

Video Frequency Current Media Technology and Its Applications in Colleges and Universities

Cunping Liu*

Department of Electrical Education, Hebei Energy Vocational and Technology College of Energy Sources, Tangshan, Hebei 063000, China

ABSTRACT Dealing with video materials with current media has unparalleled advantages over tradition audio-video materials. The combination of technology with campus network has wide application in colleges and universities. Streaming media has a high transfer rate, data synchronization, high stability characteristics, is the best way to achieve network audio and video transmission. A large number of video and audio data transmission is the main campus network applications, video streaming technology is mainly used in colleges and universities.

KEYWORDS

Current media technology
Audio-video
Campus network
Universities

1. Video streaming technology with respect to the advantages of traditional audio and video media

Streaming media technology is the continuous image and sound compression processing information on the site after the server into, allowing users to download side view, listen to, and not has to wait the entire compressed file downloaded to your machine before they can watch the network transmission technology. Streaming media has a high transfer rate, data synchronization, high stability characteristics, is the best way to achieve network audio and video transmission. The audio and video clips to stream processed form, with traditional audio and video technology unparalleled advantage.

(1) Fast data access. Because fully compatible file transfer mode, can be directly uploaded to achieve material (collection) disk, edit or broadcast. Network media technology allows local and remote users to quickly capture, edit, broadcast, browse audio and video clips, through direct-to-disk mode or file transfer mode, media assets can be quickly edited node applications.

(2) Release Distribution workflow simple. Publish au-

dio and video works over the traditional way usually requires personal delivery media, such as tapes, CDs, etc., and a variety of material carriers incompatibilities, to the transmission and exchange of material has brought some difficulties. If the LAN and WAN network connection, you can create a virtual device environment, you can upload material between different regions, editing and play out. Status of traditional audio and video equipment that is physical and geographical conditions will be radically changed [1].

(3) The massive hard drive storage technology. Users can video as a data storage, you can choose any file storage formats, such as DVD disc, data flow tape, long-term offline hard disk storage, data storage capacity, multiple use without loss of signal quality, avoid After analog copying attenuation disadvantages. In addition, with the hard disk or optical cameras mature, audio and video signal will not be a traditional video tape as a storage carrier, but by way of storing data files on a disk, or by robotic tape libraries and optical disk library to achieve access assets.

2. Video streaming technology on campus network requirements

Features campus network is the LAN data traffic, at the same time to meet the various needs of remote teaching. To do audio and video technology and network technology combined with friendly, campus network should have the following characteristics:

(1) Convenient media asset management and large-capacity multimedia information storage. In teaching activities, a large number of audio-visual material need to be classified management, query, browse, and put into use, it

Copyright © 2014 Cunping Liu

doi: 10.18686/esta.v1i1.4

Received: March 9, 2014; Accepted: May 25, 2014; Published online: July 27, 2014

This is an open-access article distributed under the terms of the Creative Commons Attribution Unported License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

*Corresponding author: Department of Electrical Education, Hebei Energy Vocational and Technology College of Energy Sources, Tangshan, Hebei 063000, China. E-mail: cunping_ll44@163.com

is necessary to establish a media asset management system and a multimedia database system to store and manage a variety of multimedia teaching information, the use of large-capacity hard disk array storage medium to save and process data. Use removable media to store external data, and through CD tower to read.

(2) High-speed data traffic transmission. High-speed Ethernet, fiber optic campus network build, horizontal cabling systems plus 10 G gigabit fiber optic backbone system is the ideal network structure. The network technology as the core technology is integrated into the audio and video processing, the upload port, editing workstations, data servers, caching devices, broadcast port, proxy material workstations, audio and video equipment and network workstations and other traditional friendship connection. Upload and output using standard conventional audio and video modes, other aspects of the process using network technology. All these operations should be in the same storage device up to complete, during which there is no transmission of the file.

(3) To facilitate efficient information management and retrieval. Establishment of teaching information resource management center for collecting, organizing and managing a variety of teaching information. Campus network center should be provided with non-linear editing workstations, through a dedicated input port, the material collected into the storage array, kept in the Library for editing and production personnel and related teacher browse the query, and through the Internet on demand. Media professionals to edit footage and real-time processing, such as subtitles, special effects, synthesis. The finished program material directly into streaming media format, easy online output.

3. Video streaming media technology in the colleges and universities

A large number of video and audio data transmission is the main campus network applications, video streaming technology is mainly used in colleges and universities in the following areas:

(1) Courseware on demand. With the development of multimedia network technology, distance education is rapidly scale of development. Courseware on-demand is the main form of distance education. The teacher lectures shooting with the camera down into the computer for editing after collection; materials related text entered into the computer, and adding the appropriate graphics, images, animation. Collect and courseware related audio and video clips, and converted into data file formats, multimedia integration tools such as Authorware, Powerpoint or SMIL language video lectures, textbooks text, animations, clips and other material gathered integrated together to produce a performance force rich multimedia courseware, converted into a streaming media format files on a video server, and then integrated into the web-

site where advertised, if the need for student fees, plus authentication, billing and other functions. In this way, namely, the achievements of the courseware are on demand capabilities [2].

(2) Interactive Teaching. With the reform of education and teaching, students can choose more freely teachers, which makes the teacher teaching the students to listen to a lot, even if is a big classroom, it may fit, available streaming media technology to solve this problem, put a video camera Teachers taught in the classroom, the teacher taught the process of shooting the transmission in real time to the video coding machine, after acquisition card collection, encoded uploaded to the video server, and then released by the real-time video to the terminal server computer, use the projector teachers teaching process play out in real time, the students watch for other classrooms. Reverse implement this method may also be in order to achieve real-time exchange of teachers and students in different places.

(3) Television broadcast. Dormitory few televisions, but the computer is very common. To enable students to understand more information, enrich students' spare time. You can broadcast television programs on the campus network. Use TV card to receive TV signal to the video capture card, after capture, encoding, uploading to the video server, and then integrated into the website where you can broadcast on the Internet in real time.

(4) Remote monitoring. The implementation of remote monitoring system helps students' management, increased security in schools. If using a coaxial cable transmission of analog video signals over a few hundred meters relay will need to enlarge on the distance it will be limited. In addition, the conventional system on the way to a single coaxial cable can only transmit video signals, control signals and voice transmission requires a separate cable laying, can solve this problem using online media technology. Since video transmission codec to handle the graphics, sound and data signals, in the same transport stream will contain the required three signals, so a line can be used simultaneously transmit live images, sound and control in the monitoring system signal.

In the appropriate location within the campus layout of some cameras, the camera will be several road compiled as a group, is connected to the video encoding machine. After encoding by the encoding computer acquisition uploaded to a computer monitoring center, the control center can monitor the entire campus [3].

(5) Video conferencing. In the video conferencing system IP network and hardware-based traditional video conferencing systems, compared with a low cost, easy to use and flexible advantage. Video conferencing for real-time requirements are higher, in a video conference, each meeting point to get multimedia content information in audio and video capture devices, after digital compression in some compression method. Data can be compressed

between the various meeting points multicast through the network directly, or transmitted through the multi-processor synthesis or point conversion after each multicast participants. But either way, we need to ensure the smallest possible delay for playback at various points. Education Network sufficient network bandwidth, the more the implementation of video conference provided sufficient conditions.

References

1. The substance of the online media technology [EB/OL]. [Http: //www.162.net.cn/inews/xh,2005-01-12](http://www.162.net.cn/inews/xh,2005-01-12).
2. Zhong, X. P., & Zhang, J. S. (2004). *Network Server Configuration and Application*. Beijing: People's Posts and Telecommunications Press, (second edition), 182.
3. Wang, X. W., & Li, K. D. (2000). *Computer Multimedia Educational Applications and Network Technology*. Shijiazhuang: Hebei Education Press, 205.