

# Enhancing Security for Cloud-Based Multimedia Content with Advanced Signature Mechanisms

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## ABSTRACT\_

Web has million of multimedia contents such as videos and images. It may happen that each and every multimedia content has duplicated copies. There are lots of mechanism available that provides easy way for editing, publishing or uploading multimedia contents so that it may leads to security problem and also reduplicating the identity of content owner and also loss of revenue to the content owner. So that this system can be used to protect the Illegally redistributed multimedia contents such as 3D videos or images. The main goal of this system is to provide cost efficiency ,rapid development ,scalability and elasticity to accommodate varying workloads and improve the accuracy as well as computational efficiency and also the reliability. This system can be deploy on public cloud. And this System show high accuracy for more than 11,000 videos and one million of images.

**KEYWORDS:** Reduplication, Signature, Video Copy Detection, Matching, Public Cloud.

## 1.INTRODUCTION

Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. Cloud computing provides an emerging paradigm where computing resources make available as service of the Internet. This paradigm provides facility to Customer to Consumer and businesses without installation of this application and provides access to personal files at any computer with internet access.

Cloud services allow individuals and businesses to use software and hardware that are managed by third parties at remote locations. Examples of cloud services include online file storage, social networking sites, webmail, and online business applications. The cloud computing model allows access to information and computer resources from anywhere that a network connection is available. This also provides a shared pool of resources, including data storage space, networks, computer processing power, and specialized corporate and user applications. Upon these benefits, there are privacy and security concerns too. For the past few years, cloud-based storage has oscillated somewhere between a replacement strategy for existing back-up storage solutions (i.e. tape) and a typically inexpensive but complex real-time storage

solution for online web properties and enterprises. Data transmission and storage can fall under many regional regulations involving the security and availability of personal information. Multimedia can be defined as multi and media, where multi means many, much or multiple and medium means an intervening substance through some data is transmitted or carried on. Multimedia is typically used to mean the combination of different content forms such as text, audio, images, animation, video and interactive content.

Advances in processing and recording equipment of multimedia contents as well as the availability of free online hosting sites have made it relatively easy to illegally duplicate copyrighted materials such as videos, songs, images, and music clips. Copyright is the legal protection of all forms creative expression on any form of media. Copying and illegally redistributing multimedia contents over the Internet can result in significant loss of revenues for content creators. Protecting Various Multimedia Contents such as video and image by signature creation and Multimedia copy detection using matching index. The objective of the project is design a novel system for multimedia content protection on cloud infrastructures and to achieve rapid deployment of content protection systems, because it is based on cloud infrastructures that can quickly provide computing hardware and software resources

## **2.Related work**

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. Watermarking requires inserting watermarks in the multimedia objects before releasing them as well as mechanisms/systems to find objects and verify the existence of correct watermarks in them. Thus, this approach may not be suitable for already released content without watermarks in them. The watermarking approach is more suitable for the somewhat controlled environments, such as distribution of multimedia content on DVDs or using special sites and custom players. 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.

## **Distributed Matching Engine:**

Unlike many of the previous works, which designed a system for image matching, our proposed matching engine is general and it can support different types of multimedia objects, including images, 2-D videos, and 3-D videos. To achieve this generality, we divide the engine into two main stages. The first stage computes nearest neighbors for a given data point, and the second stage post-processes the computed neighbors based on the object type. In addition, our design supports high dimensionality which is needed for multimedia objects that are rich in features. Computing nearest neighbors is a common problem in many applications. Our focus is on distributed techniques that can scale to large datasets which are geographically separated.

## **3. PROPOSED SYSTEMS**

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 as shown in Fig.1. 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

#### Advantages of Proposed System:

- Accuracy.
- Computational Efficiency.
- Scalability and Reliability.
- Cost Efficiency.
- 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

#### 4.RESULTS AND DISCUSSION

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.

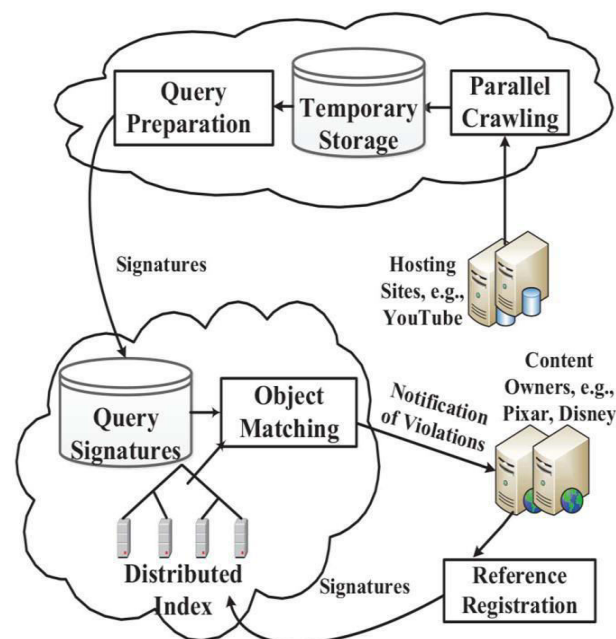


Fig.1.System Architecture.

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# CLOUD-BASED MULTIMEDIA CONTENT PROTECTION SYSTEM



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**PROTECTION SYSTEM**

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- Cloud Applications
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## CLOUD-BASED MULTIMEDIA CONTENT PROTECTION SYSTEM



We propose a new design for large-scale multimedia content protection systems. Our design leverages cloud infrastructures to provide cost efficiency, rapid deployment, scalability, and elasticity to accommodate varying workloads. The proposed system can be used to protect different multimedia content types, including 2-D videos, 3-D videos, images, audio clips, songs, and music clips. The system can be deployed on private and/or public clouds. Our system has two novel components: (i) method to create signatures of 3-D videos, and (ii) distributed matching engine for multimedia objects. The signature method creates robust and representative signatures of 3-D videos that capture the depth signals in these videos and it is computationally efficient to compute and compare as well as it requires small storage.

The distributed matching engine achieves high scalability and it is designed to support different multimedia objects. We implemented the proposed system and deployed it on two clouds: Amazon cloud and our private cloud. Our experiments with more than 11,000 3-D videos and 1 million images show the high accuracy and scalability of the proposed system. In addition, we compared our system to the protection system used by YouTube and our results show that the YouTube protection system fails to detect most copies of 3-D videos, while our system detects more than 98% of them. This comparison shows the need for the proposed 3-D signature method, since the state-of-the-art commercial system was not able to handle 3-D videos.

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### Data Owner

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# CLOUD-BASED MULTIMEDIA CONTENT PROTECTION SYSTEM



## DATA OWNER LOGIN

Name (required)

Password (required)

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Final/DataOwner.html

## Trustee

**CLOUD-BASED MULTIMEDIA CONTENT PROTECTION SYSTEM**



**TRUSTEE LOGIN**

Name (required)

Password (required)

## Cloud Server Login

**CLOUD-BASED MULTIMEDIA CONTENT PROTECTION SYSTEM**




**CLOUD SERVER LOGIN**

Name (required)  
admin

Password (required)  
\*\*\*\*\*

## Remote User

### CLOUD-BASED MULTIMEDIA CONTENT PROTECTION SYSTEM



#### REMOTE USER LOGIN

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Name (required)

Password (required)

[REGISTER](#)

## 5. CONCLUSION AND FUTURE WORK

### Conclusion

In this paper, we presented a new design for multimedia content protection systems using multi-cloud infrastructures. The proposed system supports different multimedia content types and it can be deployed on private and/or public clouds. Two key components of the proposed system are presented. The first one is a new method for creating signatures of 3-D videos. Our method constructs coarse-grained disparity maps using stereo correspondence for a sparse set of points in the image. Thus, it captures the depth signal of the 3-D video, without explicitly computing the exact depth map, which is computationally expensive. Our experiments showed that the proposed 3-D signature produces high accuracy in terms of both precision and recall and it is robust

to many video transformations including new ones that are specific to 3-D videos such as synthesizing new views. The second key component in our system is the distributed index, which is used to match multimedia objects characterized by high dimensions. The distributed index is implemented using the MapReduce framework and our experiments showed that it can elastically utilize varying amount of computing resources and it produces high accuracy. The experiments also showed that it outperforms the closest system in the literature in terms of accuracy and computational efficiency. In addition, we evaluated the whole content protection system with more than 11,000 3-D videos and the results showed the scalability and accuracy of the proposed system. Finally, we compared our system against the Content ID system used by YouTube. Our results showed that: (i) there is a need for designing robust

signatures for 3-D videos since the current system used by the leading company in the industry fails to detect most modified 3-D copies, and (ii) our proposed 3-D signature method can fill this gap, because it is robust to many 2-D and 3-D video transformations.

### Future Work

In future we will provide protection of Multimedia content using Hadoop system. In addition, quickly identifying short video segments using composite signature schemes.

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