

An Efficient Model for Providing Security in Cloud computing Environment

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Abstract--- In this paper, we present a hybrid model for providing security in cloud computing environment. This model combines the advantages of two most popular existing cloud security models. The first model is hierarchical model and the other one is third party auditor based model. In this paper, we present an overview of existing cloud security algorithms. All these algorithms are described more or less on their own. Cloud security is a very popular task. We describe today's approaches for cloud security. From the broad variety of efficient algorithms that have been developed we will compare the most important ones. At the end, we have also discussed the advantages of the proposed model.

I. INTRODUCTION

Cloud computing [7,8,9] is a internet based network. It is a collection of services. It provides on demand services. The major services provided through cloud are: hardware service, software service, network service. Cloud computing is a modern field, which revolves around utility computing, service oriented architecture, internet, clients etc.

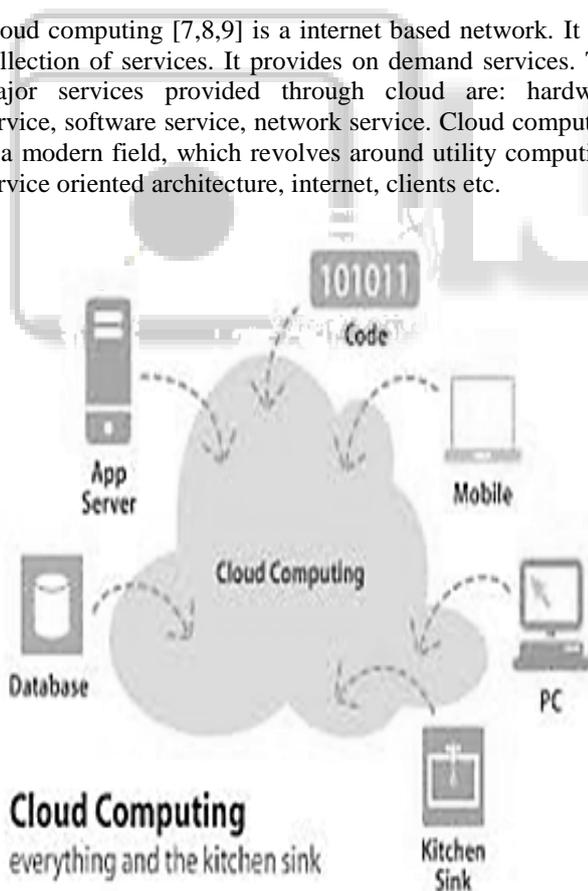


Fig. 1: Cloud computing Environment [10]

Now a days, cloud computing is the heart favourite topic to many researchers. It will become more popular in coming years as the reach of internet is increasing day by day.

Cloud computing has three basic models, which are Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS). The Main advantages of cloud computing are : low cost, improved performance, infinite storage space etc .

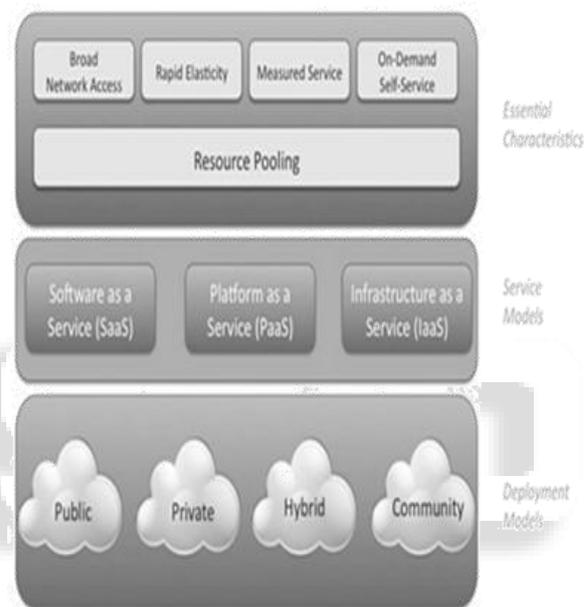


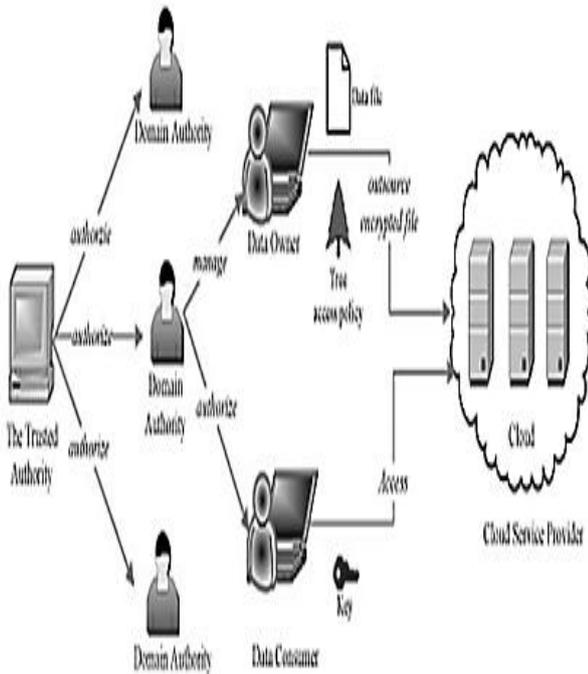
Fig. 2: Cloud Architecture [10]

II. RELATED WORK

There are many security models for cloud computing. Some popular models are as follows: Attribute-Based Encryption (ABE) was proposed by sahni [1]. It is a fuzzy logic based model. An identity based model was proposed in [2]. It uses the biometric identities for the identification. In [3], Pirretti et al. proposed an efficient model for the large or scalable systems. KP_ABE key policy attribute based encryption was proposed by goyal in [4]. It is an extension of attribute based encryption (ABE)... In [5], Ostrovsky et al. proposed an enhanced KP-ABE scheme which supports non-monotone access structures.

III. PREVIOUS SYSTEM

Although the present model overcomes the limitations of the third party auditor based scheme. But it follows a very complex hierarchical structure. We can propose a new model which combines the benefits of both present HASBE model and the third party auditor based model.



IV. PROPOSED SYSTEM

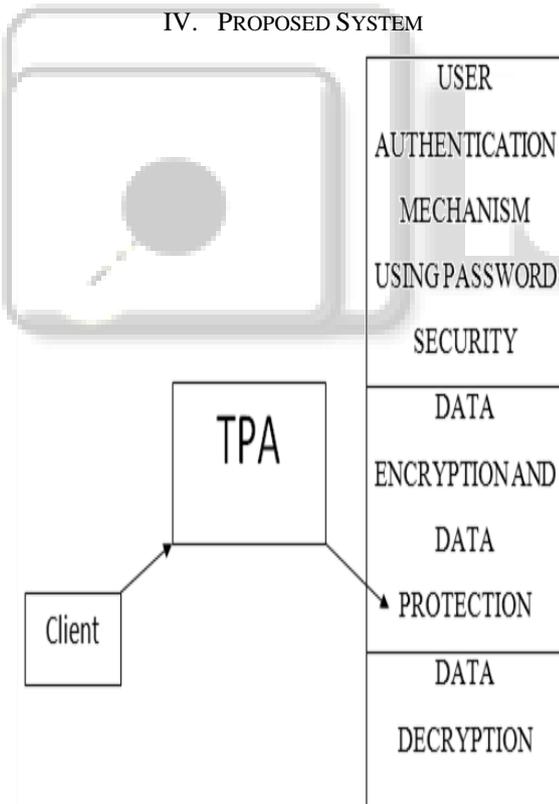


Fig. 4: Proposed Model

In our proposed model, the client or user interacts with the third party auditor. The third party auditor is an authorized person appointed by the owner of the cloud. In our model, both data and auditor are present at the cloud servers site. It is responsible for performing functions at all the three layers.

- 1) The first layer is USER AUTHENTICATION

- 2) The second layer is DATA ENCRYPTION AND DATA PROTECTION
- 3) The third layer is DATA DECRYPTION

V. ADVANTAGES OF THE PROPOSED MODEL

A. Computational Overhead:

In our proposed scheme, the third party auditor and users data is on same site. So the time required for the authentication purpose and data encryption and decryption is less in comparison to previous schemes. In previous schemes, the data and the third party auditor were on separate site. It is clear that in that case the time required for authentication will be more.

B. Authentication Data Security:

In our proposed scheme, the authentication module is playing an intermediates role. Neither the cloud service provider nor the user of the data is able to access the authentication data from it.

C. Scalability:

We extend HASBE with a hierarchical structure to effectively delegate the trusted authority's private attribute key generation operation to lower-level third party auditor. By doing so, the workload of the trusted root authority is shifted to lower-level domain authorities, which can provide attribute key generations for end users. Thus, this hierarchical structure achieves great scalability.

VI. CONCLUSION

In this paper, we surveyed the list of existing cloud security techniques. We also presented a new model for the cloud security. It is a hybrid model. It is a combination of the HASBE model and the TPA model. The advantages of the proposed model are also discussed at the end.

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