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Handover Key Management for Re-Authentication in Cloud Technology for Accessing Data Classes

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Abstract*: Cloud Technology is most widely emerging area in today's world, especially in IT sectors. Security is also a challenging task in accessing various classes of data in cloud technology. The existing system introduced a novel key generation and authentication schemes for classes and also introduced a tri-partite authentication scheme. As the cloud data can be accesses from anywhere and these data may be of various formats or classes. Each class of data requires re-authentication of the user or client. This paper presents a novel Handover Key Management (HKM) technique for re-authentication of data classes. This new technique helps clients for ease access of different data classes with respect to prioritized data classes. While developing HKM technique, many parameters are considered are security aspects like token authentication, generating keys for encryption and decryption of data and so on.

Index Terms: Security, Data Classes, Re-Authentication, HKM.

I. INTRODUCTION

Cloud Computing (CC) is the way of accessing resources over a network channel. The resources may be any of these such as Software, Hardware or an Infrastructure and also may be data of various classes. The different formats of data are called as Data classes. This technology is growing rapidly in today's world. The resources also called as services. These services can be provided by the cloud service provider. There is Service Level Agreement (SLA) between the service provider and the client.

The cloud services can be provided for days, weeks, months or yearly agreement. The use of this technology helps IT Sector to reduce its cost and time. This technology works most efficiently with the help of internet. If there is poor internet connectivity then the service might be properly delivered to the client.

The different formats of data that is structured or unstructured data can be categorized into different classes. The classes may be private, public and limited access which has been already introduced. Whenever the client is accessing some resource over a network channel, client must be authenticated in different levels.

All the data in a cloud centre is encrypted at the time of storage. Sometimes, if it is a public cloud, then the data is not enrypted. The data classes in any cloud can't be accessed until and unless the successful authentication of the client. Re-Authentication is required, if the client needs to access another class of data. The problem raises here, that is the way of authentication from one class to other class might be different and also moving or shifting from one class to other is called as Handover Authentication.

Data classes of one type will be accessed many times per day or some other classes of data may not be accesses at all. With this the cloud technology is facing the critical challenges for establishing secure communication of the most frequently accesses data class. For optimizing cost, partitions of data classes are done. There are many algorithms used for providing secure access to the clients,

This paper objective is to deal with HKM for Re-Authentication of various cloud data classes. The novel technique is proposed to handle this kind of situation. This technique is given in detail in the section of proposed system.

II. LITERATURE SURVEY

In this [1] paper, a new tripartite key assignment scheme is introduced for cloud data classes. And also tri-partite authentication scheme & graph is proposed for easier access of various cloud data classes. This paper presents the extension of the referred paper which is not introduced. A novel scheme is proposed for HKM for Re-Authentication of cloud data classes. The HKM issue is not addresses and developed in existing system.

Key generation and management is also addressed in the existing system. The problems on cloud data classes as well as authentication techniques are also taken into consideration while designing the model.

In different classes of data, how the keys are generated and managed at the time of authentication is discussed in [2]. This paper addresses the problem and given a solution which can be used temporarily. A cryptographic key generation scheme for multilevel data security is given in [3].

Honey pot cloud framework is used for classifying each data classes into four classes. There are many parameters are considered for providing security for data classes and then varied accordingly to the sensitivity of the class of data. These are addressed in [4] and proposed a three way classification of the data: Public, Private and limited access based on three cryptographic parameters [5].

III. PROPOSED SCHEME

This paper objective is to introduce a new Handover Key Management (HKM) for Re-Authentication of cloud data classes. HKM involves the process of exchanging keys from one data class to other data class simultaneously for re-authentication and continuing the access over data classes. The steps to be followed for HKM are:

A. Initiallyassume that the client is already authenticated and accessing a frequently queried data class.

B. Now immediately, client got the requirement of accessing another class of data. Then again, client must be re-authenticated for accessing that another data class.

C. The idea introduced here is storing the existing key in a database and making reuse of same key for authentication another data class.

D. This can be done by using secure authentication and the process may be like TLS handshake.

E. The similarity feature is established and re-authenticated the client. With this implementation, the number of keys can be reduced and key generation can be done only for one time per client.

The architecture for proposed system as follows:\

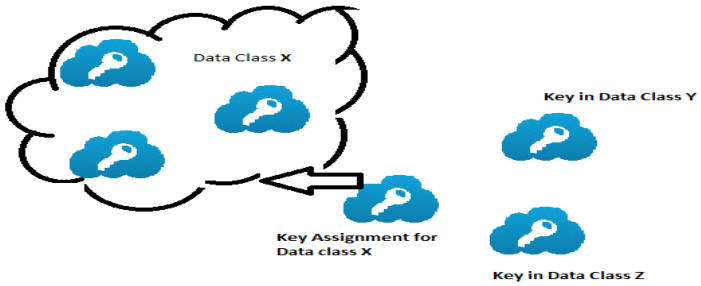

Fig: Architecture for Proposed Model

The encryption schemes and signatures are all same as existing system. Only HKM is addressed in this paper for efficient handling of keys and re-authentication of the clients.

IV. PERFORMANCE VISUALIZATION

The following visualization of graphs indicates the performance measured with the help of this new scheme of managing keys for accessing data classes. The analytics of accessing data classes with less re-authentication as shown in the following graph:

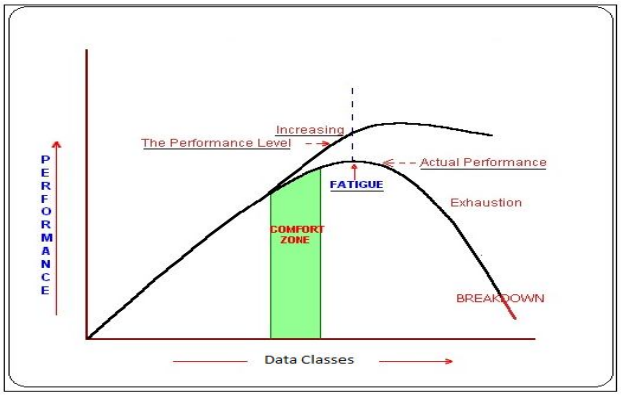

Fig 5.0 Performance Visualization

V. CONCLUSION

In this paper, HKM is introduced for ease of managing problems of handover of key while accessing the different cloud data classes in re-authentication. This proposed scheme helps the client to access the different data classes easily with less time and more security.

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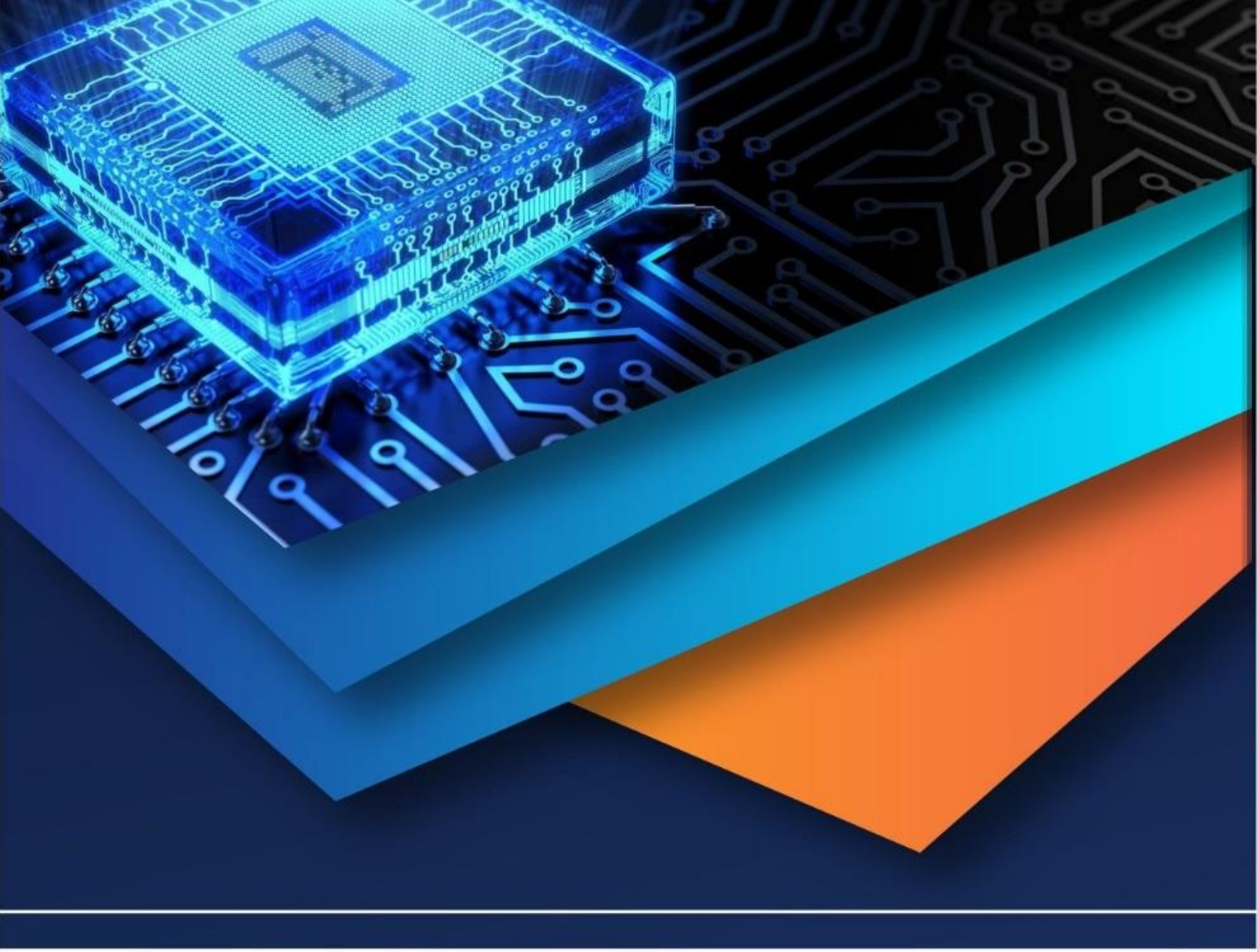

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