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A PROPOSED HYBRID APPROACH TO SECURE CLOUD ENVIRONMENT

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ABSTRACT

In this article, we focus on cloud secure data storage, which has always been an important aspect of quality of service (QOS). "Cloud computing may be the only way to handle vast, unstable query loads differentiated data in any number of formats and with any number of relationships" Data Security is considered as major aspect in cloud environment while using an application. This Data security can be implemented with respect to user authentication and authorization using cryptography system. Data security involves encrypting the data as well as ensuring that appropriate policies are enforced for data sharing. In this way, Data security is becoming more and more important in cloud computing.

Keyword: -cloud, security, data, qos, crm etc.

1. INTRODUCTION

In this topic I will general overview about how to provide cloud "Cloud computing is a compilation of existing techniques and technologies, packaged within a new infrastructure paradigm that offers improved scalability, elasticity, business agility, faster startup time, reduced management costs, and just-in-time availability of resources". Generally, in the text-based password, the password is easy to guessing the others user. The one user is easily find out the password of second user and easily login her\his account. So, there is the need to finding the more secure password and to generate the graphical password. Graphical secrets present lots of advantages and can increase the level of security without a significant change in the user's habits. For that, we need to possess strong ways to convert them into strings that will feed the implemented passwords systems. Cloud computing is a computing model, where resources such as computing power, storage, network and software are abstracted and provided as services on the internet in a remotely accessible fashion. User authentication plays important role in securing cloud as it is done before both processes either storing data or retrieving data.

2. LITERATURE SURVEY

There are different techniques to provide authentication. The text-Based password flaws in the aspects of usability and security issues that bring problems to users. Hence, there is a need for alternative mechanism to overcome these problems. The difficulty in remembering the text Based password. To overcome this problem, we need the graphical password system. Passwords that are easily remembered for example pet's name, first name and street address. Unfortunately, these passwords can be easily guessed or broken. According to an article in Computerworld, the security team at a large company tested and ran a network password cracker and surprisingly within 30 seconds, they manage to crack approximately 80% of the passwords. Pictures are generally easier to be remembered or recognized than text, especially photos, which are even easier to be remembered than random pictures. In user description of the concept an image would appear on the screen, and the user would click on a few chosen regions of it. If the correct regions were clicked in, the user would be authenticated. Efficiency is important in password systems because users want to have quick access to systems.

3. PROPOSED HYBRID APPROACH TO SECURE CLOUD ENVIRONMENT

Cloud computing environment are multi domain environment. Among which different domain can use security, privacy and trust requirements in a different manner. So as far as cloud computing is newly idea developing, security has made commercial Internet possible. Cloud can be secured only when proper user authentication can be done. Till today many technologies had been used to provide user authentication. Different biometrics are used to provide security. It consists of three cloud including customer relationship management (CRM) , storage cloud service and separate decryption/encryption cloud service. All these component plays different role during data retrieval and data storage process. A proposed three tier cloud architecture is explained below:

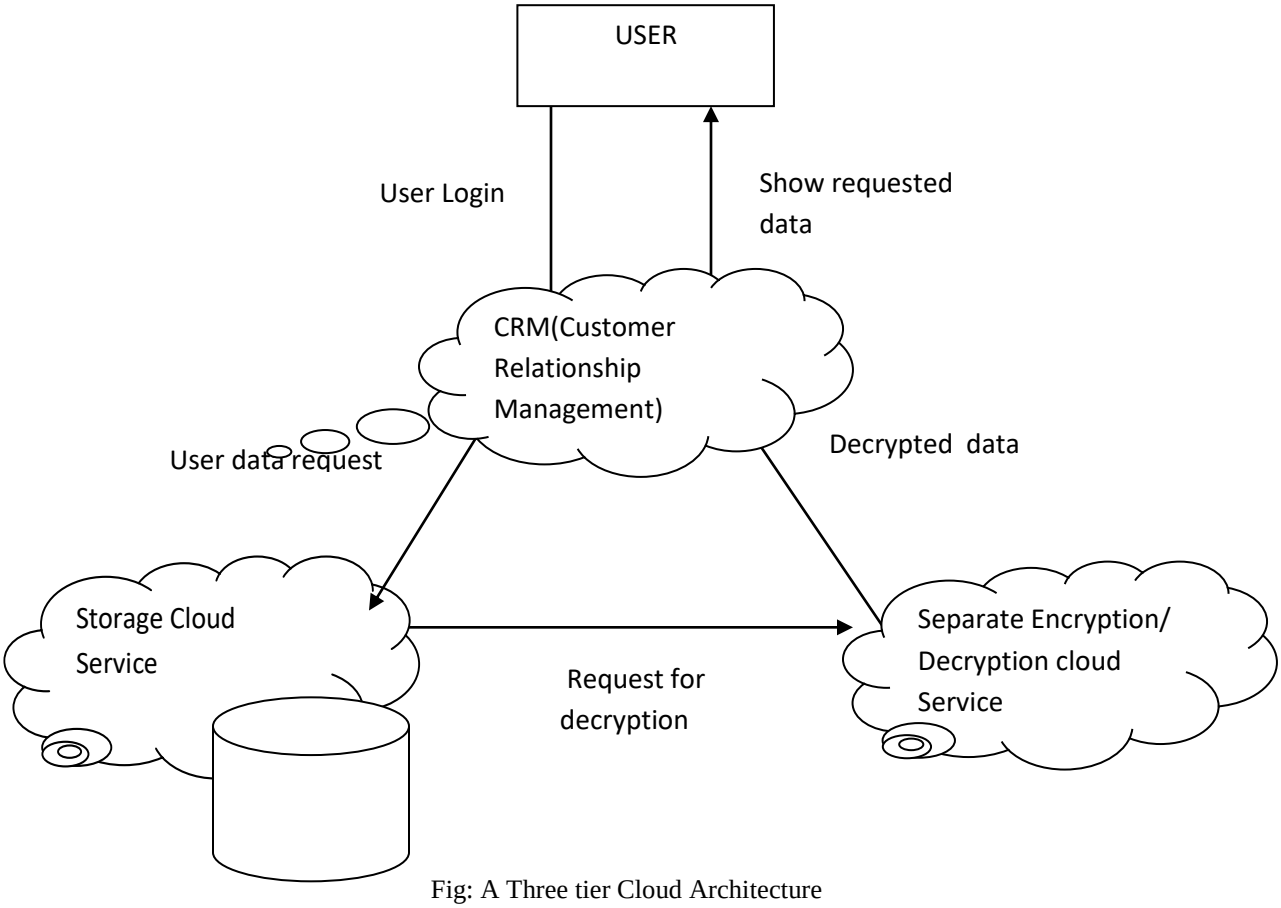

Fig: A Three tier Cloud Architecture

Encryption and decryption of data can be done to maintain data confidentiality. Beyond of all these things CRM plays most important role. If user is authorized then only he can store or retrieve data from cloud database. I proposed that authentication can be provided by using graphics keys. The image is combination of pixels arranged according to fixed dimension. In this methodology, each pixel has equal importance. Password can be generated by arranging sequence of pixel. Because when the user requests for encrypt or decrypt of the data to the encryption or decryption as service, and when all this process conversion completes and then handled it CRM application. After this overall process completes at that time, the encryption or decryption service must delete all encrypted and decrypted user data. In addition to this, data storage and decryption of user data works independently. This means that those working with data storage cloud system will have no access to decrypted user data. In short here I am just dividing and separating the encryption or decryption cloud service from the storage as service.

For enhancing the security and privacy in an organization, the concept of dividing authority is applied in business management. If the user had decided to provided access to some of the operator of an organization to decrypt the data while some of them will work on storage service only. So, it's up to user for deciding the concept of dividing the authority. Consider an example of motor garage system organization. The user will supposed to divide the authority in the billing department as one of the factor named as, accountant operator and another factor is cashier.

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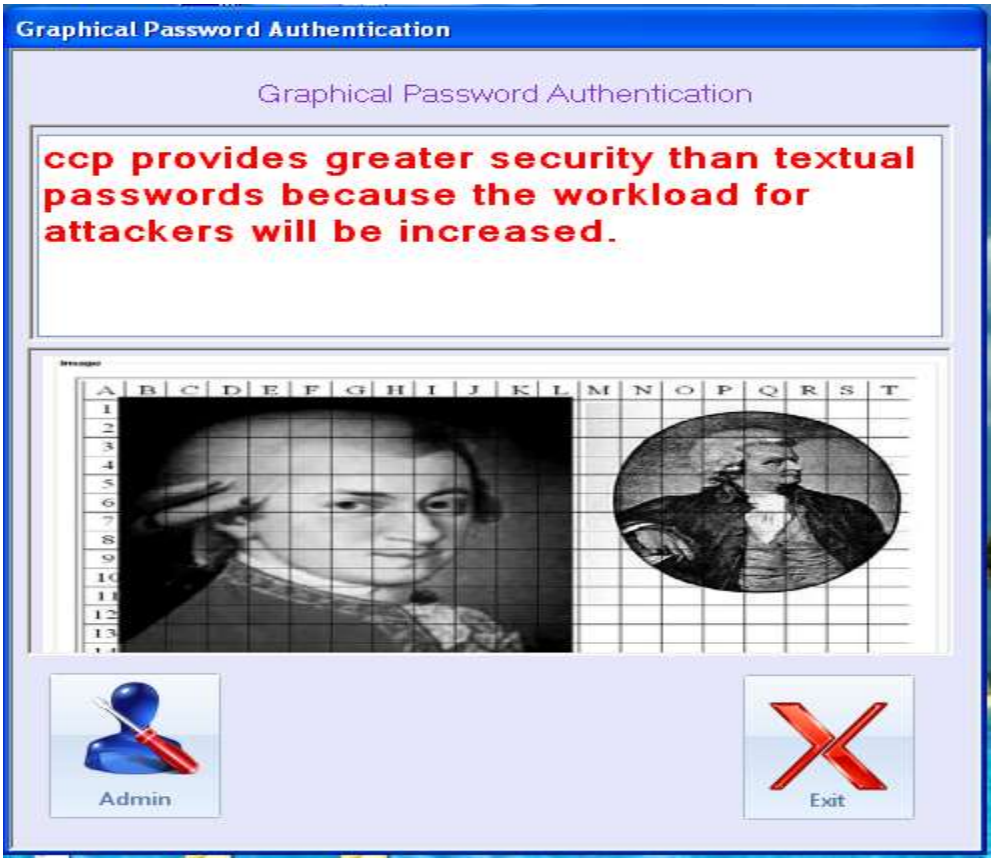

Due to this, the accountant is responsible for keeping records and making billing of various Motors while cashier is responsible for making payment to the customer. So, by keeping the two section separately the company prevents from fraud if an accountant make any. Because as accountant has authority of making billing section only and not to provide payments to the customer and the employee. This example of division of authority are design to avoid the operational risk factor. In cloud computing environment the user ties to uses effective and efficient services provided by the cloud with some of specific function. Data generated while using these services is then stored on the storage cloud service. This study related to the business model provides division as per the responsibility for data storages and data encryption or decryption. To illustrate the concept of separate encryption and decryption consider the example of CRM cloud service, storage and encryption or decryption. In cloud computing, CRM application can be replaced with some other services ex.ERP cloud service, account software cloud services etc. In this manner these three cloud can put separately for insuring security. The interesting point is that the SaaS provider the dose not stored the unencrypted user data. This ensure security and privacy to the user and reduces discloses of the data. Because when the user requests for encrypt or decrypt of the data to the encryption or decryption as service, and when all this process conversion completes and then handled it CRM application. After this overall process completes at that time, the encryption or decryption service must delete all encrypted and decrypted user data. In addition to this, data storage and decryption of user data works independently. This means that those working with data storage cloud system will have no access to decrypted user data. In short here we are just dividing and separating the encryption or decryption cloud service from the storage as service. For enhancing the security and privacy in an organization, the concept of dividing authority is applied in business management. If the user had decided to provided access to some of the operator of an organization to decrypt the data while some of them will work on storage service only. So, it's up to user for deciding the concept of dividing the authority.

3.1 Appropriate access to data for data retrieval system

For this users access authorization process, we can use e-commerce or other services which have capabilities of securely verified the user registration, such as reply login verification, one time password etc. Upon authentication

of the user and satisfaction of any criteria set out in the access delegation, then only CRM service system accepts any kind of request from the user. After the user logs into the CRM system, is the CRM receive request for client information, it will execute a data Retrieval program. In the data retrieval system, one the user logging has been successfully verified, the CRM will access the user request for the data retrieval. Every user associated to an organization has its own user ID. This entity helps to know about the user data in the storage cloud system. The CRM will proceed the user request to the storage service system, where user data are stored in to the encrypted form. So these data is not readable by the user.[2]

3.2 Appropriate access to data for data storage system

The data storage system methodology is exactly opposite to the data retrieval. Here this process is also conducted in three main steps. The user will first of all do login. Unless and until user verification is confirmed the CRM cloud service will not proceed further. After successfully login the user will firstly send the request for storing data to be stored to the CRM system. Later CRM will forward the user request with user Id to the Separate Encryption and Decryption cloud service provider. Now the data is in decrypted form. So in separate encryption and decryption cloud service provider the decrypted data gets converted into encrypted form. The user Id is very important while encrypting or decrypting the data as this cloud service provider mainly serve multiple user. So that unique user Id is stored with the keys on the same place. So this user Id is later used as an identifier to get the decrypted data key. This key is also stored on the same cloud which will later help while decrypting data whenever user required. After this the Encryption or decryption cloud service provider will sent the encrypted data to the Storage cloud service. The encryption and decryption cloud service had no authority to store the data either in the encrypted form or decrypted form on the same cloud service. So this cloud automatically deletes the data after sending it to its proper designation. This will increase the data security. After data send to the Storage Cloud Service, here the data is stored in the encrypted form along with the user Id. This will help in future to identify and differentiate among the data of multiple users. Finally this Storage Cloud Service Provider will send request to user that the data is stored in the encrypted form. After sending confirmed request of data stored in the encrypted form to user then only the Separate Encryption and Decryption [4,5,6] Cloud Service Provider will delete the data which is stored there as on temporary process for encrypting or decrypting data for completing the data storage process will delete the data. This would help in reduce the risk factor of getting data hacked due to some unauthorized persons. Thus the data storage process is completed successfully.

4. CONCLUSIONS

To ensure the correctness of users data in cloud data storage, I proposed an effective and flexible graphics based password. I believe that data storage security in Cloud Computing, an area full of challenges and of paramount importance, is still in its infancy now, and many research problems are yet to be identified. There are several security challenges including security aspects. There believes that due to the complexity of the cloud, it will be difficult to achieve end-to-end security. So security issues for cloud are important. These issues include storage security, data security, network security and application security. The main goal is to securely store and manage data that is not controlled by the owner of the data. Then there is focused on specific aspects of cloud computing. This kind of structured security will also be able to improve customer satisfaction to a great extent and will attract more investors in this cloud computation concept for industrial as well as future research farms.

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