INFORMATION EXCHANGE FRAMEWORK TO ENHANCE CLOUD STORAGE SAFETY IN THE PERIOD OF MASSIVE DATA

1 Mr. A. SANDEEP, 2 C. DEEKSHITHA REDDY, 3 CH. DEEKSHITHA

4 A. SAGARIKA, 5 CH. NANESH

1Assistant Professor, Department of CSE, Sri Indu College of Engineering and Technology-Hyderabad

2345Under Graduate, Department of CSE, Sri Indu College of Engineering and Technology-Hyderabad

ABSTRACT

The Title refers to "A Framework for information exchange to improve the cloud storage safety in the era of massive data.Cloud computing is a new computing model, in which all resource on Internet form a cloud resource pool and can be allocated to different applications and services dynamically.In contrast to traditional solutions, cloud provider stores the shared data in the large data centers outside the trust domain of the data owner, which may trigger the problem of data confidentiality. This paper proposes a secret sharing group key management protocol (SSGK) to protect the communication process and shared data from unauthorized access. Different from the prior works, a group key is used to encrypt the shared data and a secret sharing scheme is used to distribute the group key in SSGK. The extensive security and performance analyses indicate that our protocol highly minimizes the security and privacy risks of sharing data in cloud storage and saves about 12% of storage space.

Keywords: **Cloud and Big Data, Data Security**

INTRODUCTION

The emerging technologies about big data such as Cloud Computing , Business Intelligence, Data Mining , Industrial Information Integration Engineering(IIIE) and Internet-of-Things have opened a new era for future Enterprise Systems(ES) . Cloud computing is a new computing model, in which all resource on Internet form a cloud resource pool and can be allocated to different applications and services dynamically. Compared with traditional distribute system, a considerable amount of investment saved and it brings exceptional elasticity, scalability and efficiency for task execution. By utilizing Cloud Computing services, the numerous enterprise investments in building and maintaining a supercomputing or grid computing environment for smart applications can be effectively reduced. Despite these advantages, security requirements dramatically rise when storing personal identifiable on cloud environment . This raise regulatory compliance issues since migrate the sensitive data from federate domain to distribute domain. To take the benefit enabled by big data technologies, security and privacy issues, must be addressed firstly. Building security mechanism for cloud storage is not an easy task. Because shared data on the cloud is outside the control domain of legitimate participants, making the shared data usable upon the demand of the legitimate users should be solved. Additionally, increasing number of parties, devices and applications involved in the cloud leads to the explosive growth of numbers of access points, which makes it more difficult to take proper access control. Lastly, shared data on the cloud are vulnerable to lost or

incorrectly modified by the cloud provider or network attackers. Protecting shared data from unauthorized deletion, modification and fabrication is a difficult task. Conventionally, there are two separate methods to promote the security of sharing system. One is access control , in which only authorized user recorded in the access control table has the access privilege of the shared data. The other method is group key management in which a group key is used to protect the shared data. Although access control makes the data only be accessed by legitimate participants, it cannot protect the attack from cloud providers. In the existing group key sharing systems, the group key is generally managed by an independent third party. Such methods assume that the third party is always honest. However, the assumption is not always real especially in the environment of cloud storage. To address the security problem of sharing data on the cloud storage, a secret sharing group key management protocol is proposed in the paper and the following means are taken by our protocol to help detect or prevent frauds.

Firstly, in order to make the shared data usable upon demand by the legitimate users, symmetric encryption algorithms are used to encrypt the shared data. Once one data owner wants to share data with others, the decryption key is distributed to the legitimate sharers by the data owner. Secondly, the key used to decrypt the shared data controls the access permission for shared data. Asymmetric encryption algorithms are used to encrypt the interactive message and makes only legitimate participants have the ability to decrypt the key. Thirdly, in case of shared data being known by unauthorized users, this protocol uses secret sharing scheme to assign key to the legitimate participants. By adding security mechanism to conventional service oriented clouds, we obtain a security aware cloud and guarantee the privacy of data sharing on cloud storage. Building security mechanism on cloud storage may accelerate the deployment of a cloud in mission critical business scenario.

LITERATURE SURVEY

This paper describes the use of email addresses as an authentication mechanism forpublic access servers. Intended for untrusted and low-risk environments, this mechanism provides reasonable security at very low cost to both user and server administrator. In particular, the initialand subsequent registrations are totally automated, and problem detection/resolution is highly automated. Keywords: security, authentication, email reception, email address Introduction In this paper, I describe the use of email reception as an authentication mechanism for public access servers, such as email- and Web-based servers in untrusted and low-risk environments [DoD]. Even the simplest implementation provides security that is significantly better than trust and requires significant power to crack. Despite its security limitations, this type of authentication should be attractive for a large percentage of servers that are now currently trust-based. In particular, thesystem administration cost...

With the tremendous growth of cloud computing and Internet-scale online services, massive geographically distributed infrastructures have been deployed to meet the increasing demand, resulting in significant monetary expenditure and environmental pollution caused by energy consumption. In this paper, we investigate how to minimize the long-term energy cost of dynamic Internet-scale systems by fully exploiting the energy efficiency in geographic diversity and variation over time. To this end, we formulate a stochastic optimization problem by considering the fundamental uncertainties of Internet-scale systems, such as the dynamic

data. We develop a dynamic request mapping algorithm to solve the formulated problem, which balances the tradeoff between energy cost and delay performance.

Our designed algorithmmakes real-time decisions based on current queue backlogs and system states, and does not require any knowledge of stochastic job arrivals and service rates caused by dynamic data queries. We formally prove the optimality of our approach. Extensive trace-driven simulations verify our theoretical analysis and demonstrate that our algorithm outperforms the baseline strategies with respect to system cost, queue backlogs, and delay.

There is increasing need for agencies to coordinate their interdependent risk assessment, risk management, and risk communication activities in compliance with risk program guidelines. In particular, there is a challenge to measure risk program compliance and maturity to guidelines such as the U.S. Office of Management and Budget (OMB) memorandum "Updated Principles for Risk Analysis" among others. This paper demonstrates a systemic approach to evaluate large-scale risk program maturity with utilization of business process modeling and self- assessment methods. This approach will be helpful to agencies implementing risk guidelines such as those of the OMB, the U.S. Government Accountability Office, the U.S. Department of Homeland Security, the U.S. Department of Defense, and others. This paper will be of interest to risk managers, agencies, and risk and safety analysts engaged in the conception, implementation, and evaluation of risk and safety programs.

SYSTEM ANALYSIS

EXISTING SYSTEM

The traditional solution cloud provider stores shared data in large data centers outside the domain of the data owner. This leads to data confidentiality.

Disadvantages

- Massive Data cannot work effectively in traditional method.
- The attribute-based techniques are failed to protect user attribute..

Proposed System

The main contributions are as follows:

- To address the security problem of sharing data on cloud storage.
- Once one data owner wants to share data with others; decryption key is generated by data owner.
- Secret sharing key management protocol (SSGK) helps to detect or prevent frauds.

ADVANTAGES:

- Symmetric & Asymmetric encryption algorithms used.
- If shared data is known by un authorized users.
- This protocol uses secret sharing scheme to assign key to legitimate user.

IMPLEMENTATION

MODULE DESCRIPTION

1. Data Owner

Defines the access policy and encrypts its data with a symmetric encryption Algorithm using a group key. The group members who satisfied the access policy constitute a sharing group. Then secret sharing scheme is used by the owner to distribute the encryption keyto the sharing group

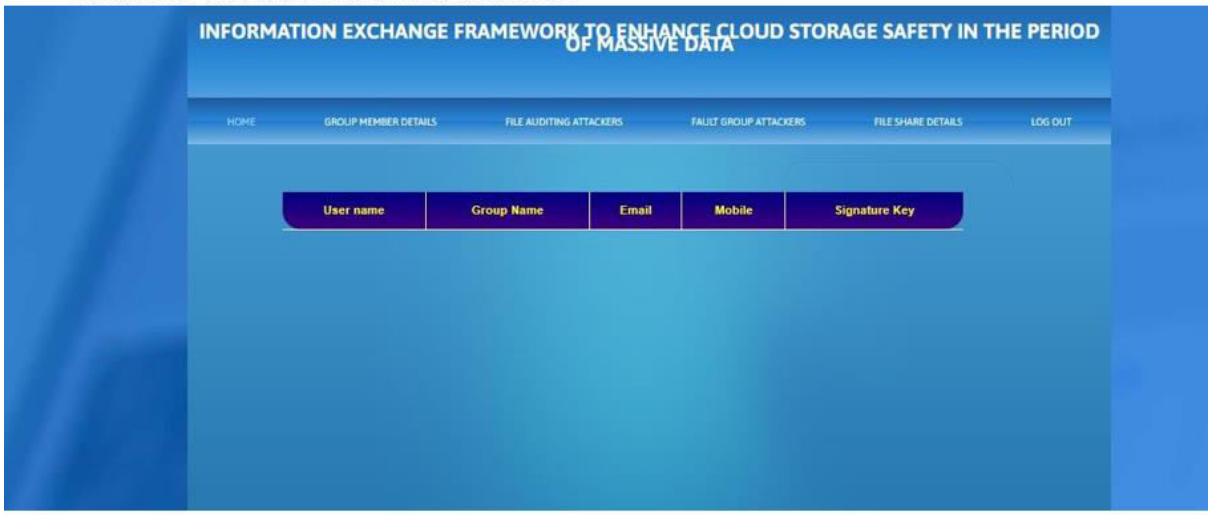
2. Group Member

In every group member including the data owner is assigned with a unique and a pair of keys.The group members can freely get any interested encrypted data from the public cloud.However the user can decrypt the data if and only if it gets the data decryption key from thedata owner.

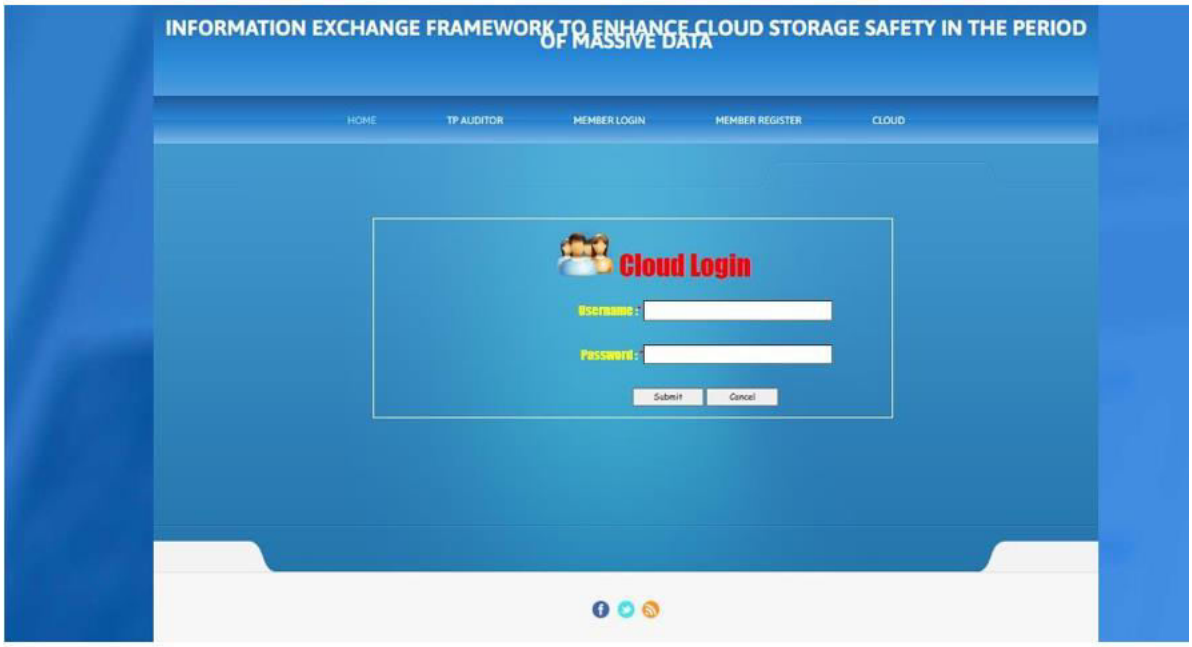
3. Cloud Provider:

Provides a public platform for data owners to store and share their encrypted data. The cloud provider doesn't conduct data access control for owners. The encrypted data can be downloaded

RESULTS



HOME SCREEN



CLOUD LOGIN

MEMBER REGISTRATION PAGE

CONCLUSION

In this paper, we propose a novel group key management protocol for the data sharing in the cloud storage.In SSGK, we uses RSA and verifed secret sharing to make the data owner achieve _ne- grained control over the out sourced data without relying on any third party. In addition, we give detailed analysis of possible attacks and corresponding defenses, which demonstrates that GKMP is secure under weaker assumptions. Moreover we demonstrate that our protocol exhibits less storage and computing complexity .Security mechanism in our scheme guarantees the privacy of grids data in cloud storage. Encryption secures the transmission on the public

channel; verified security scheme make the grids data only accessed by authorized parties. The better performance in terms of storage and computation make our scheme more practical. The problem of forward and backward security in group key management may require some additions to our protocol .An efficient dynamic mechanism of group members remains as future work.

FUTURE SCOPE

The future scope for information exchange frameworks to enhance cloud storage safety in the period of massive data projects is very promising. As the volume of data stored in the cloud continues to grow, so too does the need for secure and efficient ways to exchange information.

One way to improve the safety of cloud storage is to use encryption to protect data at rest and in transit. However, encryption can also make it difficult to exchange data securely. One way to address this challenge is to use a key management system (KMS) to manage encryption keys. A KMS provides a secure way to store and distribute encryption keys, and it can also be used to automate the encryption and decryption process.

Another way to improve the safety of cloud storage is to use a data loss prevention (DLP) solution. A DLP solution can help to identify and protect sensitive data stored in the cloud. For example, a DLP solution can be used to prevent users from uploading sensitive data to the cloud, or from sharing sensitive data with unauthorized users.

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