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Survey on Cloud-Based Multimedia Content Protection

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Abstract:
The Proposed Multimedia Content Protection System For Cloud Computing is a new approach for securing a multimedia contents the system supports a cost efficiency, Fast development, deployment, scalability and elasticity for balancing a workload on a cloud infrastructure .This system a be can used a for protecting a different types of multimedia contents like a audio file, 2D video, 3D Video, images, songs, music files. Achieving a security system follows two levels 1) Creates a signatures of a 3D videos 2) Distributed matching Engine for multimedia objects. For Every multimedia objects a separate signature will be created and this method creates a robust and representative signatures for the 3D Videos, that captures a depth signals of that video and it is efficient for computing and compare and it requires a small amount of storage .The second level Distributed matching Engine have a high scalability and it is designed to support for different types of multimedia objects. Of 3D videos, while our system detects more than 98% of them. This comparison shows the need for the proposed 3D signature method, since the state-of-the-art commercial system was not able to handle 3D videos.

Keywords: Signaturet; Distributed Matching Engine; 3D,2D

I. INTRODUCTION

In the Last decade, the amount of video contents digitally produced, stored, distributed, and broadcasted has grown enormously. The proliferation of digital videos has made accessibility of video contents much easier and cheaper while being the source of many problems, e.g., the illegal distribution of copyrighted movies via file sharing services on the Internet. The problems associated with digital videos require an efficient method for protecting, managing, and indexing video contents. Among various solutions to these problems, fingerprinting, which is also known as perceptual hashing or content-based media identification, is receiving increased attention [1]. Fingerprints are perceptual features or short summaries of a multimedia object, and the goal of fingerprinting is to provide fast and reliable methods for content identification [1] [2]. Specifically, video fingerprints are feature vectors that uniquely characterize one video clip from another [3], and the goal of video fingerprinting is to identify a given video query in a database (DB) by measuring the distance between the query fingerprint and the fingerprints in the DB. Promising applications of video fingerprinting are filtering for file-sharing services, broadcast monitoring, automated indexing of large-scale video archives, etc. Video fingerprints should be carefully chosen since they directly affect the performance of the entire video fingerprinting system. In general, the video fingerprints need to satisfy the following properties [1][3].

• ***Robustness*** **(invariance under perceptual similarity):** Fingerprints extracted from a video clip subjected to content-preserving distortions should be similar to the fingerprints extracted from the original video clip.

• ***Pairwise independence*** **(collision free):** If two video clips are perceptually different, the fingerprints extracted from them should be considerably different.
• ***Database search efficiency*****:** For applications with a largescale DB, fingerprints should be conducive to efficient DBsearch. Advances in processing and recording equipment of multimedia content as well as the availability of free online hosting sites have made it relatively easy to duplicate copyrighted materials such as videos, images, and music clips. Illegally redistributing multimedia content over the Internet can result in significant loss of revenues for content creators. Finding illegally-made copies over the Internet is a complex and computationally expensive operation, because of the sheer volume of the available multimedia content over the Internet and the complexity of comparing content to identify copies. We present a novel system for multimedia content protection on cloud infrastructures. The system can be used to protect various multimedia content types, including regular 2D videos, new 3D videos, images, audio clips, songs, and music clips. The system can run on private clouds, public clouds, or any combination of public-private clouds. Our design achieves rapid deployment of content protection systems, because it is based on cloud infrastructures that can quickly provide computing hardware and software resources. The design is cost effective because it uses the computing resources on demand. The design can be scaled up and down to support varying amounts of multimedia content being protected. requirements/specifications are not followed exactly, 3 points will be deducted for each formatting error.

II. LITURATURE SUREVE

A. Video fingerprinting for copy identification: from research to industry application.

Research in video fingerprinting has come a long way since it began a decade ago and developed into a technology that is adopted by the industry. Key areas of research include designs of video signatures, fingerprinting and fingerprint matching algorithms. Among the large number of designs, video signatures can be classified into spatial, temporal, color, and transform-domain signatures. Although none is perfect, spatial signatures are found to be the overall winner in terms of robustness, discriminability, compactness, and computational complexity. Temporal and color signatures can provide enhanced discriminability when used together with spatial

signatures. Fingerprint matching by exhaustive search has a linear time complexity with regard to the size of reference database. Fortunately, effective approximation techniques have been developed that provide a dramatic reduction in computational complexity, speeding up fingerprint queries by several orders of magnitude over an exhaustive search with a negligible loss in accuracy. This made it possible to build practical fingerprint matching systems that are scalable. First, confirm that you have the correct template for your paper size".

B . Robust Video Fingerprinting for Content-Based Video Identification

a novel video fingerprinting method based on the centroid of gradient orientations is proposed. The proposed video fingerprinting method is not only pair wisely independent but also robust against common video processing steps including lossy compression, resizing, frame rate change, global change in brightness, color, gamma, etc. The problem of reliable fingerprint matching is approached by assuming the fingerprint as a realization of a stationary ergodic process. The matching threshold is theoretically derived for a given false alarm rate using the assumed stochastic model, and its validity is experimentally verified.

C. *Comparing feature sets for content based image retrieval in a medical case database*

The GIFT retrieval system has shown to be easily adaptable for the use in medical applications. It is free of charge and the source code is available and can easily be adapted. The base system can surely not be used for image retrieval in a clinical setting but with a few small changes the retrieval performance improves significantly. The retrieval quality obtained is high enough for the use in a case database such as complement the normal text{based search, especially for teaching and finding interesting cases. Students can also profit from the technology when exploring large image repositories. For the use in systems for case{based reasoning or in evidence{based medicine, a more detailed clinical evaluation in specialized domains will be necessary and more specific features can become important.

D. *Motion Vector Based Features for Content Based Video Copy Detection*

we propose a motion vector based feature set for Content Based Copy Detection (CBCD) of video clips. Motion vectors of image frames are one of the signatures of a given video. However, they are not descriptive enough when consecutive image frames are used because most vectors are too small. To overcome this problem we calculate motion vectors in a lower frame rate than the actual frame rate of the video. As a result we obtain longer vectors which form a robust parameter set representing a given video.

E. *ImageNet: A Large-Scale Hierarchical Image Database*

The explosion of image data on the Net has the potential difference to foster more sophisticated and robust simulation and algorithms to exponent , retrieve, organize and interact with simulacrum and multimedia data. But exactly how such data can be harnessed and organized remains a critical job . We introduce here a new database called "ImageNet", a largescale ontology of images form upon the linchpin of the WordNet structure. ImageNet aims to populate the majority of the 80,000 synsets of WordNet with an norm of 500- grand clean and full-of-the-moon resolve images.

F. *A Review of Algorithms for Audio Fingerprinting*

An audio recording fingerprint is a message -based concordat key signature that summarizes an audio recording. Audio Fingerprinting technologies have recently attracted attention since they allow the monitoring of audio independently of its format and without the need of meta-information or watermark embedding. The different approaches to fingerprinting are usually described with different rationales and terminology depending on the background Pattern matching, Multimedia system (Music) Information Recovery or Cryptography (Robust Hashing). In this paper, we critique different techniques mapping functional section to blocks of a unified framework.

III. EXISTING SYSTEM

The problem of protecting various types of multimedia content has attracted significant attention from academia and industry. One approach to this problem is using watermarking, in which some distinctive information is embedded in the content itself and a method is used to search for this information in order to verify the authenticity of the content. Many previous works proposed different methods for creating and matching signatures. These methods can be classified into four categories: spatial, temporal, color, and transform-domain. Spatial signatures (particularly the block-based) are the most widely used. You tube Content ID and Mark Monitor are some of the industrial examples which use fingerprinting for media protection, while methods such as can be referred to as the academic state-of-the-art.

A. Disadvantage Of Existing System:

1 .Watermarking approach may not be suitable for already-released content without watermarks in them. Watermarking may not be effective for the rapidly increasing online videos, especially those uploaded to sites such as YouTube and played back by any video player.
2. Spatial signatures weakness is the lack of resilience against large geometric transformations. Temporal and color signatures are less robust and can be used to enhance spatial signatures. Transform-domain signatures are computationally intensive and not widely used in practice.

IV. PROPOSED SYSTEM

We present a novel system for multimedia content protection on cloud infrastructures. The system can be used to protect various multimedia content types .In our proposed system we present complete multi-cloud system for multimedia content protection. The system supports different types of multimedia content and can effectively utilize varying computing resources. Novel method for creating signatures for videos. This method creates signatures that capture the depth in stereo content without computing the depth signal itself, which is a computationally expensive process. New design for a distributed matching engine for high-dimensional multimedia objects. This design provides the primitive function of finding -nearest neighbors for large-scale datasets. The design also

offers an auxiliary function for further processing of the neighbors. This two-level design enables the proposed system to easily support different types of multimedia content. The focus of this paper is on the other approach for protecting multimedia content, which is content-based copy detection (CBCD). In this approach, signatures are extracted from original objects. Signatures are also created from query (suspected) objects downloaded from online sites. Then, the similarity is computed between original and suspected objects to find potential copies.T he Fig .1 Shows the working of the proposed system.

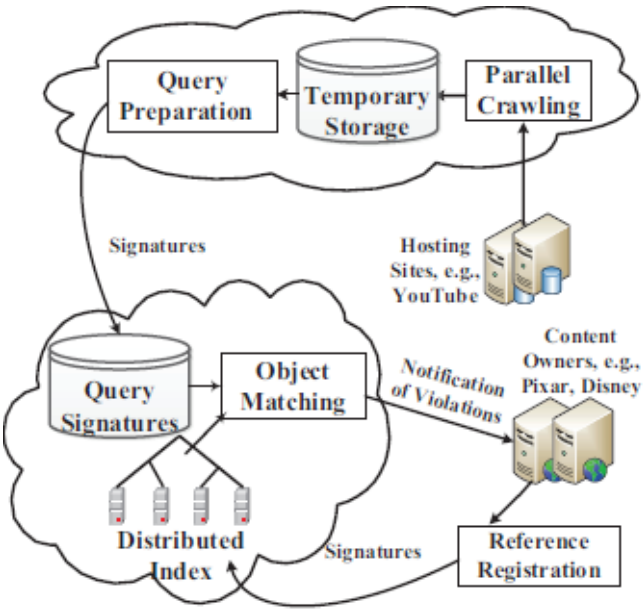

Figure.1. Proposed cloud-based multimedia content protection system

V. CONCLUSION

The Multimedia Content protection system for Cloud Computing system takes a collection of images and videos from a different hosting sites and various experiments done on that multimedia files. The system will detect the illegal distributed files for that system have used a signature matching algorithm..

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