



Remote Data Back-up and Privacy Preserving Data Distribution in the Cloud: A Review

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ABSTRACT: *Cloud storage provides online storage where data is stored in form of virtualized pool that is usually hosted by third parties. In cloud computing, data generated in electronic form are huge in amount. To maintain this data efficiently, there is a necessity of reliable data recovery services. When the data is stored in remote server, we need to provide the security to maintain the integrity of the data. With cloud data services, it is commonplace for data to be not only stored in the cloud, but also shared across different users. Because of this, the integrity of cloud data is subject to uncertainty due to the hardware/software failures and human errors. To cater this, in this paper we propose a smart remote data backup technique using encryption and compression techniques. The objective of proposed techniques is twofold; first it help the users to collect and recover the files in case of the file deletion or if the cloud gets destroyed due to any reason and second is to preserve the privacy of any user during data distribution in cloud. We are using admin panel to preserve the privacy of the user. We are also providing encryption technique to provide security to the user's data. The time related issues are also being solved by proposed techniques such that it will take minimum time for transmitting the file to remote cloud as file size is reduced by using the compression technique.*

Keywords: *data recovery, remote storage, encryption, Compression*

1. INTRODUCTION

The data files or information concerning clients which is stored in any devices is lost due to hardware problem like if the system gets physically crashed or data gets corrupted then there is no other source to recover it. It is very complex job to manage various client records since work is done manually. There are lots of chances that the errors can occur in maintaining the various users and also there is large data storage problem in centralized system.

Today, Cloud Computing is itself a massive technology which is surpassing all the previous technology of computing of this competitive and challenging IT world[1]. Cloud storage provides the online storage where data stored in form of virtualized pool that is usually hosted by third parties. The cloud computing has rapidly grown in recent years due to the advantages of greater flexibility and availability of computing resources at lower cost[4]. Cloud service providers offer users efficient and scalable data storage services with a much lower marginal cost than traditional approaches. Cloud computing gives flexibility to the user, when users put their data in the cloud, they need not manage the information stored in cloud storage. Cloud computing lets you access all your application and document from anywhere in the world. The hosting company (Cloud service provider) operates large data on data centre and according to the requirements of the customer these data centre virtualized the resources and expose them as the storage pools that help user to store files or data objects. Data

sharing becomes a standard feature in most cloud storage offerings, including Dropbox, iCloud and Google Drive [2]. As number of user shares the storage and other resources, it is possible that other customers can access your data. Either the human error, faulty equipment's, network connectivity, a bug or any criminal intent may put our cloud storage on the risk and danger.

The integrity of data in cloud storage, however, is subject to uncertainty as data stored in the cloud can easily be lost or corrupted due to the unavoidable hardware/ software failures and human errors. To make this matter even worse, cloud service providers may be reluctant to inform users about these data errors in order to maintain the reputation of their services and avoid losing profits. The traditional approach for checking data correctness is to retrieve the entire data from the cloud and then verify data integrity by checking the correctness of signatures of the entire data. Though this conventional approach is able to successfully check the correctness of cloud data, the efficiency of using this traditional approach on cloud data is in doubt. The main reason is that the size of cloud data is large in general and downloading the entire cloud data to verify data integrity will cost or even waste user's amounts of computation and communication resources.

To overcome these issues, we propose a new technique in which the data is stored in the remote cloud. If the main cloud gets destroyed or data is lost then the remote cloud will give the back-up of data to the client. The admin panel will provide a secure ID to each client so in case of data distribution to other clients this ID will preserves the privacy of the clients.

2. RELATED WORK

In literature, we study most of the recent back-up and recovery techniques that have been developed in cloud computing domain. The SBA technique help the users to collect information from any remote location in the absence of network connectivity and second to recover the files in case of the file deletion or if the cloud gets destroyed due to any reason. The time related issues are also being solved by proposed SBA [1].

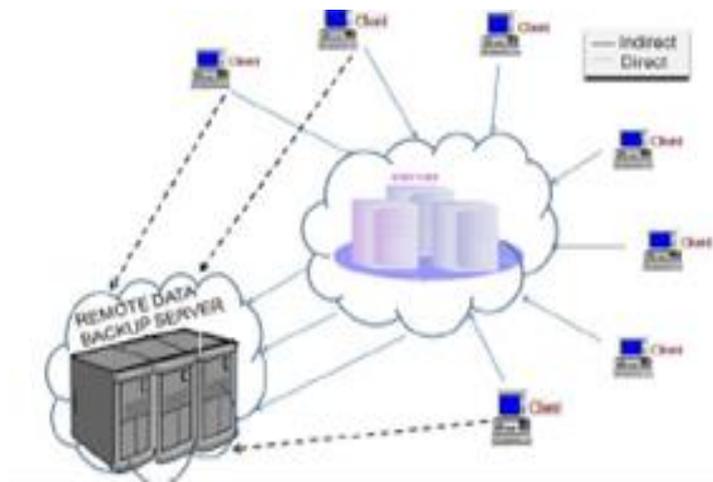


Fig. 1. Remote data Backup Server and its Architecture

Oruta: Privacy-Preserving Public Auditing for Shared Data in the Cloud is a novel privacy-preserving mechanism that supports public auditing on shared data stored in the cloud. In this mechanism ring signatures



are used to compute verification metadata needed to audit the correctness of shared data [2]. The Parity Cloud Service (PCS) technique provides a privacy-protected personal data recovery service [3]. The objective of Remote Data Collection Server: E-Health Care is to provide auto response server, better solutions for data backup and restore using cloud. It can collect data and send to a centralized repository in a platform independent format without any network consideration [4].

All these techniques tried to cover different issues maintaining the cost of implementation but it creates the large amount of data and requires more storage as the size of data is not reduced. Also there is lack of privacy and security in these techniques.

3. PROBLEM DEFINITION

In the cloud, large amount of the data are stored but if one of the server is crashed or slows down then the private data of the user will loss. This paper will explain the process of taking the back-up of user’s data in encrypted and compressed manner.

As data is shared in the cloud so to provide the privacy to the user we are providing the admin panel to authenticate the user

4. PROJECT OBJECTIVES

The objective of proposed techniques is

- To help the users to collect and recover the files in case of the file deletion or if the cloud gets destroyed due to any reason
- To preserve the privacy of any user during data distribution in cloud. We are using admin panel to preserve the privacy of the user.

We are also providing encryption technique to provide security to the user’s data. The time related issues are also being solved by proposed techniques such that it will take minimum time for transmitting the file to remote cloud as file size is reduced by using the compression technique.

5. INVESTIGATIONAL OUTCOME

To achieve the objective of this project, we have proposed following techniques;

- While creating the back-up of the user’s data, we are going to encrypt the data by using advanced encryption techniques (like improved AES, RC6)
- Then we compress this encrypted file by using lossless compression technique (like LZW, KMP etc.) and the store this compressed file to a remote data back-up cloud.

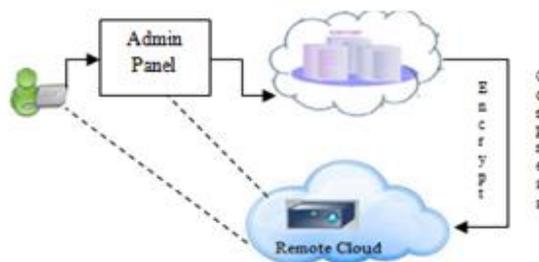


Fig.2. Architecture of Privacy Preserving data distribution and data back-up in remote cloud



-For privacy preserving we are introducing an admin panel that manage and authenticate the user credentials and provide signature. The user credentials are also encrypted

6. CONCLUSION

This review paper proposes a technique to perform a smart remote data backup using encryption and compression techniques. It also preserves the privacy of the user in case of data distribution in the cloud by providing the admin panel.

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