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## The Design and Implementation of University Video Resources Platform Based on Podcast

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### Abstract

Presently, in our colleges and universities, video resources based on campus network are very limited and also scattered with low utilization. It becomes an important factor of restricting the development of higher education modernization. This paper presents the construction of the college video resources platform based on podcast and also introduces the design and implementation process. The platform fully takes use of the new features and communication features of the Podcast, which creates a personalized, interactive and open digital learning environment, to promote higher education informatization.

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*Keywords:* Podcast; Video; Resource Platform

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### 1. Introduction

Podcast is a new media of Web 2.0 era, it is personalized internet radios, which with video upload, download, on-demand, subscription and interactive discussion functions, and its communication advantages and interactive function have been widely used in commercial fields.

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Now, China's on-line video of the college campus is not very resourceful, and the video content is generally about lectures, reports, or class record, which are dispersed, some colleges take classroom records as their network quality courses, and put lectures or reports on campus bulletin, but only a few colleges will take the video files as an independent and integrated resource platform. Compared with the current situation of colleges' video resources in China, podcast-based college video resources platform has the following characteristics:

1) *Interaction among visitors*

Besides demanded with video files, visitors can also comment on the video files with personal opinions. Visitors with comments can interactively communicate with each other about the video contents, which is conducive to the further materialization and mastery of knowledge.

2) *Meet the Ubiquitous Learning*

Ubiquitous Learning is "anytime, anywhere" and "Freestyle" learning, podcast-based video resources platform is based on RSS2.0. You can subscribe through networking mobile phones, personal computers, handheld devices, and watch relevant video resources at any time.

3) *Video files play fast and safe*

Using Flash Media Server streaming media server on the server side, Video files are on FLV format and small files, the playing takes the form of downloading synchronize with broadcasting, playback speed, buffer time is short. It can be encrypted in the broadcast when playing video files, which can make the video resources with high security.

4) *Meet the Personalized Learning*

It can meet the personalized learning needs of visitors. Visitors may have a personal space, including my video (you can upload video files, subscribe the video you like), my blog, my photo album and personal blog.

Finishing recording audio and video on-line through the key codes, they will be automatically saved to the Flash Media Server. At the same time, click save video, saved to the dedicated directory set by the server, and delete the original documents of Flash Media Server2 subdirectory, to ensure adequate server space.

## 2. The system structure of podcast-based video resources platform

The platform is based on B/S mode, unified interface, scalability, easy to maintain, good information-sharing, favorable network supporting and high security, etc. System B / S model structure is shown in Figure 1.

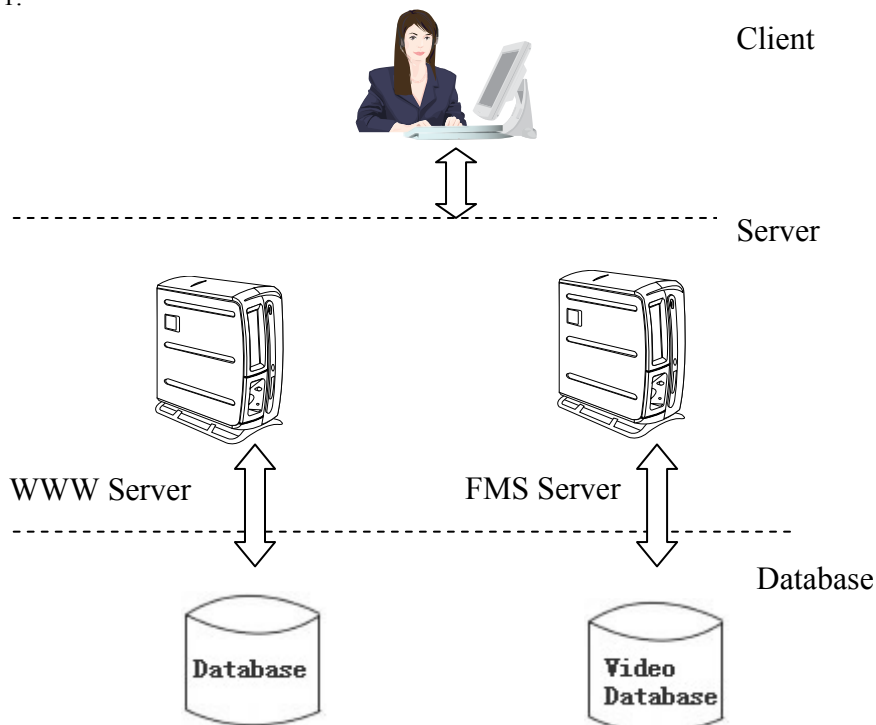


Fig 1 System B / S model structure

The platform need to configure two servers—WWW Server and Flash Media Server. Wwww server main task is to execute the ASP script file, implement the operation and connection of the database. When clients are browsing the webpage the flash media server system client is being loaded. Flash media server is to achieve the storage and playback video files for the client, after the users finished recording, video files are uploaded to the flash media server.

Video database is the directory to store on-demand video files, the directory is set by flash media server. When clients access to video resources, it's not through the web links directly, but through net address of the video (in the form of rtmp: //server IP /video directory /video files). The network address information is stored in a database system (Client program achieve the operation of the database by calling the ASP, the relevant video information is written into the database). Besides, Database system also stores users' registration information, video category and number of the uploaded video filse and other information.

### **3.The system constitution of podcast-based video resources platform**

#### *3.1 FLV streaming media server*

Flash Media Server2 is the product of Macromedia Company, which combines traditional streaming media capabilities with a flexible development environment. Flash Media Server 2 makes the Flash Platform a leading solution, which has been widely applied across a variety of browsers and operating systems, to create and interact media applications.

The platform selects streaming media files in FLV format as the resource platform video file, which makes it easy to set up and set the server. After installing the flash media server, you can establish the corresponding video file storage directory in the subdirectory Application.

#### *3.2.Using Flash Player to play on client side*

To make a client-friendly and pleasing interface, Photoshop and Flash Player are utilized to design the player interface. The video files playing progress in the client is through the Flash scripting language to call the video resources on flash media server.

#### *3.3.Data exchange between flash and streaming media server*

After the installation of Flash Media Server2, there is no need to write code and configure the server; get on-demand service through VOD folder. What have to do is to point the flash video or flash FLV Playback component to a file in this folder. And then, we will set examples to demonstrate how to operate video-on-demand services through the implementation of local video playback, you can appreciate the data exchange between flash and streaming media server.

1) Locate the video file test. flv to the vod folder under C: \ Program Files \ Adobe \ Flash Media Server 2 \ applications.

2) In Flash cs3 professional, choose File> New> Flash File (ActionScript3.0) to create a new file. Open the components panel; drag a copy of the FLV Playback component to the stage.

3) Click the components on the stage, click the "parameters" and set as follows:

align: center

autoPlay: true

cuePoints: none  
preview: none  
scaleMode: maintainAspectRatio  
skin: SkinUnderAllNoFullNoCaption.swf  
skinAutoHide: false  
skinBackgroundAlpha: 0.85  
skinBackgroundColor: #0099FF  
volume: 1

4) Double-click the source parameter, input” rtmp://localhost/vod/test” in the dialog box of the open content path, the address is the path to the FLV file, because it is a local test server, so we use “localhost” as the server address.

5) Save and test the movie. If all goes well, the video will start playing.

#### **4. The main features of the resources platform**

Visitors can log into the campus network through the video resource platform, which includes upload / download, on-line on-demand, RSS feeds, interaction, resources, search, video recording services and other functions.

*4.1 Upload / Download:* Administrators and authorized users can upload video to the resource platform for communicating and sharing, also for downloading and storing required program resources.

*4.2. On-line on-demand:* Visitors with self-needs can freely demand video resources for active learning at any time and any place.

*4.3. RSS subscription:* The podcast uses RSS 2.0 file format to subscribe and delivery information. Visitors can automatically aggregates the latest released resources, quickly subscribe and get the required information by channel, date, title, description or other information provided by RSS file.

*4.4. Interaction:* During the on-demand process, visitors are available to do analysis, comment, and participate in interactive discussion of the programs, you can also log to communicate with others, to express personal views. This feature is conducive to mutual cooperation and exchange between visitors, enhances mutual understanding and trust, and provides a convenience for collaborative learning.

*4.5. Resources Searching:* Resources were classified in accordance with campus news, class record, foreign language learning, software tutorials, test counseling, and set the recommended video, latest video, hot video for each type. For the learners with a clear need, they can search video resources by keyword, and find out the video they need to demand or download.

*4.6. Video recording:* The user finishes recording through button operation by the PC equipped with camera and microphone. After recording, the video files are automatically uploaded to the video server, for others to watch on demand.

## 5.The code introduction of the video recording

This section is about achieving video recording by the link with the FMS server. Achieve the connection to the server with the FMS through net-connection, and post the video data to FMS server by flowing.

```
private function onPublishClick(evt:MouseEvent):void    {
// Create connection
    my_nc=new NetConnection();
    my_nc.addEventListener(NetStatusEvent.NET_STATUS,onPublishStatusHandler);
// Connect to FMS server
    my_nc.connect("rtmp://localhost/PulishedStreams");
    }
private function onPublishStatusHandler(evt:NetStatusEvent):void
{
    if(evt.info.code=="NetConnection.Connect.Success")
    {
//If connect successfully,create NetStream object
        my_ns=new NetStream(nc);
        my_ns.addEventListener(NetStatusEvent.NET_STATUS,onPublishStatusHandler);
//Create custom object
        my_ns.client=new CustomClient();
//Get the information of microphone and camera,then load into the flow
        my_ns.attachCamera(cam);
        my_ns.attachAudio(mic);
//Delivery the streamto the server, and stored in the server
        my_ns.publish(videoname,"record");
    }
}
```

Finishing recording audio and video on-line through the key codes, they will be automatically saved to the Flash Media Server. The video will be saved to the dedicated directory set by the server and the original documents of Flash Media Server2 subdirectory will be deleted which can ensure adequate server space.

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