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A Review on Access Control Policy and Key Generation in Data Sharing

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Abstract**—** *This review is based on the access control policy and data sharing mechanisms. We know that Cloud computing is the best & proficient manner on handle our information remotely. Data Confidentiality is one of the chief problem now a day's. Security is also matters while data storing & sharing with others. Whenever we are using platform like cloud trust factor also considered. A lot of unauthorized community tries to access & steal the confidential data. In the current time cryptographic technologies are used to secure data. Sharing cloud data in between group of users at a best level is still a complicated issue, especially when dealing with dynamic users group .In this paper we present and discuss propose system which deals with dynamic user group problem like revocation and data privacy & make access control policy.*

Keywords— Data Sharing, Attribute based mechanism, Access Control policy, Data Confidentiality.

I. INTRODUCTION

Cloud computing and information sharing is mainly required and quickly developing trends in this current era. We can get to and share information from various area with the assistance of internet. Additionally it prepared gives client adaptable infrastructure, storage space and hardware similarity to accomplish better execution.

Information privacy and execution are vital factor in cloud storage environment. Cryptographic methods are utilized to secure information from unauthorized access. In cloud computing third parties are likewise assuming primary job in giving us secure channel to exchanging the data from information proprietor to other requested different end clients or customers.

Existing system uses the cipher text policies. In which confidentiality of the data are made by using three factors data, encryption algorithm & the size of key. As well existing concepts third parties are used such as key as well as digital certificate providers & verifiers. Still it is not a piece of cake to keep fully trust over these service providers & third parties. Not everything except rather some of them might have the capacity to attempt to take our information and keys.

Group sharing concept is works like broadcasting particular data among the set of peoples. But while sharing encrypted or sensitive data need to share its key also for decryption purpose. Some time access is given to the set of user and one of them might be leave the group or change the group that time its access should be revoked otherwise it can be able to take unauthorized access from outside also.

In literature review we discussed on the relevant existing topics.

II. LITERATURE SURVEY

There are numerous approaches are characterized in regards to data sharing & data security in cloud computing which are mentioned in our literature.

A. Secure Fine-Grained Access Control and Data Sharing for Dynamic Groups:

Cloud computing additionally brings numerous security issues since cloud service providers (CSPs) are not in the same trusted domain as users. To ensure information protection against untrusted CSPs, existing arrangements apply cryptographic techniques (e.g., encryption mechanisms).challenging issue, particularly when managing dynamic client group. They proposed [1]a secure and efficient fine grained access control and data sharing scheme for dynamic user groups by (1) defining and enforcing access policies based on the attributes of the data; (2) permitting key generation center (KGC) to efficiently update user credentials for dynamic user groups; and (3) allowing some expensive computation tasks to be performed by untrusted CSPs without requiring any delegation key. They first designed an efficient revocable attribute-based encryption (RABE) scheme along with the property of ciphertext delegation

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by exploiting and uniquely combining techniques of identity-based encryption (IBE), Attribute-based Encryption (ABE), subset-cover framework and ciphertext encoding mechanism.

B. Lightweight Policy Preserving EHR Sharing Scheme:

In CP-ABE, access policy is attached to the ciphertext, however, the access policy is not protected, which will also cause some privacy leakage. In this paper, authors proposed [3] a policy preserving EHR system on the basis of CP-ABE. Specifically, authors designed an algorithm which able to hide the entire access policy as well as recover the hidden attributes from the access matrix. The subsequent evaluation of element insert, lookup and recovery shows that their proposed scheme only introduces light-weighted overhead cost. They constructed their scheme by utilizing the Waters CP-ABE as a building block. Apparently, their scheme can easily extend to other CP-ABE schemes with the structure expressed in LSSS form.

C. Efficient Policy-Hiding Attribute-Based Access Control:

With the rapid development of the Internet of Things (IoT) and cloud computing technologies, smart health (shealth)is expected to significantly improve the quality of healthcare. The fine-grained access control, ciphertext-policy attribute-based encryption (CP-ABE) has the potential to ensure data security in s-health. To address these problems, authors introduced [4]PASH, a privacy-aware s-health access control system, in which the key ingredient is a large universe CP-ABE with access policies partially hidden. In PASH, attribute values of access policies are hidden in encrypted SHRs and only attribute names are revealed. In fact, attribute values carry much more sensitive information than generic attribute names. Author's security analysis indicates that PASH is fully secure in the standard model. Performance comparisons and experimental results show that PASH is more efficient and expressive than previous schemes.

D. Key-Policy Attribute-Based Encryption With Equality Test:

In this article, public key encryption with equality test is concatenated with key-policy ABE (KP-ABE) to presented KP-ABE with equality test (KP-ABEwET). This proposed [6] scheme not only offer fine-grained authorization of cipher-texts but also protects the identities of users. In contrast to ABE with keyword search, KP-ABEwET can test whether the cipher-texts encrypted by different public keys contain the same information. Moreover, the authorization process of the presented scheme is more flexible than that of Ma et al.'s scheme. Furthermore, the proposed scheme achieves one-way against chosen-ciphertext attack based on the bilinear Diffe-Hellman (BDH) assumption. In addition, a new computational problem called the twin-decision BDH problem (tDBDH) is proposed in this paper. tDBDH is proved to be as hard as the decisional BDH problem. Finally, for the first time, the security model of authorization is provided, and the security of authorization based on the tDBDH assumption is proven in the random oracle model.

E. Attribute-Based Data Sharing Scheme Revisited:

Ciphertext-policy attribute-based encryption (CPABE) is a very capable encryption technique for secure data sharing. CP-ABE is limited to a potential security risk that is known as key escrow problem whereby the secret keys of users have to be issued by a trusted key authority. Besides, most of the existing CP-ABE schemes cannot support attribute with arbitrary state. They proposed [9] an improved two-party key issuing protocol that can guarantee that neither key authority nor cloud service provider can compromise the whole secret key of a user individually. Authors proposed an attribute-based data sharing scheme for cloud computing applications, which is denoted as ciphertext-policy weighted ABE scheme with removing escrow (CP-WABE-RE). It successfully resolves two types of problems: key escrow and arbitrary-sate attribute expression. This proposed system enhanced data confidentiality and privacy in cloud system against the managers of KA and CSP as well as malicious system outsiders, where KA and CSP are semi-trusted.

F. Secure and Verifiable Access Control Scheme for Big Data Storage:

Traditional approaches are either completely ignore the issue of access policy update or delegate the update to a third party authority; but in practice, access policy update is important for enhancing security and dealing with the dynamism caused by user join and leave activities. In this paper, authors proposed [14] a secure and verifiable access control scheme based on the NTRU cryptosystem for big data storage in clouds. NTRU cryptosystem is a type of lattice-based cryptography. The proposed a new NTRU decryption algorithm to overcome the decryption failures of the original NTRU. It allows the cloud server to efficiently update the ciphertext when a new access policy is specified by the data owner, who is also able to validate the update to counter against cheating behaviours of the cloud. It also enables (i) the data owner and eligible users to effectively verify the legitimacy of a user for accessing the data, and (ii) a user to validate the information provided by other users for correct plaintext recovery.

G. An Efficient File Hierarchy Attribute-Based Encryption Scheme:

In this article, an efficient file hierarchy attribute-based encryption scheme is proposed [15]. The layered access

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structures are integrated into a single access structure, and then the hierarchical files are encrypted with the integrated access structure. Hence, both ciphertext storage and time cost of encryption are saved. Additionally, the proposed scheme is proved to be secure under the standard assumption. Experimental model shows that the proposed scheme is highly efficient in terms of encryption and decryption. With the number of the files increasing, the advantages of this proposed scheme become more and more conspicuous. In this study, an efficient encryption scheme based on layered model of the access structure is proposed in cloud computing, which is named file hierarchy CP-ABE scheme (or FH-CP-ABE, for short). FH-CP-ABE extends typical CPABE with a hierarchical structure of access policy, so as to achieve simple, flexible and fine-grained access control Moreover, the proposed scheme is proved to be secure under DBDH assumption.

- ***Comparison Of ABE Schemes***

Sr. NO	Parameters	KP-ABE	CPABE	HABE	MABE
1	Drawback	It cannot decide who can encrypt data.	Decrypt key only support user attribute that are organized logically.	Unsuitable to implement	Each authority attribute set should be disjoint
2	Efficiency	Average	Average	Better	Scalable
3	Secured Access Control	Low	Average	High	Average
4	Computational Overhead	High	Average	More	More
5	Data Confidentiality	no	yes	yes	yes
6	Scalability	no	yes	no	yes
7	User Revocation	no	no	yes	yes
8	collusion resistant	yes	yes	yes	yes

III. PROPOSE WORK

We go for implementation of cloud based system which deals with complexity of access control policy & dynamic group data sharing problem. Access control is the better one security mechanism in cloud computing. In this propose Attribute based access control scheme we provides a lightweight approach that allows data owners to easily define and undefined the access policies for the respective data share over the groups. Propose system will also include the re key generation concept for making decryption key unique for each end user. Also in propose system we will build up the system to deal with the major problem of dynamic group sharing i.e User revocation. Revocation is becomes mandatory when the particulars want leave the assigned or joined group that time its access policies should be revoked with its dynamic behavior.

IV. CONCLUSION

Cloud computing is most favorable and preferable fashion for the users which provides several useful services. Yet, some place, there is some security or assurance is required against the information put away or action done over the cloud. This paper provides a review of attribute based encryption mechanisms for cloud computing in which a number of security features are provided. Also we review the different attribute based access control mechanisms used in existing systems. It consist four different attribute based encryption schemes such as KP-ABE (Key-policy attribute-based encryption), CP-ABE (ciphertext-policy attribute-based encryption), HABE (Hierarchical Attribute Based Encryption), MA-ABE (Multi-Authority Attribute Based Encryption). Access Controls are associated with attributes and data . These data & attribute are associated with keys and just those keys that the related to attributes which satisfy the policy associated with the data. Also we discussed about problems within the group sharing concept. Revocation and reassignment both the things are more important while data is sharing inside the group of peoples.

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