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Secure Attribute Based Partitioning Technique for Cloud Structural Storage Data- A Review

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Abstract—Cloud Computing is a new paradigm for the IT industry Data security is one of the major issues in cloud environment. The data owner has not control over the data after it is uploaded on cloud. For data security we have to trust on security mechanism provided by third party. We proposed a scheme in this the structural data i.e. datable get partitioned into different fragments according to their attributes. The data in each fragment can be encrypted by using different cryptographic algorithms and encryption key before storing them in the Cloud. The objective of this technique is to store data in a proper secure and safe manner in order to avoid intrusions and data attacks meanwhile it will reduce the cost and time to store the encrypted data in the Cloud Storage.

Keywords— Cloud computing, data security, Advanced Encryption Standard (AES), Data Encryption Standard (DES), Partitioning.

I. INTRODUCTION

Cloud computing is a computing environment in which large group of remote servers are networked which allows the central storage of data and it provides online access to computer resources or services. This computing environment allows enormous customer of cloud and service it allows its users to access this applications without installation it provides services ex- sending various files at any machine connected in a network with internet access. By centralized data storage processing and bandwidth provides more efficient computing. The various problems like sharing computing resources, users can easily solve their problems with the resources provided. By using cloud computing service, users can store their critical data in servers and can access their data anywhere they can with the Internet and do not need to worry about system breakdown or disk faults, etc. Also, different users in one system can share their information and work, as well as play games together. Different Reputed companies such as Amazon, Google, IBM, Microsoft, and Yahoo provide the various cloud computing services. But being so useful, there are various problems faced by the cloud computing that can be classified as: Infected Application, Authentication, Data Verification, Availability,

Data protection. To deals with all these issue there was a need for a technique to handle all above issues and while handling these issues, it should also enhance the security.

II. LITERATURE SURVEY

A lot of researches has made on cloud computing. We have referred various paper for our research regarding various security models, data segmentation models, encryption algorithm. The piece of work focuses on how to achieve the security in cloud computing by slicing data done by Amit Khaparde. et al. in 2015 [1] .focuses on enhancing the security of data in cloud environment by dividing data in the proper way and using various encryption techniques. His piece of work throw a beam of light on a new concept of segmentation, which segments the data and encrypt them as per there relevance. This idea not only increase the security but be a hurdle in the way of attackers and hackers.

The author Vishwanath S. Mahalle et. al. [9] proposed a scenario where the hybrid encryption is done to enhance the security of the data. The concept of using different algorithm form a hurdle for the attacker to access the important data from the cloud. Even there will be no need to rely on the third party vendors for the security. This technique is used to make users data highly secured. We get advantage of both symmetric key and public key encryption which all together enhance security.

The author Devi, T et. Al. [10] presents the survey about data security in cloud computing and the analysis of each framework. These various frameworks altogether gives the idea of various frameworks proposed uphill now there pros and cons. One of the framework deals with the data segmentation model .this data segmentation models gives an idea to segment the data to increase the security.

Aderemi A. Atayero [7], proposed an auditing system which is carried out in such a way that the Third Party Auditor does its job without demanding the copy of user's data. Also the Third Party Auditor is not capable of deriving the user's data while performing the auditing task. To verify the correctness of the cloud data on demand from the cloud users the Third Party Auditor is used, who without retrieving a copy of the whole data or introducing additional online burden to the cloud users performs the auditing. Block tag authentication is made to handle the data from the cloud storage efficiently. For the data that is stored in the cloud database, there is need for remote data integrity check which assurers the cloud users with a sense of security regarding their data. The third party audit ting has to be made available in such a way that no additional burden is introduced to the cloud users. A single Third Party Auditor is capable of handling multiple auditing tasks, which is achieved with the bilinear aggregate signature technique.

The author Prashant Rewagad et al. [14] propose an architecture for providing security in cloud network. These systems architecture uses the combination of digital signature algorithm of Diffie Hellman and AES encryption. His piece of work makes use of a combination of authentication technique and key exchange algorithm blended with an encryption algorithm. This combination is referred to as "Three way mechanism" because it ensures all the three protection scheme of authentication, data security and verification, at the same time.

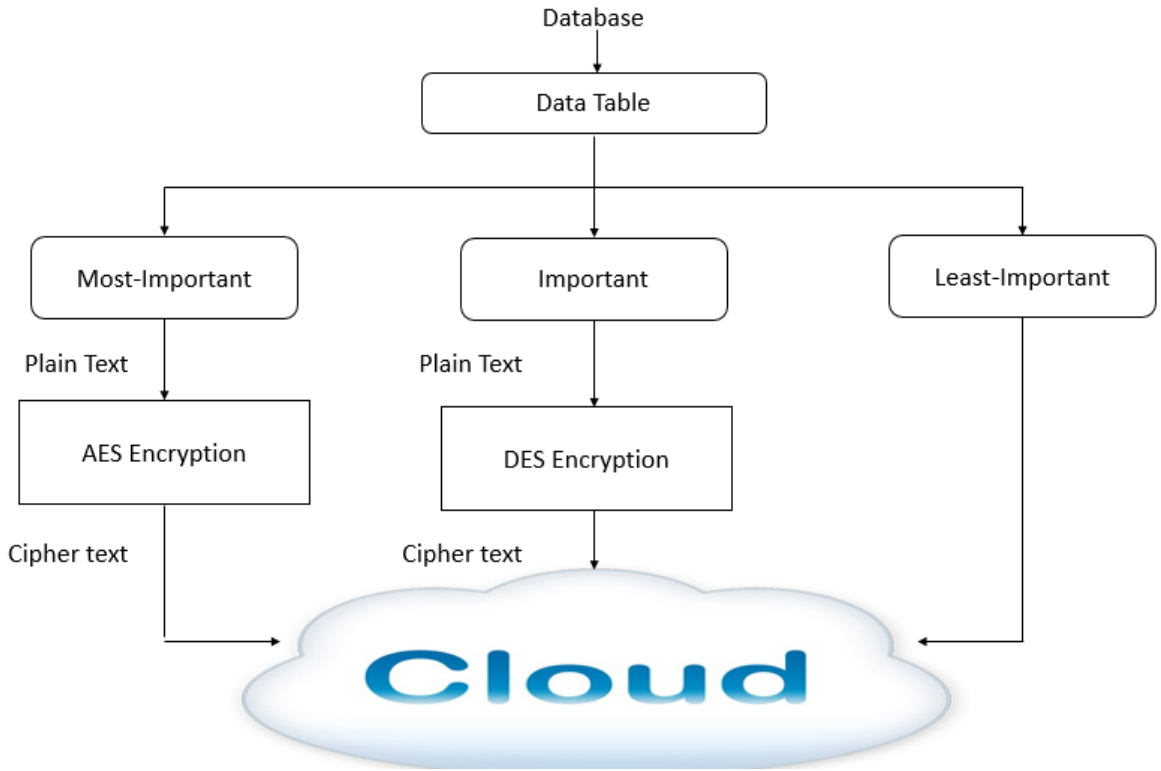
III. System Structure

In ABPT approach, we need divide the structural data which we need to store on the cloud. Structural data are those data which are well formatted. All databases containing tables are one of the form of structural data. Thus, we are partitioning data table in various fragments. This partitioning is done according to the importance of the attributes.

To enhance security we use various encryption techniques. Each fragments gets encrypted by the different encryption technique, here we are using Advanced Encryption Standard (AES) and Data Encryption Standard (DES) encryption. Encrypt each vital fragment separately by encryption key(s), which aims to increase the

protection of privacy and prevent its violation by the hacker, or even by the Cloud Computing service providers themselves.

Block Diagram



IV. Proposed System

This dissertation proposed ABPT (Attribute Based Partitioning Technique) to make structural data secure with less encryption time and storage space. In this technique a data table attributes gets encrypted according to their importance and stored on cloud. This attributes are the column present in the table e.g. Employee table has attributes such as Name, Address, Phone number etc. which can be categorize as "Most-Important", "Important" & "Least/No-Importance".

This attributes are categorization by their data owners. The data is then encrypted and stored on cloud. The aim of this proposed technique is to store data in a secure way which is achieved by using Data Encryption Standard (DES) and Advanced Encryption Standard (AES) as per the data importance. "Most-Important" columns get encrypted by AES as it needs to be highly secured and "Important" columns gets encrypted by DES and "Least-Important" columns kept unencrypted. Thus this technique will reduce the storage space, cost and time to store encrypted data on the Cloud storage center and also enhances efficiency.

V. Conclusion

Cloud computing has recently emerged as a paradigm for managing and delivering services over the internet. Due to rise of its usage many challenges emerged in this domain. Infected Application, Data protection, Availability, Data Verification, Authentication. All this mentioned problems are there because, there is no clear method to divide the data into various fragments and used different encryption algorithms according to the security of encryption algorithm. In this proposed ABPT scheme we solve the problem of

security and increase the security level of structural data than previous techniques. It also increase efficiency, reduce storage space and time.

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