SYSTEM AND METHOD ENABLING SAMPLING AND PREVIEW OF A DIGITAL MULTIMEDIA PRESENTATION

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ABSTRACT
There is presented a system and method enabling sampling and preview of a digital multimedia presentation. The system comprises a presentation server and a presentation content database configured to store a plurality of digital content including the digital multimedia presentation, accessible through the presentation server. The system also comprises a presentation sampling and preview application configured to determine a time duration of the digital multimedia presentation, designate sampling intervals of the digital multimedia presentation according to the time duration, associate a digital content sample with each designated sampling interval, and assign the digital content samples to respective locations on a presentation timeline. The system is configured to provide the digital content sample assigned to a selected location on the presentation timeline, thereby enabling sampling and preview of the digital multimedia presentation. In one embodiment, the system further comprises a client computer.
Fig. 1

Multimedia Presentation Server 110

- Presentation Sampling and Preview Application 130
- Media Player 120
- Presentation Content Database 112

Packet Network 118

Connection 100
Fig. 3

1. Determine a time duration of the digital multimedia presentation

2. Designate sampling intervals according to the time duration

3. Associate a digital content sample with each designated sampling interval

4. Assign the digital content samples to respective locations on a presentation timeline

5. Identify a selected location on the presentation timeline

6. Provide the digital content sample assigned to the selected location
SYSTEM AND METHOD ENABLING SAMPLING AND PREVIEW OF A DIGITAL MULTIMEDIA PRESENTATION

RELATED APPLICATIONS

[0001] This application claims priority to U.S. Provisional Application No. 61/124,193, filed on Apr. 14, 2008, which is hereby incorporated by reference in its entirety.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates generally to the management of media content. More particularly, the present invention relates to computer mediated sampling of media content.

[0004] 2. Background Art

[0005] The ability to estimate the desirability of an item of creative or informative work by previewing its contents has long been recognized as advantageous. The longer and more complex the work, the more valuable the ability to perform that preliminary evaluation becomes. Consider, for example, the insight that even a simple table of contents can provide to a prospective reader of a work of fiction. Review of the table of contents, together with perhaps a look at the dust cover synopsis and a quick scan of the preface, may significantly assist a prospective reader in deciding whether to take on the significantly greater commitment required to develop a more intimate familiarity with the work.

[0006] The advantages accruing from preview or sampling of a work may be even greater when the work is a comprehensive work of nonfiction. Consider an amateur home cook evaluating a general purpose cookbook for possible purchase. That reader may have a particularly targeted interest, arising, for example, from a knowledge that their spouse has a special fondness for Eggs Benedict. A mere review of the table of contents may provide no more information than that several general purpose cooking texts include a chapter dedicated to egg dishes. However, where an index is provided, as is often the case with cookbooks and other works of nonfiction, that resource may be used to sample the contents of the competing cooking references at a finer level of granularity, to preview the depth of their respective treatments of Eggs Benedict, or its particularly distinctive constituent, Hollandaise sauce.

[0007] For all of their ease of preview, books are not necessarily the primary focus of today’s media consumer. Contemporary consumers are as apt, maybe, in fact, more likely, to turn to visual media, such as video cassettes, digital video discs (DVs), and electronic media sources online, to access content of interest to them. Unlike their more traditional ink on paper predecessors, these more modern units of content may not be so easily sampled and previewed, however. Other than the sparse information provided on its commercial packaging, crafted to attract prospective viewers rather than necessarily provide useful information regarding content, a typical video cassette, for example, provides precious little in the way of content sampling functionality. What little there is usually requires the viewer to manually fast forward or rewind the tape and actually playback portions of its contents in order to preview them.

[0008] One conventional approach to providing a more effective preview capability is that taken by producers of DVDs. Most DVDs include a scene selection menu option, which in some ways functions like a table of contents for the prospective viewer, while also allowing the viewer to move directly to the portion of the disc on which a potentially interesting group of scenes may be viewed. Although offering some obvious advantages over the relatively primitive sampling capability provided by video cassettes, the conventional approach taken by DVD producers includes several disadvantages as well. One disadvantage is that the scene selection approach tends to bundle scenes into groups, such as a block of four or five back-to-back scenes, for example. Sampling functionality among the scenes making up a group is fallacious as that provided by video cassettes, requiring the viewer to fast forward or fast reverse through the group of scenes to preview content. Moreover, sampling content from another group of scenes typically requires the viewer to return to the main menu, select the scene selection menu, and scroll through the menu to locate the other desired group of scenes, before once again requiring the viewer to manually fast forwarding through that block.

[0009] Attempting to sample electronic content available online may be even more constraining than previewing visual content on recorded media such as video cassettes and DVDs. For example, a standard approach to providing content samples online may adopt some elements of the conventional approach taken by DVD producers, but fail to support viewer controlled fast forward or fast reverse operation. That is to say, visual content available online may be broken up into discrete blocks of scenes, as in DVD scene selection, or even separated by individual scenes. For online content, however, the discrete content blocks are typically represented by segments determined to be characteristic of the content block as a whole, by the producers of the content. As a result, the viewer may have to evaluate content on the basis of a single, usually brief, “representative” sample, corresponding to some increment of content playback.

[0010] Alternatively, the viewer of online content may attempt to utilize a video timeline provided by an online media player to isolate a particular point in a presentation for sampling. In effect, the viewer emulates the fast forward and fast reverse functionality available for use with DVD content by manually selecting points on the video timeline and initiating playback of the online content at that point. The video timeline itself is typically an insubstantial ally in the sampling process, however, often providing little more than a progress point along a continuum sealed to the presentation length, to guide the viewer’s search. As a result, the viewer may be forced to blindly jump forward and back along the timeline in this inefficient and frustratingly heuristic approach necessitated by the austere conventional tools provided for sampling online content.

[0011] Thus, conventional approaches to providing preview functionality to visual media content share numerous drawbacks to varying degrees of severity. Moreover, the conventional approaches do not allow a viewer to sample the contents of a media presentation without diverting away from normal playback of the presentation to do so. Accordingly, there is a need to overcome the drawbacks and deficiencies in the art by presenting a solution for enabling sampling and preview of digital multimedia presentations that provides a high degree of granularity, while vesting control over the sample selection process with the viewer. In addition, it would be highly desirable if the solution were to further
enable the viewer to sample and preview the digital media presentation without interrupting its normal playback.

SUMMARY OF THE INVENTION

There are provided systems and methods enabling sampling and preview of a digital multimedia presentation, substantially as shown in and/or described in connection with at least one of the figures, as set forth more completely in the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a block diagram of a system enabling sampling and preview of a digital multimedia presentation, according to one embodiment of the present invention;

FIG. 2 shows a more detailed embodiment of a system enabling sampling and preview of a digital multimedia presentation, according to one embodiment of the present invention;

FIG. 3 is a flowchart presenting a method enabling sampling and preview of a digital multimedia presentation, according to one embodiment of the present invention; and

FIG. 4 shows a visual frame of an exemplary display from an episode of the ABC TV program Grey's Anatomy, which includes a presentation timeline and a sampling pane for preview of the presentation, according to one embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The present application is directed to a system and method enabling sampling and preview of a digital multimedia presentation. The following description contains specific information pertaining to the implementation of the present invention. One skilled in the art will recognize that the present invention may be implemented in a manner different from that specifically discussed in the present application. Moreover, some of the specific details of the invention are not discussed in order not to obscure the invention. The specific details not described in the present application are within the knowledge of a person of ordinary skill in the art. The drawings in the present application and their accompanying detailed description are directed to merely exemplary embodiments of the invention. To maintain brevity, other embodiments of the invention, which use the principles of the present invention, are not specifically described in the present application and are not specifically illustrated by the present drawings. It should be borne in mind that, unless noted otherwise, like or corresponding elements among the figures may be indicated by like or corresponding reference numerals.

FIG. 1 is a block diagram of system 100 enabling sampling and preview of a digital multimedia presentation, according to one embodiment of the present invention. In the embodiment of FIG. 1, system 100 comprises multimedia presentation server 110 including presentation content database 112, media player 120, and presentation sampling and preview application 130. Also included in FIG. 1 are packet network 118, client computer 150, and consumer 158. It is noted that although client computer 150 is represented as a personal computer (PC) in FIG. 1, in other embodiments client computer 150 may comprise another type of mobile or stationary personal communication device or system, such as a tablet computer, mobile telephone, personal digital assistant (PDA), gaming console, or home entertainment system, for example.

According to the embodiment of FIG. 1, consumer 158 may utilize media player 120 and/or presentation sampling and preview application 130 to access content available on presentation content database 112. In one embodiment presentation sampling and preview application 130 may be configured to provide a user interface enabling consumer 158 to become informed about, preview, select, and play one or more items of digital multimedia content available on presentation content database 112. Presentation sampling and preview application 130 may be implemented in combination with media player 120, as shown in FIG. 1, or may function independently of media player 120 as a stand alone application for enabling sampling and preview of the plurality of content stored on presentation content database 112.

Thus, consumer 158 may utilize presentation sampling and preview application 130, either in conjunction with media player 120, or alone, to sample and preview items of digital multimedia content stored on presentation content database 112. Presentation sampling and preview application 130 may be configured, for example, to determine a time duration of a digital multimedia presentation selected by consumer 158, and to designate a plurality of sampling intervals according to the determined time duration. Presentation sampling and preview application 130 may then provide sampling and preview of the selected digital multimedia presentation by associating a digital content sample from the selected presentation with each sampling interval, and assigning the content samples to locations on a presentation timeline. As a result, one or more of the digital content samples identified according to inputs received from consumer 158 may be provided, enabling consumer 158 to sample and preview the digital multimedia presentation.

In one embodiment, a digital content sample may comprise representative content corresponding to a block of content, such as a scene from a television episode, or an act from a dramatized play. In other embodiments, however, a digital content sample may comprise a plurality of individual frames corresponding to a brief interval of presentation time, such as one second, or less than five seconds of elapsed presentation time, for example. In that latter embodiment, presentation sampling and preview application 130 enables consumer 158 to effectively fast forward or scan through the digital multimedia presentation in a substantially continuous way.

When utilized in combination with media player 120, for example, presentation sampling and preview application 130 may be utilized to scan or preview a digital multimedia presentation during playback. In that embodiment, a digital multimedia presentation may be shown on a viewing pane provided by media player 120, while presentation sampling and preview application 130 is utilized to concurrently sample and preview the digital multimedia presentation on a sampling pane, for example. Consequently, consumer 158 may utilize presentation sampling and preview application 130 and media player 120 to look ahead to portions of a digital multimedia presentation during playback, without interrupting the playback.

As shown in FIG. 1, presentation sampling and preview application 130 may be accessed through packet net-
work 118. In that instance, presentation sampling and preview application 130 may comprise a web application, accessible over a packet network such as the Internet, configured to execute as a server-based application on multimedia presentation server 110, for example. Alternatively, presentation sampling and preview application 130 may reside on a server supporting a local area network (LAN), or be included in another type of limited distribution network. In another embodiment, presentation sampling and preview application 130 may be stored on a portable computer-readable storage medium such as a compact disc read-only memory (CD-ROM).

Turning now to FIG. 2, FIG. 2 shows a more detailed embodiment of system 200 enabling sampling and preview of a digital multimedia presentation, according to one embodiment of the present invention. System 200 in FIG. 2 includes client computer 250, receiving a download via communication link 218 from multimedia presentation server 210. Multimedia presentation server 210 is shown to comprise presentation content database 212, media player 220a, and presentation sampling and preview application 230a, and corresponds to multimedia presentation server 110 including respective presentation content database 112, media player 120, and presentation sampling and preview application 130, in FIG. 1. In addition, client computer 250, in FIG. 2, corresponds to client computer 150, in FIG. 1. As shown in FIG. 2, client computer 250 comprises controller 252, web browser 254, and client memory 256. Also shown in FIG. 2 are media player 220b and presentation sampling and preview application 230b.

According to the embodiment shown in FIG. 2, media player 220b and presentation sampling and preview application 230b are located in client memory 256, having been received from multimedia presentation server 210 via communication link 218. In the present embodiment, communication link 218 represents download of media player 220a and presentation sampling and preview application 230a, over a packet network, for example. In another embodiment, communication link 218 may represent transfer of media player 220a and/or presentation sampling and preview application 230a from a CD-ROM or other computer-readable storage medium. Once transferred, media player 220b and presentation sampling and preview application 230b may be stored in client memory 256 and executed locally on client computer 250, where presentation sampling and preview application 230b may be executed as a desktop application, for example. It is noted that communication link 218 is shown as a two-way communication, to represent ongoing communication between client computer 250 and presentation content database 212 on multimedia presentation server 210.

Controller 252 may be the central processing unit for client computer 250, for example, in which role controller 252 runs the client computer operating system, launches web browser 254, and facilitates use of media player 220b and presentation sampling and preview application 230b. Web browser 254, under the control of controller 252, may execute presentation sampling and preview application 230b to enable a consumer to sample and preview digital multimedia content available through multimedia presentation server 210.

The systems shown in FIG. 1 and FIG. 2 will now be further described by additional reference to FIGS. 3 and 4. FIG. 3 shows an example of a method enabling sampling and preview of a digital multimedia presentation, according to one embodiment of the present invention. FIG. 4 shows visual frame 400, of an exemplary display of a scene from an episode of the ABC TV program Grey's Anatomy, which includes a presentation timeline and a sampling pane for preview of the presentation, according to one embodiment of the present invention. Visual frame 400 may be displayed on either or both of client computers 150 and 250, shown in respective FIGS. 1 and 2. It is noted that although for clarity of presentation, portions of the following description focus on one or the other of the systems shown by FIGS. 1 and 2, both systems are capable of enabling sampling and preview of the digital multimedia presentation in the manner described.

Referring to step 310 of flowchart 300 and FIG. 1, step 310 comprises determining a time duration of the digital multimedia presentation. Determining the time duration may be performed by presentation sampling and preview application 130, for example, either in combination with media player 120, or by itself. In one embodiment, determining a time duration may be equivalent to ascertaining the playback duration of the digital multimedia presentation in seconds, for example.

The method of flowchart 300 continues with step 320, which comprises designating a plurality of sampling intervals according to the time duration of the digital multimedia presentation. Step 320 may be performed by presentation sampling and preview application 130 by, for example, assigning a preview data file to the digital multimedia presentation and relating the time duration of the digital multimedia presentation to the storage capacity of the preview data file. Where preview data file storage capacity is measured in pixels, and time duration is measured in seconds, step 320 may result in designation of a plurality of sampling intervals having substantially the same dimensions, expressed in pixels per second of presentation time, for example. In one embodiment, presentation sampling and preview application 130 is configured to designate sampling intervals corresponding to presentation time increments of less than or substantially equal to one second.

Moving on to step 330 of flowchart 300, step 330 comprises associating a digital content sample from the digital multimedia presentation with each of the plurality of designated sampling intervals to produce a plurality of digital content samples. Where sampling intervals are expressed as pixels per second of presentation time, for example, step 330 may correspond to producing a first digital content sample by storing digital multimedia content from a first presentation time interval, measured in seconds, or fractions of a second, in a corresponding number of pixels of data in the preview file. Second, third, and subsequent similar pairings of presentation content and storage space could be performed to produce a plurality of digital content samples spanning the digital multimedia presentation.
Step 340 of flowchart 300 comprises assigning each of the digital content samples to a respective location on a presentation timeline. The presentation timeline can provide a graphical interactive representation of the entire digital multimedia presentation, from beginning to end, for example. In one embodiment, the presentation timeline includes visual cues indicating transitions from one scene to the next, and/or the presence of supplemental content, such as advertising content, a review and redirection segment, or bonus content accompanying the presentation. Thus, by the present method, a nearly continuous sampling record of the digital multimedia presentation may be produced and represented within the constraints imposed jointly by the storage capacity of the preview file and the time duration of the digital multimedia presentation.

In one embodiment, the digital content samples may comprise still images representative of the corresponding sampling intervals with which each is associated. In another embodiment, the digital content samples may comprise substantially continuous increments of the digital multimedia presentation, as video segments, for example, comprising the sampling interval corresponding to a selected location on the presentation timeline and at least one adjacent sampling interval. In a variation on that latter embodiment, the substantially continuous increments of video segments may comprise one or more adjacent sampling intervals preceding the sampling interval corresponding to the selected location on the presentation timeline, and one or more adjacent sampling intervals following the sampling interval corresponding to the selected location on the presentation timeline.

Referring to step 350 of flowchart 300, step 350 comprises identifying a selected location on the presentation timeline. Identification of a selected location in step 350 may occur in response to inputs received by presentation sampling and preview application 130 from consumer 150, for example. The consumer may provide these inputs by positioning a selection indicator on the presentation timeline at a desired location, clicking on the presentation timeline at the desired location, or otherwise designating a location on the presentation timeline as being desirable. It is reiterated here that due to the variety of personal communication devices and systems that may be utilized as a client computer by different embodiments of the present invention, consumer 150 may employ a corresponding variety of possible input mechanisms, such as mouse commands, touch screen commands, keyboard commands, and the like, to identify a selected location on the presentation timeline.

Continuing with step 360 of flowchart 300, step 360 comprises providing the digital content sample assigned to the selected location. In one embodiment, for example, providing the digital content sample may correspond to providing a thumbnail still graphic representing the selected location. In another embodiment, step 360 may correspond to providing a video clip, with or without audio accompaniment, of a string of digital content samples including the digital content sample assigned to the selected location. As a specific example of the latter embodiment, and assuming that a single digital content sample corresponds to one second of presentation time of the digital multimedia presentation, providing the digital content sample assigned to the selected location may comprise providing a video clip of content from five seconds earlier than the selected location to five seconds later than the selected location.

Although not included in the embodiment of flowchart 300, in FIG. 3, some embodiments of the present method may include an additional step comprising sending the digital content sample assigned to the selected location to a client computer, such as client computer 150, in FIG. 1. Moreover, as previously described, in some embodiments, presentation sampling and preview application 130 may be used by consumer 150 in combination with media player 120. In those embodiments, the present method may further comprise enabling sampling and preview of the digital multimedia presentation during playback of the digital multimedia presentation by media player 120, without interrupting the playback.

Turning now to FIG. 4, FIG. 4 shows visual frame 400, of an exemplary display of a scene from an episode of the ABC TV program Grey’s Anatomy, which includes a presentation timeline and a sampling pane for preview of the presentation, according to one embodiment of the present invention. Also shown on visual frame 400 is viewing pane 414.

As shown in FIG. 4, according to the present embodiment, presentation timeline 428, sampling pane 430 previewing the digital content sample assigned to the selected location on presentation timeline 428, and viewing pane 414 presenting the digital multimedia presentation, are provided concurrently. This may correspond, for example, to embodiments in which presentation sampling and preview application 130, shown in FIG. 1, is utilized in combination with media player 120. In the embodiment of FIG. 4, sampling pane 430 might show a video only preview of the digital content sample, without audio accompaniment, to avoid sensory confusion with the audio portion of the digital multimedia presentation being provided on viewing pane 414, for example. Thus, according to the present embodiment, the consumer may sample and preview portions of the digital multimedia presentation represented on presentation timeline 428 while concurrently playing back the presentation on viewing pane 414. Moreover, the consumer can preview the digital multimedia presentation without interrupting normal playback of the presentation on viewing pane 414.

The embodiment shown by FIG. 4 is merely an example, however, and in other embodiments presentation timeline 428 and sampling pane 430 may be provided independently of viewing pane 414. In one embodiment, for example, presentation timeline 428 and sampling pane 430 may be displayed using larger corresponding images centered on visual frame 400. In that embodiment, viewing pane 414 may be absent, and sampling pane 430 may show previews comprising both audio and video presentations.

Thus, the system and method enabling sampling and preview of a digital multimedia presentation disclosed in the present application provides a high degree of sampling granularity, while vesting control over sample selection with the consumer. Moreover, when implemented in combination with a compatible media player, the present invention further enables the consumer to sample and preview a digital multimedia presentation during playback, without interrupting normal playback.

From the above description of the invention it is manifest that various techniques can be used for implementing the concepts of the present invention without departing from its scope. Moreover, while the invention has been described with specific reference to certain embodiments, a person of ordinary skill in the art would recognize that changes can be made in form and detail without departing
from the spirit and the scope of the invention. It should also be understood that the invention is not limited to the particular embodiments described herein, but is capable of many rearrangements, modifications, and substitutions without departing from the scope of the invention.

What is claimed is:

1. A system enabling sampling and preview of a digital multimedia presentation, the system comprising:
   a presentation server;
   a presentation content database accessible through the presentation server, the presentation content database configured to store a plurality of content including the digital multimedia presentation;
   a presentation sampling and preview application configured to:
      determine a time duration of the digital multimedia presentation;
      designate sampling intervals of the digital multimedia presentation according to the time duration;
      associate a digital content sample with each designated sampling interval; and
      assign the digital content samples to respective locations on a presentation timeline;
   the system configured to provide the digital content sample assigned to a selected location on the presentation timeline to enable sampling and preview of the digital multimedia presentation.

2. The system of claim 1, wherein the presentation sampling and preview application is further configured to be utilized in combination with a media player suitable for playback of the digital multimedia presentation.

3. The system of claim 2, wherein the presentation sampling and preview application is further configured to enable sampling and preview of the digital multimedia presentation during a playback of the digital multimedia presentation by the media player, without interrupting the playback.

4. The system of claim 1, wherein the designated sampling intervals correspond to presentation time increments of less than or substantially equal to 1.0 second.

5. The system of claim 1, wherein the digital content samples comprise still images representative of the corresponding sampling intervals with which each is respectively associated.

6. The system of claim 1, wherein the digital content samples comprise substantially continuous video segments of the digital multimedia presentation, the substantially continuous video segments comprising the sampling interval corresponding to the selected location on the presentation timeline and at least one adjacent sampling interval.

7. The system of claim 1, wherein the presentation sampling and preview application executes as a server based application.

8. The system of claim 1, further comprising a client computer.

9. The system of claim 8, wherein the presentation sampling and preview application executes as a desktop application on the client computer.

10. The system of claim 8, wherein the client computer comprises a client-side system selected from the group consisting of a personal computer, a mobile telephone, personal digital assistant (PDA), gaming console, and a home entertainment system.

11. A method enabling sampling and preview of a digital multimedia presentation, the method comprising:
   determining a time duration of the digital multimedia presentation;
   designating a plurality of sampling intervals according to the time duration of the digital multimedia presentation;
   associating a digital content sample from the digital multimedia presentation with each of the plurality of designated sampling intervals to produce a plurality of digital content samples;
   assigning each of the digital content samples to a respective location on a presentation timeline;
   identifying a selected location on the presentation timeline;
   and
   providing the digital content sample assigned to the selected location to enable sampling and preview of the digital multimedia presentation.

12. The method of claim 11, further comprising sending the digital content sample assigned to the selected location to a client computer.

13. The method of claim 11, further comprising enabling sampling and preview of the digital multimedia presentation during a playback of the digital multimedia presentation by a media player, without interrupting the playback.

14. The method of claim 11, wherein the designated sampling intervals correspond to presentation time increments of less than or substantially equal to 1.0 second.

15. The method of claim 11, wherein the digital content samples comprise still images representative of the corresponding sampling intervals with which each is respectively associated.

16. The method of claim 11, wherein the digital content samples comprise substantially continuous video segments of the digital multimedia presentation, the substantially continuous video segments comprising the sampling interval corresponding to the selected location on the presentation timeline and at least one adjacent sampling interval.

17. The method of claim 16, wherein the substantially continuous video segments comprise an adjacent sampling interval preceding the sampling interval corresponding to the selected location on the presentation timeline, and an adjacent sampling interval following the sampling interval corresponding to the selected location on the presentation timeline.

18. The method of claim 11, wherein the method is executed by a presentation sampling and preview application running as a server based application.

19. The method of claim 11, wherein the method is executed by a presentation sampling and preview application running as a desktop application on a client computer.

20. The method of claim 19, wherein the client computer comprises a client-side system selected from the group consisting of a personal computer, a mobile telephone, personal digital assistant (PDA), gaming console, and a home entertainment system.

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