UNITED STATES PATENT APPLICATION

For

METHOD AND DEVICE FOR RECEIVING AND PROVIDING PROGRAMS

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METHOD AND DEVICE FOR RECEIVING AND PROVIDING PROGRAMS

RELATED CASES

[0001]   This patent claims priority from U.S. provisional patent application serial number 60/600473 filed at August 10 2004 and from U.S. provisional patent application serial number 60/662844 filed at March 18 2005 titled "switched broadcast implementation".

FIELD OF THE INVENTION

[0002]   The present invention relates to communication systems and especially to methods and systems for providing programs and for receiving programs.

BACKGROUND OF THE INVENTION

[0003]   The number of television channels (programs) has dramatically increased during the last decade. In addition, various technologies such as high definition television require larger amounts of bandwidth.

[0004]   In order to provide many programs to multiple user devices various techniques such as statistical multiplexing and various compression schemes (such as but not limited to the MPEG compression standards) were developed. These techniques can improve the bandwidth utilization of existing infrastructure. Nevertheless, even when these techniques are implemented the number of programs that can be provided to users is relatively limited.

[0005]   The following patents and patent applications, all being incorporated herein by reference, illustrate some prior art methods and devices for providing multiple programs to users: U.S. patent 6597670 of Tweedy et al., titled "Method and system for distributing subscriber services using wireless bidirectional broadband loops"; U.S. patent application publication serial number 2005/0033342 of Rosetti et al., titled "Technique for providing a virtual digital video recorder service through a communication network"; U.S. patent application serial number 2005/0120377 of Carlucci et al., titled "Technique for effectively providing various entertainment services through a communication network"; PCT patent application WO2005/008419 of Compton el al., titled "Distributed and scalable architecture for on demand session and resource

management"; PCT patent application publication number WO2005/022796 of Krause et al., titled "Advanced, adaptive video multiplexing system"; PCT patent application publication number WO2005/022892 of Krause et al., titled "Video multiplexer system providing low-latency VCR-like effects and program changes" and U.S. patent 6718552 of Goode "network bandwidth optimization by dynamic channel allocation".

[0006]   There is a need to provide efficient methods and devices for providing programs to multiple users and for receiving programs by users.

SUMMARY OF THE PRESENT INVENTION

[0007]   A user device that includes a transceiver unit that is connected to a controller, wherein the device is adapted to: (i) receive a program multiplex, (ii) receive an indication that at least one program is to be removed from the multiplex; and (iii) selectively transmit a program removal response.

[0008]   A device that is adapted to provide a program multiplex, the device includes: (i) a media processor adapted to generate a program multiplex; and (ii) a management unit, connected to the media processor, adapted to (a) consider a removal of at least one program from the multiplex in response to program viewing parameters, and (b) determine the removal in response to at least one received user program removal response.

[0009]   A method for receiving programs that includes: (i) receiving a program multiplex; receiving a program removal indication; and (ii) selectively transmitting a program removal response.

[00010]   A method for providing programs, the method includes: (i) providing a program multiplex to multiple user devices; (ii) considering a removal of at least one program from the multiplex in response to program viewing parameters; (iii) allowing at least one user to respond to a possible removal of the at least one program; and (iv) determining whether to remove the at least one program in response to received user removal responses.

BRIEF DESCRIPTION OF THE DRAWINGS

[00011]   The present invention will be understood and appreciated more fully from the following detailed description taken in conjunction with the drawings in which:

[00012]   Figure 1 illustrates a headend and a hub according to an embodiment of the invention;

[00013]   Figure 2 illustrates a headend and a hub according to another embodiment of the invention;

[00014]   Figure 3 illustrates a user device according to an embodiment of the invention;

[00015]   Figure 4 illustrates a cable network according to an embodiment of the invention;

[00016]   Figure 5 illustrates a cable network according to another embodiment of the invention;

[00017]   Figure 6 illustrates various programs and signals exchanged over a cable network according to an embodiment of the invention;

[00018]   Figure 7 illustrates a content information table according to an embodiment of the invention;

[00019]   Figure 8 illustrates differential content information message according to an embodiment of the invention;

[00020]   Figure 9 illustrates a program viewing table according to an embodiment of the invention;

[00021]   Figure 10 illustrates a delay unit and a timing diagram according to an embodiment of the invention;

[00022]   Figure 11 illustrates various group of pictures, according to an embodiment of the invention;

[00023]   Figure 12 illustrates a method for providing programs, according to an embodiment of the invention; and

[00024]   Figure 13 illustrates a method for receiving programs, according to an embodiment of the invention.

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