcast controller 3, a delivery system 5, a local media controller 12, a media device 7, and a user interaction mechanism 9, operative in accordance with a preferred embodiment of the present invention. Local media controller 12 may be operatively connected to broadcast controller 3, delivery system 5, media device 7, and user interaction mechanism 9, which may be components of a secure interactive content media system.

Broadcast controller 3, delivery system 5, media device 7, and user interaction mechanism 9 may be any appropriate systems known in the art. In a non-limiting example from the field of interactive television, broadcast controller 3 and delivery system 5 may be comprised in a head end system, media device 7 may be an appropriate television, and user interaction mechanism 9 may be an appropriate television remote control device which may comprise a special button for user response, for example, the "red button". In a non-limiting example from the field of computers, broadcast controller 3 and delivery system 5 may be

comprised in an appropriate server and / or appropriate local drives, media device 7 may be an appropriate computer monitor screen, and user interaction mechanism 9 may be an appropriate mouse and / or appropriate keypad. In a non-limiting example from the field of telephony, broadcast controller 3 and delivery system 5 may be comprised in the system of an appropriate service provider, media device 7 may be an appropriate telephone or appropriate display on a telephone, and user interaction mechanism 9 may be an appropriate keypad and / or appropriate telephone dial.

Broadcast controller 3 receives content, metadata, and control information from a service provider(s) and / or content provider(s). Broadcast controller 3 may gather and package the necessary content and control information and may forward it to delivery system 5. Delivery system 5 prepares transmission contents; for example, the delivery system 5 may encode, compress, and / or multiplex the data and may then transmit the data to local media controller 12. The transmission may be by any appropriate known transmission system, for example, satellite, cable, internet, and terrestrial. Local media controller 12 may receive the transmission from delivery system 5 and in turn may control the delivery of content to media device 7. Local media controller 12 may receive interactive user feedback, for example, an order for content, a service, and / or other request by means of user interaction mechanism 9.

In a preferred embodiment of the present invention local media controller 12 may further comprise a conditional access component 14, a local storage 16, and a request forwarding unit 18. Conditional access component 14 may control access to content and may control the de-multiplexing, decompression, and decryption of the signals. Any suitable conditional access solutions known in the art, for example those mentioned hereinabove in the background, may be used. Local storage 16 may be used to store media for possible later transmission to media device 7. Non-limiting examples of local storage 16 comprise read-only memory (ROM), compact disc ROM (CD-ROM), random access memory (RAM), electrically programmable ROM (EPROM), flash memory, and optical cards. Local storage 16 may store user data received from user interaction mechanism 9 and other data that may be subsequently sent by request forwarding unit 18 to

broadcast controller 3. Contents stored in local storage 16 may be secured by conditional access component 14.

At an appropriate time, as determined by conditional access component 14, selected media stored in local storage 16 may be presented to media device 7. An appropriate time may relate, for example, to a user request, to specific content being broadcast, to specific hours of the day or week, etc. Request forwarding unit 18 may transmit user data such as user usage, user orders for content, and user requests to broadcast controller 3 at an appropriate time. This may be for example, at specific time intervals and / or during a time of lower network usage and may comprise a push or pull mechanism. Such return path mechanisms are well known in the art, and may be comprised of telephone, satellite, Internet protocol (IP), and / or cable networks.

Multi-user home media financial transaction system 10 may enable the development of interactive applications such as personalized media services. In a non-limiting example from interactive personal television, conditional access component 14 may comprise a smart card and local storage 16 may comprise a personal video recorder (PVR) as in the XTV™ personalized television system (commercially available from NDS Limited). The content of local storage 16 may comprise, for example, information about a team or player to be shown during a game broadcast when requested by a user. In a preferred embodiment of the present invention, local storage may comprise a set of requests from a first user requiring approval by a second user. The multi-user financial transaction of the present invention is described hereinbelow in greater detail.

Reference is now made to Fig. 2, a more detailed block diagram illustration of local media controller 12 of Fig. 1, operative in accordance with a preferred embodiment of the present invention. Local media controller 12 may comprise conditional access component 14, local storage 16, and request forwarding unit 18. Local storage 16 may further comprise a request and response database (herein request database) 26 and an optional stored media content database (herein content database) 28. Request database 26 may comprise a set of user requests and responses (herein set of requests), which may be empty. Optional content database 28 may comprise locally stored media content, for example, offers,

advertisements, programming content, etc. Optional content database 28 may comprise media content that may be displayed to different users in different formats possibly with different details. Herein a user view may comprise a digital representation of the media content comprised in a request as formatted for different users. A user view may further comprise responses and / or other information added by a user and stored in request database 26. A user view may comprise at least one user view, for example, if multiple user interactions and / or prompts are presented. Exemplary user views A and B are depicted herein as optional user view 22 and 24. User views 22 and 24 may be created as needed. In a further preferred embodiment of the present invention, created user views may be stored in content database 28 for later reuse.

Local media controller 12, which in a preferred embodiment of the present invention may be comprised in a multi-user system, may encapsulate a method comprised of at least three conceptual portions: an interaction with a first user (herein userA), an interaction with a second user (herein userB), and an automatic review process of all requests and / or responses comprised in request database 26. In a further preferred embodiment of the present invention, the method may further comprise an automatic review of content database 28 for appropriate stored offers, advertisements, etc. In a further preferred embodiment of the present invention, interactions involving more than two users may be possible and local media controller 12 may create additional user views. In a non-limiting example, a multiple person approval system may require two different users, for example, userB1 and userB2 to review the requests and responses of userA.

A userA may use media device 7 of multi-user home media financial transaction system 10 (Fig. 1). At an appropriate time, "special content" may be presented to userA, for example, a special offer, advertisement, or promotion. A specific view of the special content may be created for userA, for example, user view 22. Such special content may be comprised within the currently broadcast content. Alternatively, the special content may have been stored in media content database 28, for dissemination at an "appropriate time" when preset conditions limiting access are met. The appropriate time may be determined, for example, by the hour of the day, the type of content currently broadcast, the identity of userA

or other predetermined criteria. Such criteria may allow an estimation of the age or special interest area of userA.

User view 22 may comprise a view of the special content in a manner appropriate for userA. For example, if the current broadcast is a children's television program, user view 22 may be appropriate for a child. If the current broadcast is generally of interest to a specific group, such as a nature program, user view 22 may be of interest to environmentalists. If it is late at night user view 22 may be appropriate for an adult. If the special content comprised in user view 22 is of interest to userA, the user may send a request(s), response(s), or other equivalent (herein response) to local media controller 12, for example, by means of user interaction mechanism 9. Completed response(s) from userA may automatically generate a "request", which may be stored in request database 26. However, any generated request from userA may need the authorization of userB before the response may be complied with. This interactive process with userA is explained in further detail hereinbelow with respect to Figs. 3 and 5.

UserB may use media device 7' (Fig. 9B), which may be the same or different from that used by userA. Any appropriate media device may be used but it must be comprised in multi-user home media financial transaction system 10. At an appropriate time when preset conditions limiting access are met, userB may receive user view 24, which may comprise notification regarding at least one request by userA. The appropriate time may be determined, for example, by the hour of the day, the type of content currently broadcast, the identity of userB, or other predetermined criteria. User view 24 may comprise a view relating to the special content userA responded to, in a manner appropriate for userB. The request as shown in user view 24 may be the same or different from user view 22. In a non-limiting example, user view 24 may comprise pricing and / or shipping information not shown as part of user view 22. In a further preferred embodiment of the present invention, userB may initiate a review of the set of requests, rather than waiting for the automatic receipt of user view 24. In a preferred embodiment of the present invention, user view 22 may be reused as user view 24. UserB may review the set of requests from userA and may respond, for example, with user interaction mechanism 9' (Fig. 9B) as to whether a request is allowed or not. A

"modified request" may be automatically generated, which may be used to automatically update request database 26 as necessary. This process is explained in further detail hereinbelow with respect to Figs. 4 and 6.

In a preferred embodiment of the present invention, the handling of special content may be automatically controlled by conditional access component 14. Portions of the content access process, for example, determining appropriate times for access, are similar to conditional access solutions known in the art that control packaging and access to certain content given certain criteria. Such exemplary solutions were mentioned hereinabove. Conditional access component 14 may be extended to include the automatic creation of views, automatic maintenance of request database 26, automatic initiation of a review of requests, and coordination thereof. A request from a user may be automatically evaluated for storage in request database 26. A stored request may comprise any appropriate interactive responses from userA or userB to the offer as well as any portion of the special content that may be needed to process the request. Automatic prompting of userB to review the set of requests preferably occurs only at appropriate times (as mentioned hereinabove). The set of requests in request database 26 may be reviewed automatically at an appropriate time according to predetermined criteria. Individual requests may be updated, handled, and / or deleted as necessary.

In a further preferred embodiment of the present invention, conditional access component 14 may review the content in content database 28 for currently appropriate content. Content database 28 may comprise offers that are not currently available due to some criteria not being met. Hence, conditional access component 14 may control the automatic dissemination of appropriate offers. The automatic control of the dissemination of offers as appropriate, creation of views, maintenance of media database 28, maintenance of request database 26, automatic initiation of a review of requests, and coordination thereof is explained in further detail hereinbelow with respect to Fig. 7.

A non-limiting example of the multi-user home media financial transaction system of the present invention may involve television advertisements or promotions aimed at children (userA) requiring adult (userB) approval. Reference is now made to Figs. 9A and 9B which, taken together, comprise a figurative

illustration of a portion of an exemplary embodiment of the multi-user home media financial transaction system, operative in accordance with a preferred embodiment of the present invention. Fig. 9A depicts a child 92 holding a television remote control 9 and watching a television set 7, which is operatively connected to a set-top box 12 and to a headend (not shown). Fig. 9B depicts an adult 94 watching television set 7'. During daytime hours or during broadcast of content appropriate for children certain advertisements may be automatically presented. User view 22 on television 7 may comprise a digital representation of such an advertisement. These advertisements may have been stored locally on set-top box 12 or they may be comprised in the current media stream. If advertisements may have been stored locally, the presentation may further comprise an automatic review of the stored content in set-top box 12 for appropriate content.

Child 92 may respond to user view 22 (an advertisement) by clicking a preset button, for example, the "red" button on television remote control 9, thus indicating a desire to buy the product. A request may be generated and stored in set-top box 12 for later approval by adult 94. The requests may be aggregated into a set of requests and may be marked as needing approval. In a further preferred embodiment of the present invention, separate sets of requests may be kept for predefined categories, for example for different children or different types of items such as toys, clothes, books, subscriptions, etc.

In a further preferred embodiment of the present invention, promotions may include both visual and spoken instructions, for example, those aimed at preschool children who may not read. To differentiate between users, different logins and / or icons may be used to indicate different requestors.

During late evening hours, during adult programming, when adult 94 has "signed on" to the system, or during another appropriate time, notification may be sent that there is a set of requests waiting for approval. The adult need not be using the same television 7 as child 92 and may be using a different service. A user view 24 comprising a depiction or digital representation of the advertisement shown to child 92 may be shown to adult 94. User view 24 of a request may appear identical to that received by child 92 or it may be a different view; for

example, an adult view may include pricing and / or shipping information in addition to a picture and / or description of the item requested. Adult 94 may review the requests and using television remote control 9' (any appropriate television remote control device), may allow some requests and may not allow others.

The set of all requests may be reviewed automatically by the conditional access component of set-top box 12. Requests that have been approved may be forwarded to broadcast controller 3 (Fig. 1) for processing possibly by third parties. Requests that have been denied may be purged. Requests for offers that have expired may be deleted. Duplicate requests may be culled. Stale requests, i.e. those older than a predefined amount of time, for example a week, may be purged. When the local storage is filled requests may be deleted in a preset manner, for example, oldest requests are deleted first.

Fig. 3, to which reference is now made, is a flow chart diagram of semi-automatic interactive creation of a request by userA, operative in accordance with a preferred embodiment of the present invention. A trigger may be received in the broadcast stream or may be generated by the conditional access component regarding the service or program being broadcast (300). This may cause a prompt comprising special content, such as an offer, advertisement or promotion, to be presented to userA (305). For example, an on screen prompt may be displayed and / or an auditory prompt may be sent, inviting userA to respond. Does the user respond (310)? If not, the offer may be removed (315) after a predetermined amount of time has elapsed, for example, X minutes. If the user responds, for example, by pressing a button or key or by a mouse click a check may be made whether further user interaction is necessary to complete the request (320). If not, a request may be generated (350) and the status may be set to "submitted". In generating a request, appropriate response(s) from userA as well as any portion of the offer that may be needed to process the request, may be included. Relevant information that may be needed to process the request may include, for example, the expiration date of the offer if there is one.

If further interaction is required to refine a request, at least one further prompt comprising special content may be presented (330). A series of prompts

may be required to complete the request, for example, the user may be further prompted to choose a color or quantity of an item. A check may be made whether the interaction has been completed (335). If the interaction is complete, a request may be generated as described above (350). If the interaction is not complete but a predetermined condition is met, the interaction may be cancelled (340). Non-limiting examples of a predetermined condition include: the elapsing of a predetermined amount of time, for example, Y minutes and the termination or end of the service or program that was being broadcast.

Fig. 4, to which reference is now made, is a flow chart diagram of semi-automatic interactive review of a request by userB, operative in accordance with a preferred embodiment of the present invention. A message or prompt comprising special content may be presented to userB informing him that a set of requests is waiting to be reviewed (400). For example, an on screen message may be displayed or an auditory signal may be sent, inviting userB to respond. Does the user respond (402)? If not, the message or prompt may be removed after a predetermined amount of time, for example, A minutes (415). If the user responds, for example, by pressing a button or key or by a mouse click, a request from the set of requests may be displayed (408). In a further preferred embodiment of the present invention, userB may optionally initiate a review of the set of requests (405) by, for example, pressing on or selecting a predefined button, key, or icon. If so, a request from the set of requests may be displayed as a message or prompt (408). Does the user respond (410)? If not, the message or prompt may be removed after a predetermined amount of time, for example, A minutes (415). If the user responds, for example, by pressing a button or key or by a mouse click, a check may be made whether further user interaction is necessary (420).

If further interaction is required to review the request, at least one further prompt comprising special content may be presented (430). A series of prompt(s) may be required to complete the request review, for example, the user may be prompted for a password or personal identification number (PIN) to ensure that userB is the correct authorizing person. A check may be made as to whether the interaction has been completed (435). If the interaction is not complete but a predetermined condition is met, the interaction may be cancelled (440) and

optionally any modification(s) may be stored. Examples of a predetermined condition include: the elapsing of a predetermined amount of time, for example, B minutes and the termination or end of the service or program that was being broadcast. If no further action is needed (420) or the interaction is complete (435), a modified request may be generated (450). A "modified request" may comprise any appropriate responses from userB and may include a status for the request such as "approved" or "denied". Are there further requests requiring review remaining (455)? If so, the method may continue by returning to box 408. Requests from the set of requests may be displayed one at a time until all requests have been reviewed or the user does not respond (415). If no requests remain, the method may end.

Offers in a content database may conceptually have a state that may be determined by a conditional access component by checking predetermined criteria. An offer may have a state of "not eligible" until certain criteria are met for allowing it to be presented, for example, it may begin on a certain date or be valid only at certain times of day. A state of "valid" may occur when the promotion may be offered. These offers may change states between "not eligible" and "valid" since the predetermined criteria may be, for example, time or content dependent. For example, an offer to children may be "valid" during daytime hours, "not eligible" during late night hours, and again "valid" the next morning. In a further example, an offer to children may be "valid"; however, if a user changes the broadcast to adult programming, it may become "not eligible". However, if the broadcast is changed back to children's programming the offer may again be "valid". A state of "expired" may occur when the time-period for the promotion is over permanently. For example, if a promotion is valid for a given month once the month is over the promotion expires.

Requests in the set of requests may similarly have a status reflecting where they are in the approval process. Once userA has responded to an offer, and a request is generated, its status may be set to "submitted" in the request database. When it is appropriate according to predetermined criteria for userB to review the request(s) in the set of requests, he may be prompted by a conditional access component to review the requests. In reviewing a request, userB may cause

modifications when responding to a prompt. Once userB has completed a review of a request, modifications to its status may be made as appropriate, for example, to "approved" or "denied".

Fig. 5, to which reference is now made, is a flow chart diagram of automatic storage of a request generated by userA, operative in accordance with a preferred embodiment of the present invention. UserA may have interactively created a request in response to a special content prompt as shown in Fig. 3. If the interaction was completed, a request may have been generated as shown in box 350 (Fig. 3). The generated request may have been received by the conditional access component (510). The conditional access component may store this request in a request database (520). The stored request may comprise appropriate responses from userA as well as portions of the offer. The status of the request may be entered in the request database (530) as submitted.

In a further preferred embodiment of the present invention, an offer that is stored in the content database may not be stored in full in the request database. Instead, only responses from userA, a link to the offer in the content database and some subset of the offer may be stored in the request database. Hereinbelow whether the full offer is stored in the request database or only a link to the offer in the content database, the request is referred to as stored in the request database since conceptually they are equivalent.

Fig. 6, to which reference is now made, is a flow chart diagram of automatic update of a request after review by userB, operative in accordance with a preferred embodiment of the present invention. UserB may have interactively reviewed the set of responses as shown hereinabove with respect to Fig. 4. For each request, if the interaction was completed, a modified request may have been generated as shown in box 450 (Fig. 4). The modified request may have been received by the conditional access component (625). The conditional access component may optionally update the request in the request database to reflect changes in the details as comprised in the modified request, according to modifications from userB (630). In a non-limiting example, userB may have chosen a shipping option such as overnight express or regular delivery. The status of the request may be updated to "denied" or "approved" as appropriate (640).

Fig. 7, to which reference is now made, is a flow chart diagram of a method performed by the local media controller to enable the automatic review and handling of the set of requests and responses, operative in accordance with a preferred embodiment of the present invention. This method may run continuously while the local media controller is on and operating. The current conditional access parameters may be determined (700), including for example, parameters that may be used to determine an appropriate time for access to media with restricted access and / or the current user. Non-limiting examples of conditional access parameters are the user ID, type of programming being broadcast, time of day, month, date, etc. Optionally, the content database may be reviewed for special content whose status is affected by the current conditional access parameters values (705). If special content whose predefined criteria match the values and hence is now valid is found, a trigger or prompt comprising special content may be generated and sent to userA (710). This corresponds to Fig. 3 boxes 300 and 305. The content database may be reviewed until all special contents have been reviewed.

The set of requests stored in the request database may be reviewed (720), possibly one at a time. When all the requests have been reviewed, return to 700. In reviewing a request its status may be checked (730). If a request has a status of "submitted" and the current conditional access parameters match the predefined criteria making this an appropriate time, a message or prompt comprising special content may be presented to userA, for example, a special offer, advertisement, or promotion is sent to userB (735); this corresponds to Fig. 4 box 400. If the status is "denied", the rejected request may be removed from the set of requests (745). If the status is "approved", the request may be sent to the request forwarding unit where it may be packaged and / or handled to include all necessary information (750). For example, the delivery address of a user may be obtained for example from the billing system. Alternatively, the address may be obtained interactively or from another source such as from credit card details. Payment arrangements may be through a subscriber's monthly bill, through a third party agreement, may be made interactively, or by any other suitable method. The packaged requests may be sent to the broadcast controller for processing at an appropriate time when

the broadcast control unit is operating. Processing may comprise in a non-limiting example third parties completing the financial transaction. An exemplary appropriate time may be during off peak time when rates are cheaper. If the state of a request has become "expired", the request may be removed from the set of requests (755). Return to 720 to review the next request until all requests have been reviewed.

In a further preferred embodiment of the present invention, a record of requests that were approved or denied may be kept for future reference. In a non-limiting example, if a request was approved or denied, it may be possible to instruct the system that the offer may not be presented again.

Reference is now made to Fig. 8, a data flow illustration of the multi-user home media financial transaction system 10 of Figs. 1 and 2 in an embodiment for interactive television, operative in accordance with a preferred embodiment of the present invention. For clarity of the description, elements in Fig. 8 are numbered with the same numbers as the corresponding elements in Figs. 1 and 2. The system and method operate as described hereinabove with respect to Figs. 1 - 7.

The system comprises a set-top box 12, operatively connected to a headend 1, a television set 7, and a remote control 9. Any appropriate television set 7 and appropriate remote control 9 may be used in a preferred embodiment of the present invention. Headend 1 may comprise a broadcast controller 3 and a delivery system 5. Any appropriate headend for interactive television known in the art may be used in a preferred embodiment of the present invention. Set-top box 12 may be any appropriate set-top box commercially available that is operable with headend 1, for example, Sky Digibox (British Sky Broadcasting Limited, Grant Way, Isleworth, Middlesex TW7 5QD, UK or www.sky.com) or DirecTV® R15 (DIRECTV Incorporated, CA, USA or www.directv.com) or any other appropriate commercial set-top box such as those manufactured by Philips, Samsung, Pace, Humax, Thomson, etc. Set-top box 12 may comprise conditional access component 14, local storage 16, and request and forwarding unit 18. Local storage 16 may comprise request database 26 and optional content database 28.

In a preferred embodiment of the present invention, the following components available from NDS Limited may be used. Headend 1 may comprise

NDS iChannel as broadcast controller 3 and NDS iPackager and iPlayer as delivery system 5. Conditional access component 14 may be NDS iVideoguard CA4iTV (conditional access for interactive television). Request and forwarding unit 18 may comprise NDS MediaHighway Core return path. Request database 26 may be stored in NDS iVideoguard SSF (secure storage and forwarding) and / or NDS MediaHighway Core Non-volatile memory interface. Content database 28 may be stored in NDS XTV. Modifications may be made to these components to control the automatic presentation of offers to userA, interactive creation of requests by userA, storage of requests, automatic prompt or response to userB for review of the set of requests, interactive review of requests by userB, automatic generation of modified requests, automatic review and update of the set of requests, automatic forwarding of requests to third parties, creation of user views and the review of the content database for currently valid offers.

Offers may be generated at the appropriate time by set-top box 12 from either currently broadcast content or media stored in the content database. Set-top box 12 may store requests from userA for later approval by userB. At an appropriate time, userB may be prompted for approval or userB may initiate a review of the set of requests. The requests in the request database may be maintained and reviewed automatically by set-top box 12, which may update the status of requests as necessary. Once a request is approved and details obtained, it may sent by request forwarding unit 18 to the remote system via headend 1 for required processing. Details of this system and method have been given hereinabove with respect to Figs. 1 - 7 for the more general case of home media. These details apply to the specific case of interactive television mutatis mutandis.

In an exemplary, non-limiting preferred embodiment of the present invention, the multi-user interactive-television financial transaction system may allow children to select products and services promoted as offers. These selections may be saved by the set-top box and communicated to the adults of the household automatically. The adults may be given the opportunity to approve the purchase of the selected products and services, and the details may be automatically forwarded to a remote system, such as broadcast controller 3 of headend 1, for action. The name and address may be added from the Subscriber Management

System SMS in the headend 1 (appropriate Subscriber Management Systems being well known in the art), and the purchase details may be sent to a third party mail-order supplier for automatic delivery. The price may be added to the monthly subscription bill or charged to a credit card.

Selections may be made, for example, with the "red button" of remote control 9. Use of this mechanism for selection is commonplace in children's programming, games, and videos. The set-top box "knows" the service and event being viewed. This ability of the child in conjunction with the "knowledge" of the set-top box and its ability to store data are combined in the present invention. Adults at their leisure may review the list(s), which may comprise a description and picture of each item. The adults may approve a purchase item, view further details pertaining to the item, or deny the purchase. This may be used by the adults to generate a shopping list of gifts for a child(ren) for birthdays, holidays, or other special occasions.

In a still further exemplary non-limiting preferred embodiment, the invention may be used to create a visit to a virtual store. The child may then select his gift wish list. The parents may review the list without the child being aware and could then "surprise" the child with exactly what they wanted. In the specific non-limiting implementation of a visit to "Santa's workshop", the child may create a "list for Santa", which the parents may fill without the child being aware of the parent's involvement, hence maintaining the myth.

In the description herein the terms special content, special offer, offer, offer comprising special content, advertisement, and promotion are used interchangeably and comprise equivalents thereof.

It is appreciated that software components of the present invention may, if desired, be implemented in ROM (read only memory) form. The software components may, generally, be implemented in hardware, if desired, using conventional techniques.

It is appreciated that various features of the invention which are, for clarity, described in the contexts of separate embodiments may also be provided in combination in a single embodiment. Conversely, various features of the

invention which are, for brevity, described in the context of a single embodiment may also be provided separately or in any suitable subcombination.

It will be appreciated by persons skilled in the art that the present invention is not limited by what has been particularly shown and described hereinabove. Rather the scope of the invention is defined only by the claims which follow:

CLAIMS

What is claimed is:

1. A local media controller for a multi-user financial transaction system, the local media controller comprising:

a request database to store at least one request from a first user; and

an interactive television conditional access component to create at least one user view of at least one stored request to present to a second user for approval, the user view comprising a digital representation of the at least one stored request.

2. The controller of claim 1 and wherein the at least one stored request is presented to the second user for approval when preset conditions limiting access are met.

3. The controller of claim 1 and wherein a broadcast stream received by the controller comprises an offer and the interactive television conditional access component creates a first user view to present to the first user, the first user view comprising a digital representation of at least a portion of the offer.

4. The controller of claim 1 and further comprising a content database comprising media content comprising at least one offer to present to the first user when preset conditions limiting access are met.

5. The controller of claim 1 and further comprising a request forwarding unit operably associated with a broadcast controller by a return path mechanism, the request forwarding unit handling requests approved by the second user and the broadcast controller processing the requests.

6. The controller of claim 1 and wherein the request database comprises at least one set of requests, each one set of requests corresponding to a predefined category of request.

7. The controller of claim 3 and wherein the first user view presented to the first user and the at least one user view presented to the second user are identical.

8. The controller of claim 1 and wherein the second user comprises at least two users.

9. A multi-user financial transaction method comprising:

receiving a request for a financial transaction from a first user of an interactive television system;

storing the request in a local request database;

presenting at least one stored request to a second user of the interactive television system for review; and

handling the at least one stored request.

10. The method of claim 9 and wherein said receiving further comprises presenting a first view to the first user when preset conditions limiting access are met, the view comprising a digital representation of special content.

11. The method of claim 10 and wherein said receiving further comprises generating the request from the special content interactively with the first user.

12. The method of claim 9 and wherein said presenting further comprises reviewing the at least one stored request interactively with the second user.

13. The method of claim 9 and wherein said presenting further comprises updating the at least one stored request according to modifications from the second user.

14. The method of claim 9 and wherein said handling comprises checking the status of each request in a stored set of requests.

15. The method of claim 9 and wherein said handling further comprises instructing a request forwarding unit to send requests with a status of "approved" for processing.

16. The method of claim 9 and wherein said presenting comprises determining an appropriate time by comparing current conditional access parameters to predefined criteria.

17. The method of claim 10 and wherein said presenting comprises finding the special content in a content database.

18. The method of claim 9 and wherein said presenting comprises automatically presenting to the second user when preset conditions limiting access are met.

19. The method of claim 9 and wherein said presenting comprises the second user initiating said presenting.

20. An interactive television set-top box comprising:

a request database to store at least one request from a first user of the set-top box for a financial transaction requiring approval from a second user of the set-top box, the at least one request comprised from at least one offer;

a request forwarding unit to package approved requests for transmission to a third party from the interactive television set-top box; and

a conditional access component to coordinate presentation of the at least one offer comprising special content and maintain the request database.

21. The interactive television set-top box of claim 20 and further comprising a content database to store special content media for display when preset conditions limiting access are met.

22. The interactive television set-top box of claim 20 and further comprising a first view and a second view of the at least one offer created by said

conditional access component, each user view comprising a digital representation of the at least one offer.

23. The interactive television set-top box of claim 20 and wherein the second view is identical to the first view.

24. The interactive television set-top box of claim 20 and wherein the conditional access component presents the at least one offer when preset conditions limiting access are met.

25. A method for controlling a local media controller in a multi-user financial transaction system, the method comprising:

storing at least one request from a first user in a request database;

creating at least one user view of the at least one stored request, the creating by an interactive television conditional access component; and

presenting the user view to a second user for approval, the user view comprising a digital representation of the at least one stored request.

26. The method of claim 25 and wherein the presenting for approval is when preset conditions limiting access are met.

27. The method of claim 25 and further comprising creating a first user view to present to the first user from a broadcast stream comprising an offer, the first user view comprising a digital representation of at least a portion of the offer.

28. The method of claim 25 and further comprising having media content comprising at least one offer to present to the first user when preset conditions limiting access are met, the media content stored in a content database.

29. The method of claim 25 and further comprising handling requests approved by the second user by a request forwarding unit and processing the requests by a broadcast controller, the broadcast controller operably associated with request forwarding unit by a return path mechanism.

30. The method of claim 25 and wherein the request database comprises at least one set of requests, each one set of requests corresponding to a predefined category of request.

31. The method of claim 27 and wherein the first user view presented to the first user and the at least one user view presented to the second user are identical.

32. The method of claim 25 and wherein the second user comprises at least two users.

33. A local media controller for a multi-user financial transaction system, the system comprising:

a local request database to store a request for a financial transaction from a first user of an interactive television system;

a conditional access component to present at least one stored request to a second user of the interactive television system for review; and

a request forwarding unit to handle at least one request approved by the second user.

34. The controller of claim 33 and wherein the conditional access component presents a first view to the first user when preset conditions limiting access are met, the view comprising a digital representation of special content.

35. The method of claim 34 and wherein the conditional access component generates the request from the special content interactively with the first user.

36. The method of claim 33 and wherein the conditional access component controls the second user interactively reviewing the at least one stored request.

37. The method of claim 33 and wherein the conditional access component updates the at least one stored request according to modifications from the second user.

38. The method of claim 33 and wherein the conditional access component checks the status of each request in a stored set of requests.

39. The method of claim 33 and further comprising a request forwarding unit to send requests with a status of "approved" for processing.

40. The method of claim 33 and wherein the conditional access component determines an appropriate time by comparing current conditional access parameters to predefined criteria.

41. The method of claim 34 and wherein the conditional access component finds the special content in a content database.

42. The method of claim 33 and wherein the conditional access component automatically presents the at least one stored request to the second user when preset conditions limiting access are met.

43. The method of claim 33 and wherein the second user initiates the review.

44. A method for controlling an interactive television set-top box, the method comprising:

storing in a request database at least one request from a first user of the set-top box for a financial transaction requiring approval from a second user of the set-top box, the at least one request comprising at least one offer;

coordinating presentation of the at least one offer comprising special content and maintaining the request database by a conditional access component; and

packaging approved requests for transmission to a third party from the interactive television set-top box by a request forwarding unit.

45. The interactive television set-top box of claim 44 and further comprising storing special content media in a content database for display when preset conditions limiting access are met.

46. The interactive television set-top box of claim 44 and further comprising creating a first view and a second view of the at least one offer by the conditional access component, each user view comprising a digital representation of the at least one offer.

47. The interactive television set-top box of claim 44 and wherein the second view is identical to the first view.

48. The interactive television set-top box of claim 44 and wherein coordinating presentation comprises presenting the at least one offer when preset conditions limiting access are met.

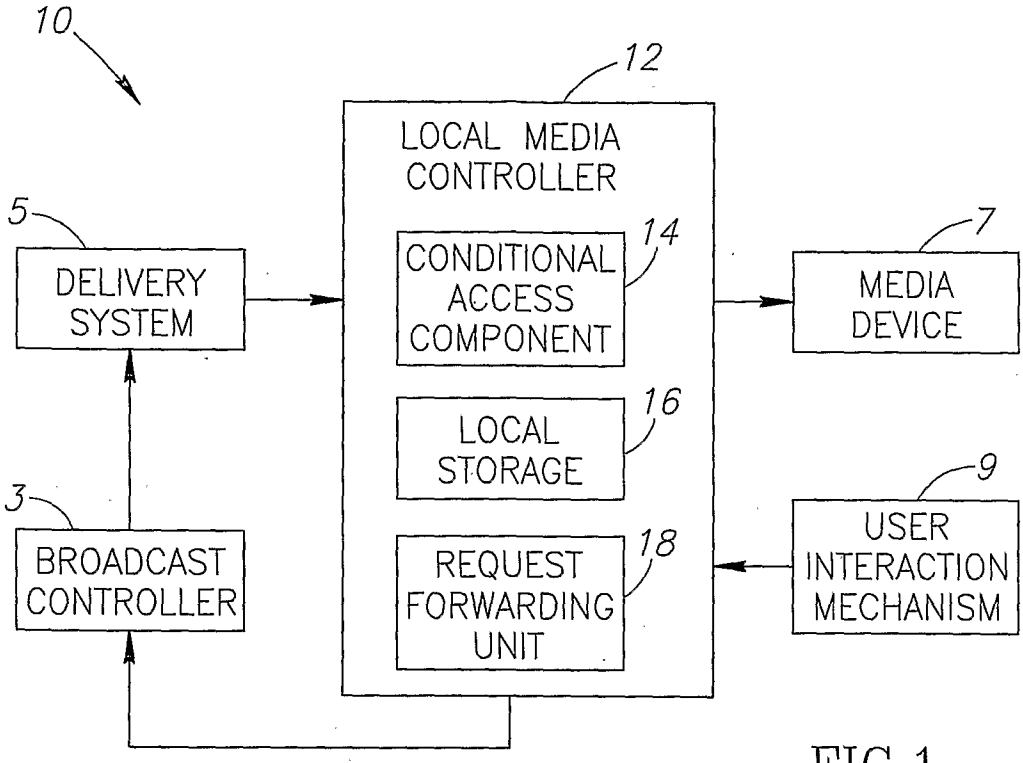
10
12
LOCAL MEDIA CONTROLLER
5
DELIVERY SYSTEM
14
CONDITIONAL ACCESS COMPONENT
7
MEDIA DEVICE
16
LOCAL STORAGE
9
3
BROADCAST CONTROLLER
18
REQUEST FORWARDING UNIT
USER INTERACTION MECHANISM

FIG.1

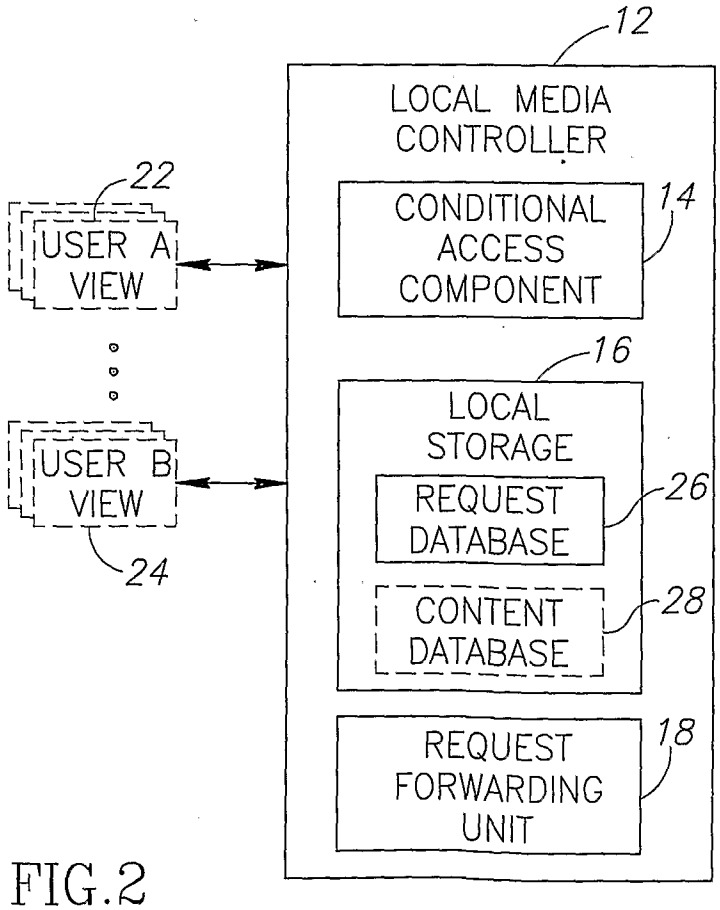
12
LOCAL MEDIA CONTROLLER
22
USER A VIEW
14
CONDITIONAL ACCESS COMPONENT
16
LOCAL STORAGE
USER B VIEW
26
REQUEST DATABASE
28
CONTENT DATABASE
24
18
REQUEST FORWARDING UNIT

FIG.2

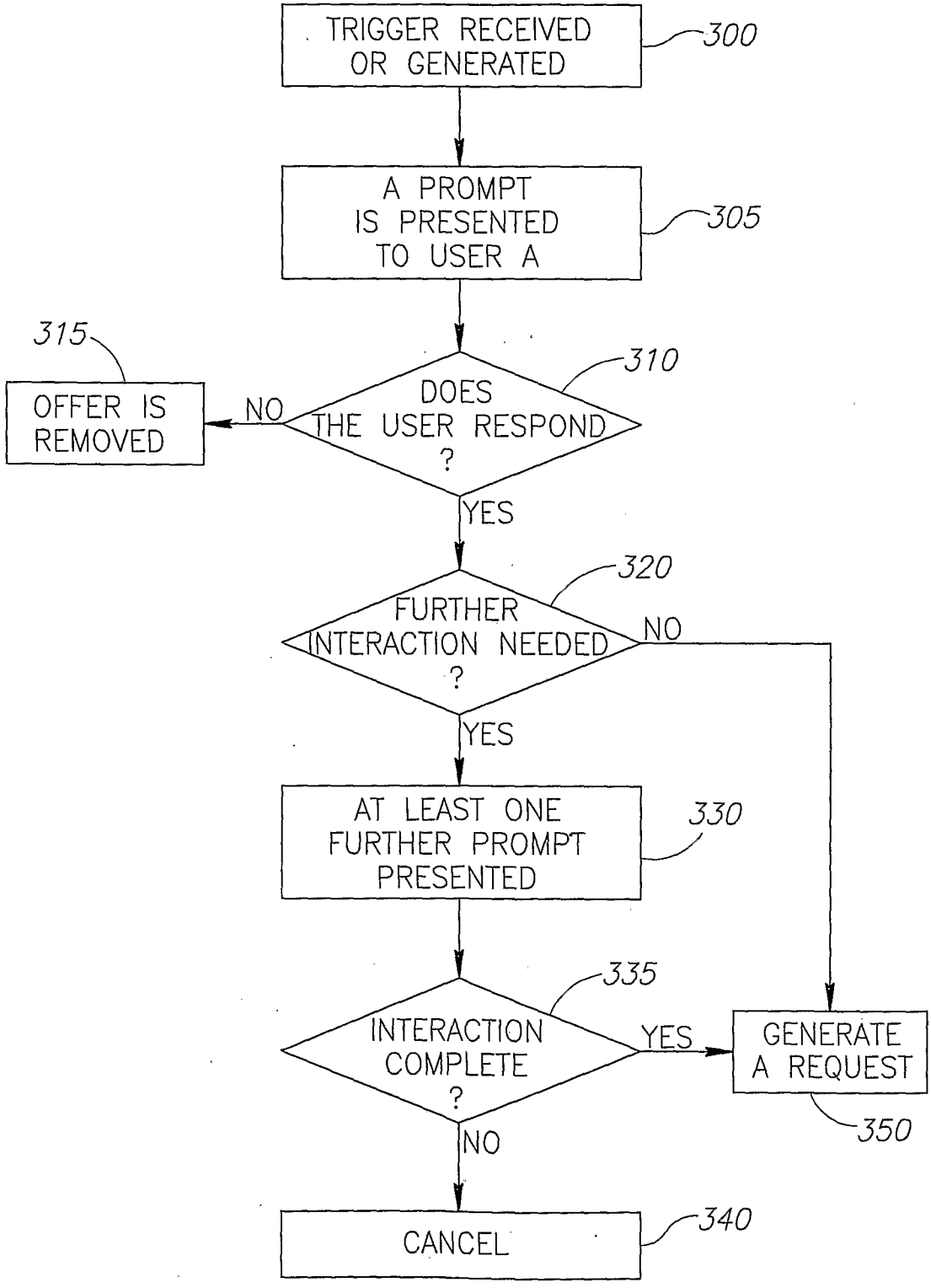
TRIGGER RECEIVED OR GENERATED
300
A PROMPT IS PRESENTED TO USER A
305
315
OFFER IS REMOVED
NO
310
DOES THE USER RESPOND ?
YES
320
FURTHER INTERACTION NEEDED ?
NO
YES
AT LEAST ONE FURTHER PROMPT PRESENTED
330
335
INTERACTION COMPLETE ?
YES
GENERATE A REQUEST
350
NO
CANCEL
340

FIG.3

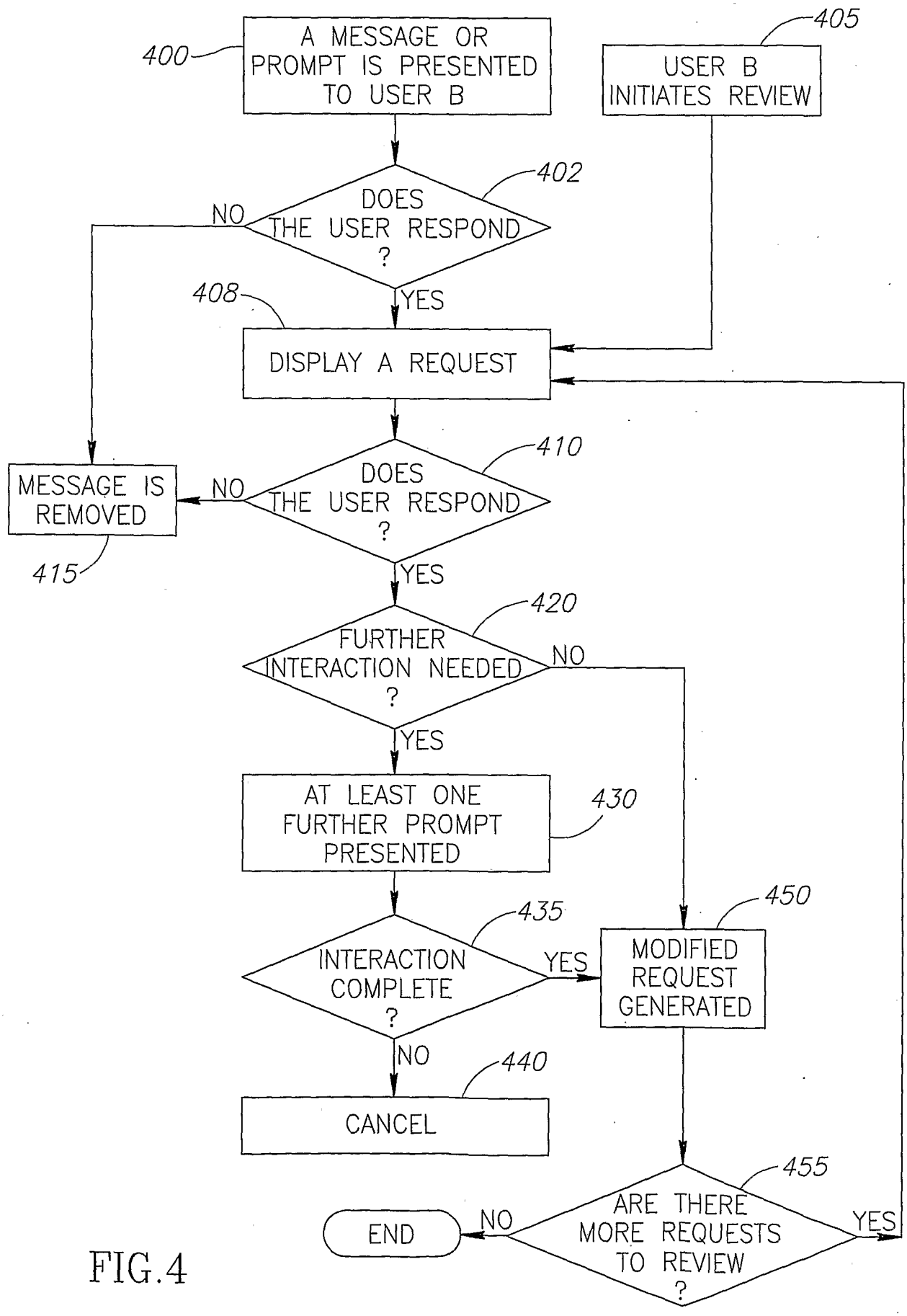
400
A MESSAGE OR PROMPT IS PRESENTED TO USER B
405
USER B INITIATES REVIEW
402
DOES THE USER RESPOND ?
NO
YES
408
DISPLAY A REQUEST
410
DOES THE USER RESPOND ?
NO
MESSAGE IS REMOVED
415
YES
420
FURTHER INTERACTION NEEDED ?
NO
YES
AT LEAST ONE FURTHER PROMPT PRESENTED
430
435
INTERACTION COMPLETE ?
YES
NO
450
MODIFIED REQUEST GENERATED
440
CANCEL
455
ARE THERE MORE REQUESTS TO REVIEW ?
NO
YES
END

FIG.4

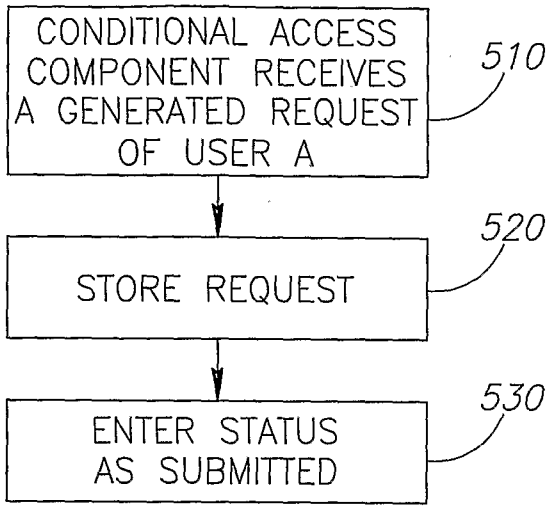
CONDITIONAL ACCESS COMPONENT RECEIVES A GENERATED REQUEST OF USER A
510
STORE REQUEST
520
ENTER STATUS AS SUBMITTED
530

FIG.5

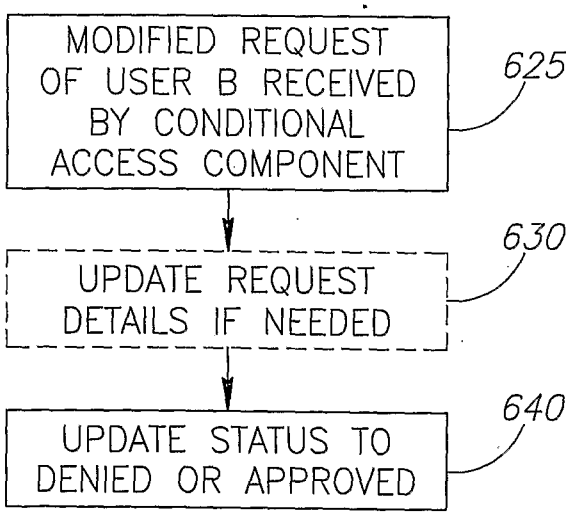
MODIFIED REQUEST OF USER B RECEIVED BY CONDITIONAL ACCESS COMPONENT
625
UPDATE REQUEST DETAILS IF NEEDED
630
UPDATE STATUS TO DENIED OR APPROVED
640

FIG.6

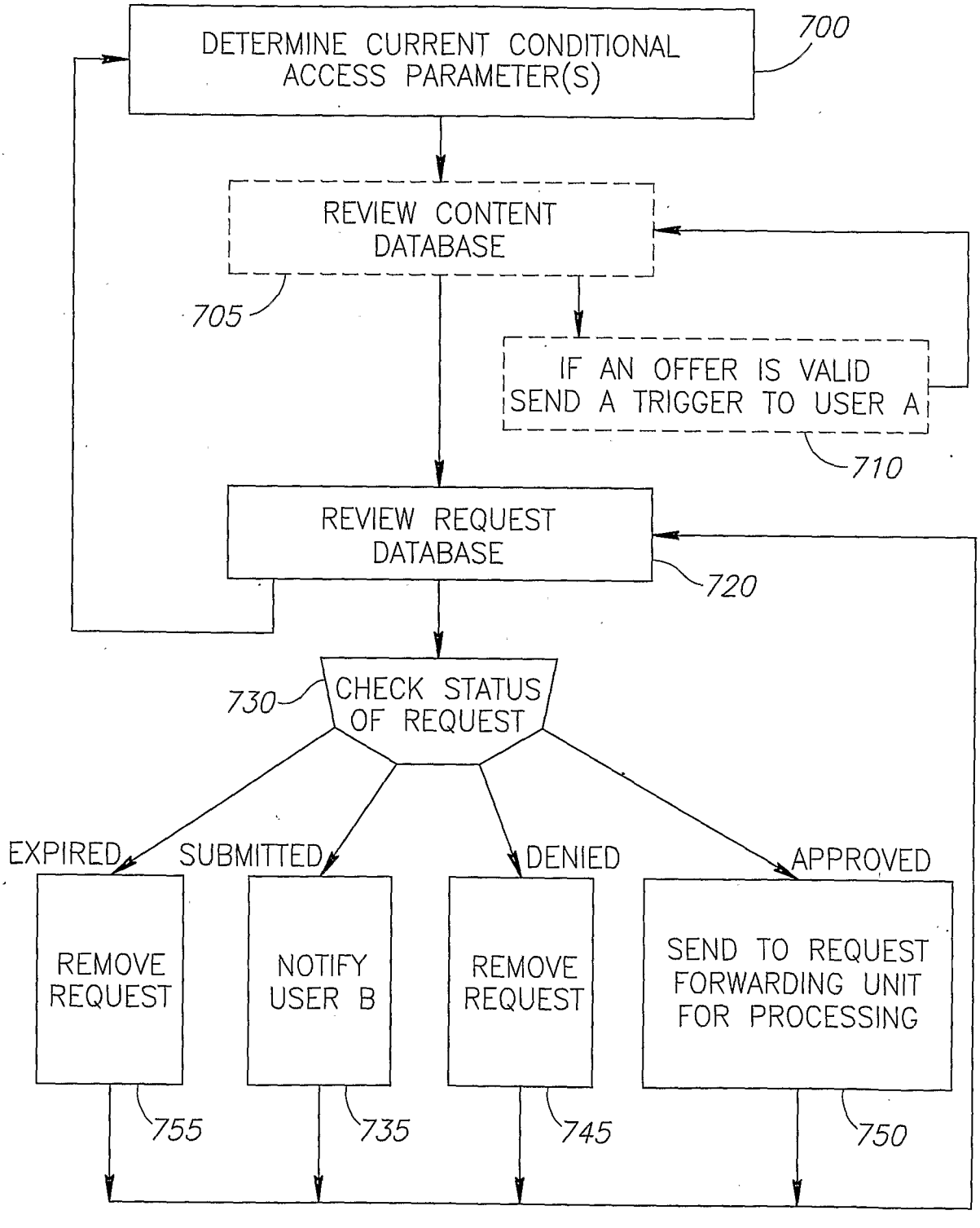
DETERMINE CURRENT CONDITIONAL ACCESS PARAMETER(S)
700
REVIEW CONTENT DATABASE
705
IF AN OFFER IS VALID SEND A TRIGGER TO USER A
710
REVIEW REQUEST DATABASE
720
730
CHECK STATUS OF REQUEST
EXPIRED
SUBMITTED
DENIED
APPROVED
REMOVE REQUEST
NOTIFY USER B
REMOVE REQUEST
SEND TO REQUEST FORWARDING UNIT FOR PROCESSING
755
735
745
750

FIG.7

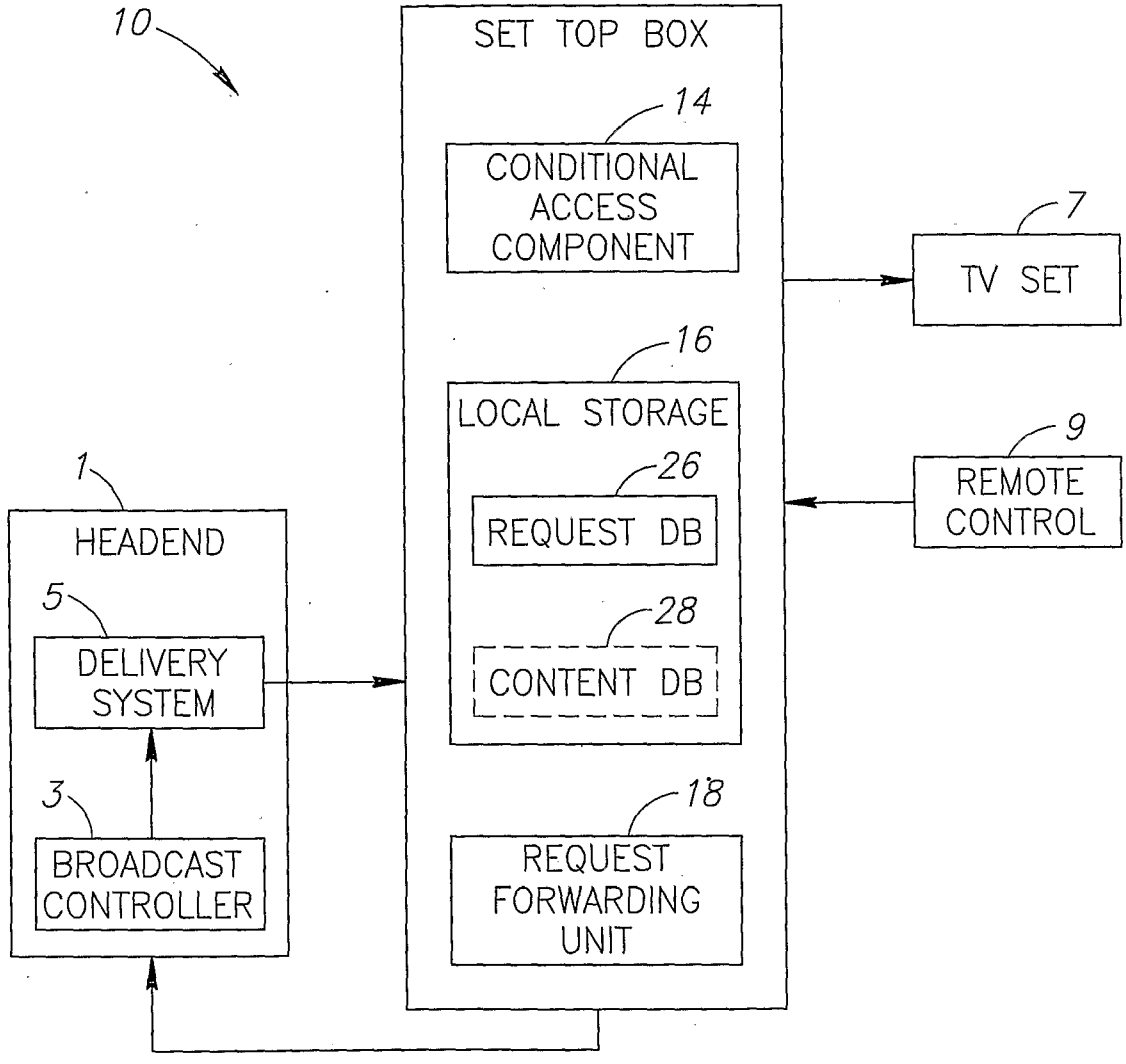
10
SET TOP BOX
14
CONDITIONAL ACCESS COMPONENT
7
TV SET
16
LOCAL STORAGE
9
REMOTE CONTROL
1
26
REQUEST DB
HEADEND
5
28
DELIVERY SYSTEM
CONTENT DB
3
18
BROADCAST CONTROLLER
REQUEST FORWARDING UNIT

FIG.8

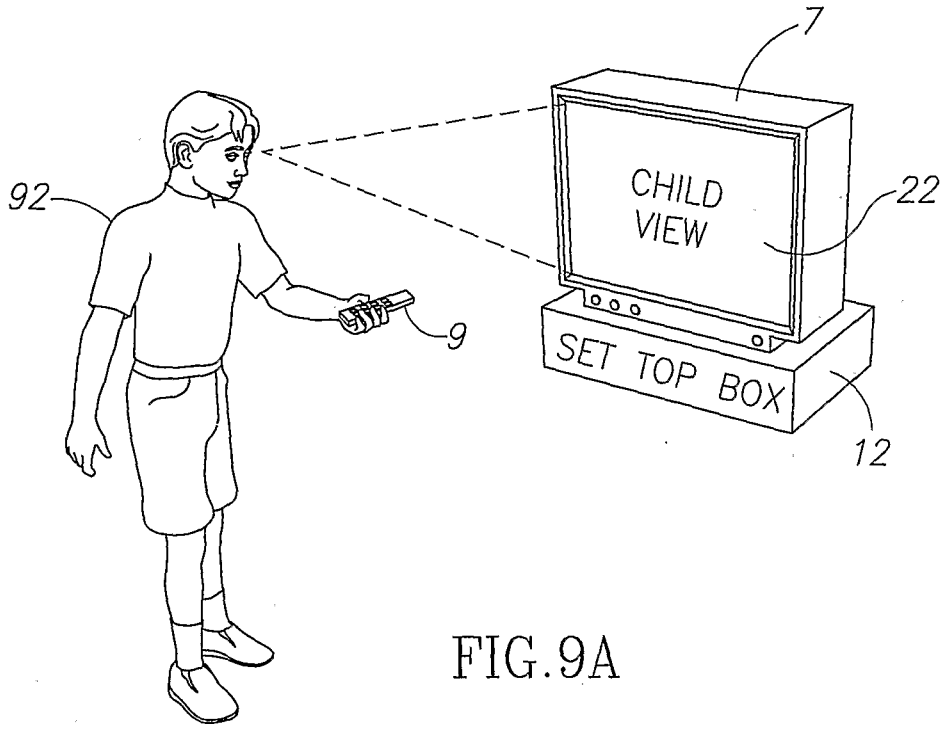
7
CHILD VIEW
22
92
9
SET TOP BOX
12

FIG.9A

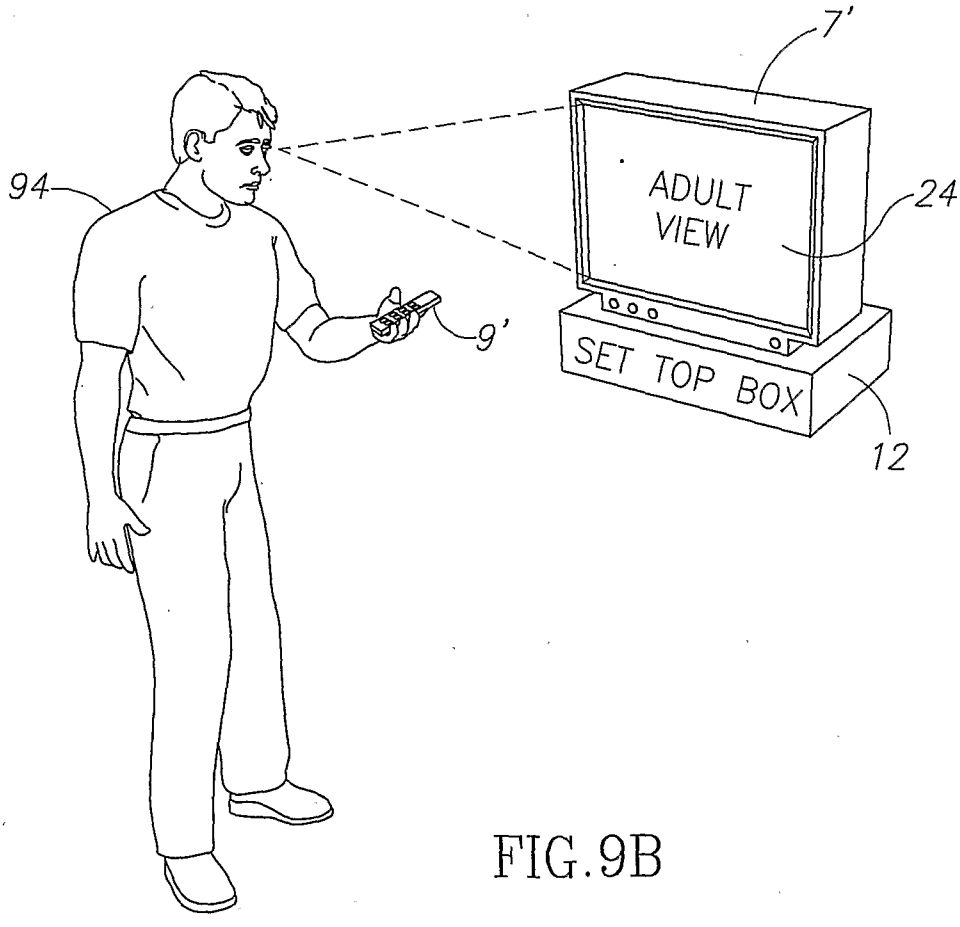
7'
ADULT VIEW
24
94
9'
SET TOP BOX
12

FIG.9B

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2006/000878

A. CLASSIFICATION OF SUBJECT MATTER
INV. G06Q20/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G06Q H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/069802 A1 (RAMSEY-CATAN CAROLYN CHRISTINE) 10 April 2003 (2003-04-10) paragraph [0005] paragraph [0013] - paragraph [0042]	1,2,6, 8-12, 14-20, 24-26, 30, 32-34, 38-45,48
Y		3-5,7, 13, 21-23, 27-29, 31, 35-37, 46,47

-/--

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
15 September 2006	04/10/2006

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Aupiais, Brigitte

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2006/000878

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	US 2005/251827 A1 (ELLIS MICHAEL D ET AL) 10 November 2005 (2005-11-10) paragraph [0066] - paragraph [0068] paragraph [0075] paragraph [0121]	5,29
A	US 2005/102407 A1 (CLAPPER EDWARD O) 12 May 2005 (2005-05-12) paragraph [0031] - paragraph [0049]	1,2,9, 10,12, 25,26, 33,34

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/GB2006/000878

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