RISOFTDEV inc. media delivery and related security technologies
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Abstract

In this paper we will provide a brief overview of the various technologies in the field of computer user authentication which have been developed at RISOFTDEV inc., and the types of commercial products that might be developed from those technologies. The most noticeable feature of an EVF encoded video is that it is not saved in a monolithic file format. A video is saved in frame pages. This allows you to do things that are not possible with a monolithic file. EVF video is delivered over HTTP via a standard web server. EVF video can be started instantly as soon as the first page is downloaded. This methodology can best be described as Asynchronous Simultaneous Downloading and it is literally streaming without streaming. In addition to this difference, EVF uses HTTP. In essence framesets can be stored in any number of locations and so delivering a video is more like grabbing pages from a book as fast as you can and in any order, then reassembling them at the destination. If delivery of a particular page is slow because of server side bandwidth or other issues, another location can be attempted immediately. It is only necessary that the download be faster than the play rate. Frame designations can be stored in memory and accessed client side in a P2P organizational format. In other words if 2 or more people are watching the video at the same time the necessary frames can be downloaded between clients. This can be accomplished only be framepage id, and is not to be confused with bitstream technology. It's like having parts to assemble a movie located securely all over the world and always being able to assemble it in the fastest sequence. Compression requirements are minimal making full speed full screen uncompressed video a reality.

Encryption

Segmenting allows you to apply encryption to small blocks instead of attempting to encrypt files of 1mgb in size or larger. This means that you can start a file immediately instead of the delay involved in encrypting a file in these larger size ranges. Encrypting on the fly means that the encryption can be tied to a particular user, and when combined with the RI Keys black key encryption, it represents an unprecedented quantum leap forward in content protection. RISOFTDEV inc.

encryption algorithms are designed specifically for video encryption. Unlike publicly available algorithms such as 3DES and AES which include functions designed to resist cryptanalysis of encrypted text documents, our video encryption is designed for speed including only those operations which make image data unusable.

Titles

EVF allows you to include account information in the header which can be used to watermark a video on the fly with the users account id. Positional information can be included so that the watermark is not stationary, and this positional information can be encoded so that the position itself relates to a particular user. This prevents the user from simply blacking the screen to avoid infringement issues. Background Pixel Differential Titling allows the title to be always visible no matter what the background colors are.

Watermarking

 EVF includes a method for producing an undetectable watermark and is based on statistical analysis resistant steganographical techniques. In current watermarking techniques the watermark is applied universally across frames, the common bits can be detected. Because EVF is encoded on the fly, it can be watermarked on a frame by frame basis making the watermark nearly impossible to detect and impractical to remove.

Watermark tampering detection

The EVF format allows for hashing of a framepage after it has been watermarked in order to detect whether or not a particular instance of the framepage has been tampered with.

Malicious data inclusion prevention

One of the problems faced today is the post publication inclusion of malicious data in media files. Because EVF is extensible, and because it can encode on the fly, we can include a hash value on a frame by frame value in order to detect whether or not data has been included.

Summary

The EVF system offers unsurpassed delivery and security and is ideal for use in any environment. Any widespread implementation would not only increase the overall security of the Internet, but would result in a significant reduction in the bandwidth burden placed on backbone elements.