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Low Bandwidth Streaming Format for Multimedia Application

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Abstract - *Now a day's multimedia streaming applications have been widely propagated with the rapid evolution of mobile handset, Internet technologies and wireless technology, especially MPEG-4 video streams over communication networks, bandwidth utilization and security for downloading video & audio are a serious issue. Most of the multimedia application cannot tolerate long buffering as well as delay (viewing delay) which leads to high bandwidth utilization Another issue is E-learning contents (video, audio, text etc.) are not highly secured. Our system aims to overcome the possible drawback mentioned above and providing security for such multimedia applications and E-learning contents with the help of algorithms like encryption, streaming, data compression and Playback etc. with bandwidth utilization.*

Key Words: **Multimedia streaming, encryption, compression, decompression, decryption, playback**

- **INTRODUCTION**

The idea of project is to make video streaming efficient and secure by using various algorithms such as video encoding, decoding and playback. Which allow instant viewing, no long download times, don't have to waste memory space on hard drive, use specific bandwidths and more security of content publishing. Media streaming, also known as video streaming, content sent in compressed form over the Internet and displayed by the viewer in real time. Video Streaming has changed how we watch videos online by no longer making it necessary to wait for a whole video file to download before starting playback. More and more people can have access to broadband, which the technology requires to work properly there are many challenges, of live-streaming video such as slow playback, possible start/stop of video if connection is not good, copyright issues, poor quality of video, quality depends on number of people also using the video to overcome this problem and to make video streaming efficient and secure.

What is Streaming?

Streaming media is multimedia that is constantly received by and presented to an end-user while being delivered by a provider. The verb "to stream" refers to the process of delivering or obtaining media in this manner; the term refers to the delivery method of the medium, rather than the medium itself, and is an alternative to file downloading, a process in which the end-user obtains the entire file for the content before watching or listening to it.

Streaming video is content sent in compressed form over the Internet and displayed by the viewer in real time. With streaming video or streaming media, a Web user does not have to wait to download a file to play it. Instead, the media is sent in a continuous stream of data and is played as it arrives. The user needs a *player*, which is a special program that compressed and sends video data to the display and audio data to speakers. A player can be either an integral part of a browser or downloaded from the software maker's Web site.

The goal is to provide security to E-learning (Audio, Video, Image, and Text) contents and these contents should run on low bandwidth.

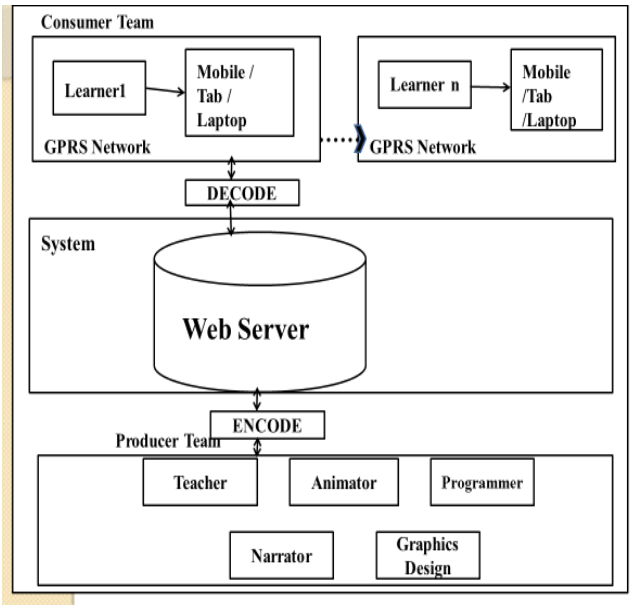
2. LITERATURE SURVEY

As per the literature survey there was an existing system such as the multimedia application which is unsecured and not supported to low bandwidth. Until recently streamed multimedia applications have not been widely available for low-

bandwidth mobile terminals. Especially video bandwidth requirements have not been supported by current mobile telecoms networks such as Global System for Mobile communication (GSM). A review of the literature related to streaming video in education was conducted, and is presented as follows: (1) overview of streaming video technologies, (2) streaming video research, (3) overview of streaming video practices, (4) research on the effectiveness of Web-based instruction, (5) research on the effectiveness of video in non-streaming media applications, such as videotape, and (6) factors that impact the usability of streaming video. The review of the literature included on-line Internet resources and research articles, books, journals, interviews, and documents. Most of the multimedia application cannot tolerate long buffering as well as delay (viewing delay) which leads to high bandwidth utilization. Another issue is E-learning contents (video, audio, text etc.) are not highly secured. Our system aims to overcome the possible drawback mentioned above and provide.

3. BLOCK DIAGRAM

This application divided into three module name as producer team, system, and consumer team. Producer team will produce the product by animator, programmer, narrator, graphics design. Producer team encode the data using byte rotation encryption algorithm then send the data to the web server .all the data which is produce by producer team that stored on web server. Consumer team consume the data from web server using GPRS network which is fluctuating intermittent and dynamic etc. Learner uses desktop, mobile device, laptop, and tab for running E-learning tools. At the time of downloading E-learning content consumer will decode that content then download it.



4. FLOW OF PROJECT

1. Registration for New user:- Each new user has to be register first with details.

2. Teacher Login:- For uploading the E-learning study contents teacher should login.

3. Add the Contents:-Teacher uploads the chapter and their respective contents on server with encrypted format.

4. Student Login:-Registered user should Login with their respective login id and password for accessing that contents.

5. Download the E-learning Contents:-According to the users requirement user can download the contents.

5. ALGORITHM

AES

AES or Advanced Encryption Standard is a cipher, i.e., a method for encrypting and decrypting information. Whenever you transmit files over secure file transfer protocols like HTTPS, FTPS, SFTP, OFTP, or AS2, there's a good chance your data will be encrypted by some flavour of AES - either AES 256, 192, or 128.

Steps

- Derive the set of round keys from the cipher key.
- Initialize the state array with the block data (plaintext).
- Add the initial round key to the starting state array.
- Perform nine rounds of state manipulation.
- Perform the tenth and final round of state manipulation.
- Copy the final state array out as the encrypted data (cipher text).

Base64

Base64 encoding is used to convert binary data into a text-like format that allows it to be transported in environments that can handle only text safely. Use cases are encoding UID's for use in HTTP URL's, encoding encryption keys and certificates to make them safely portable through e-mail, display them in HTML pages and use them with copy and paste.

Steps:

- Divide the input bytes stream into blocks of 3 bytes.
- Divide 24 bits of each 3-byte block into 4 groups of 6 bits.
- Map each group of 6 bits to 1 printable character, based on the 6-bit value using the Base64 character set map.
- If the last 3-byte block has only 1 byte of input data, pad 2 bytes of zero (\x0000). After encoding it as a normal block, override the last 2 characters with 2 equal signs (==), so the decoding process knows 2 bytes of zero were padded.
- If the last 3-byte block has only 2 bytes of input data, pad 1 byte of zero (\x00). After encoding it as a normal block, override the last 1 character with 1 equal signs (=), so the decoding process knows 1 byte of zero was padded.
- Carriage return (\r) and new line (\n) are inserted into the output character stream. They will be ignored by the decoding process.

6. CONCLUSION

The main aim of the system is to provide the security to E-learning content and It should be run on low bandwidth with the help of algorithms like encryption, decryption, streaming, data compression and for video streaming make it as efficient and secure for that purpose we use algorithms like video encoding, decoding and playback. Which allow instant viewing, reduce download times, reduce memory space on hard drive ,use low bandwidth and more secured content provide to the u

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