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Research paper



An Enhanced Distributed Accountability for Data Sharing in the Cloud Computing Technologies

Komuravelly Sudheer Kumar[1]*, K Ravi Chythanya[2], N Vijay Kumar[3], Vahini Siruvoru[4]

[1,2,3,4]*Department of Computer Science and Engineering, S R Engineering College, Warangal Urban, Telangana, India*
**Corresponding author E-mail: gmail.com*

Abstract

In the fast growing world the cloud services benefit the humankind in several ways to ease the processing of a distance computers to communicate and storage. Having several advantages there are few chances of losing control their individual data became tuff job to the cloud service providers. To alleviate this, in this paper there is implementation of data accountability scheme that regularly track the data in the cloud of every user with the help of JAR file system for providing user authenticity. However every user can upload their individual data to cloud and can obtain one account on their own which supports the encrypted format and when the user requires his/her data.

Keywords: *CSP; CIA; Data Sharing; Distributed Accountability*

1. Introduction

Cloud is a place where each and every user can store the data without worrying about data loss. Because of virtualize each and every system stores data in different places with user authenticity. Finally to say that operating system that server operating system is running on server one over here now through the power of virtualization through the power of cloud computing. Let's say the power supply in this first server fails it just fails it dies well through virtualization what will happen is the audit of the operating system automatically transfers to the next server in this little cluster. So if this hard drive fails the operating system and everything just migrates over and everything that is operates could hang up for a while for rebooting. Cloud computing probably the first thing we are thinking about is about virtual computer computers people we know think virtual computers equals the desktops in [1-5], so virtual computers is a component of cloud computing but cloud computing encompasses a lot more different types of technologies.

The cloud storage system is taken under consideration as associate degree outsize scale distributed storage system that consists of the numerous freelance storage servers [14]. So today we're going to deal with the web applications we're going to be talking about database clusters we're going to be talking about terminal services we're going to talk about application servers we're going to that every single database in these servers in this cluster contain the same information now this is very important because what's going to happen is when somebody let's say from the internet is coming to Access database off of one of these clusters they will simply hit the cluster the cluster figures out which server. It must be directed to so let's say a lot of users are trying this computer right here already has enough connections the hardware is already being spiked out it can't deal with any more connections.

As per our previous discussions to solve user's problem there is urgency of implementing a novel mechanism that can monitor the usage of user's data flow in the particular cloud. The great remedy to this is the Cloud Information Accountability (CIA) where it can enable usage control, access control as well as the authentication. JAR (Java Archives) files are used in the CIA framework. User can set at all access policy for their data in the JAR files and inevitably log the usage of user data.

The main contributions and organization of this paper are summarized as follows: In section 2 we describe background details of the cloud mechanisms. The section 3 proposed framework. The section 4 results and discussion. Finally in section 5 we concluded the paper.

2. Background work

2.1 Challenges and issues in cloud computing

Information security and Data privacy: Security and privacy concerns are the worrying factors of businesses adopting the cloud computing. The important data resides outside the company firewall leads to natural concerns as multiple attacks and hacking to cloud computing infrastructure and this will affect all customers regardless of single site attack.
Interoperability and Portability between providers: Cloud has the capability of migrating the services and switching between the providers at any time they want, so that it will never had lock-in period and also user services have the capacity to integrate easily with on premise IT.
Lack of Executive Support: In cloud computing, business needs to get senior executive support and this is one big challenge in IT. Lack of support leads to unnecessary worries, more over the business can only win when there is proper executive support as they are experts in understanding business issues and goals.
Loss of Control: Cloud computing provides one of the important services like centralized data storage. However other services like Data, applications, resources, and security policies are located and maintained by the service providers [6-10], As the data is handed over to third party service providers for managing and storing the data; consumer have no control on neither entry/exit outlet points

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nor physical infrastructure that can be trapped, deleted, misused or theft.

Vendor Lock-in: Vendor lock-in creates main difficulty in adopting cloud computing and makes a company dependent on a vendor for product and services for some period of time and unable to use another vendor or add technologies from new vendors, without switching cost or substantial penalties.

Availability and Reliability: High availability is a challenge that many organizations are trying to manage. It represents the idea of everywhere and every time access to cloud data, tools and services. Availability is always correlates with reliability, and this is the service on 24 hours by 7 days' timeframe, but goes frequently offline is worthless.

Lack of Skills, Knowledge and Expertise: Lack of the necessary resources (knowledge and skills) and expertise is one among the tremendous challenges in cloud computing. Currently, there are limited cloud skills within the IT marketplace. Although managers suggest hiring certified or well experienced storage experts, a severe lack of such skills in the marketplace is leads managers to resort often to internal placement and this may restrict the growth of information storage and management functions [11-13]. So that educating staff about tool sets and new processes, or recruiting staff those are having new skills, may be required.

Performance and Bandwidth Cost: To manage the available bandwidth and effectively distribute it among various Cloud Applications users is a very critical issue to avoid the network bottleneck and network resources misuse. In regard, this is the main criterion for performance and evaluation. That means in case of low bandwidth performance also low.

Vendor Transparency: The data and applications in the cloud are stored in a location that is managed, maintained and separated externally to the organization. So that there is always a frustration among cloud services users over the usage and degree of transparency they are able to obtain from existing and potential service providers. Therefore, it is essential for cloud providers to implement and establish adequate security practices to protect the data and processes put under their supervision. The policies, procedures, standards and controls should be clear, but no need to reveal the actual technologies used.

Proper usability: To maintain consistency among various cloud services those are purchased from multiple vendors there is urgency for rising cloud usability standards. Loss of consistency will influence the actual price of the application to the industry.

Migration issues: Migration is the method of moving information, data and applications from a Company's onsite computers to cloud, or transferring them from one cloud premises to other is called as cloud–to-cloud migration. From company to cloud migration of information leads to high risks, so that it must handle thoroughly. To overcome this, currently there is urgency for developing migration standards that incorporate well with the present IT infrastructure.

Cost assessment: In cloud computing services like scalability and on-demand makes the assessment of cost difficult. The cloud customer can choose services by pay-as-you go like packages, but over usage of a service for a little time period may consume budget of overtime period.

Load Balancing: In cloud computing load balancing is the method of distributing computing resources and workloads across one or more servers. By this kind of distribution it achieves maximum throughput in minimum response time. But due to dynamic changes in workloads and on-demand nature of cloud computing makes it difficult to efficiently manage the applications and allocating resources.

Quality of service: Due to cloud service usage is increasing, the quality of service (QoS) of cloud computing has become suspect and there are many open challenges related to trust in cloud services. So cloud applications facing the challenge of Quality-of-Service (QoS) maintenance, which is the issue of assigning resources to an application to promise a service level with quality of service parameters.

3. Proposed framework

CIA framework proposed in this paper resolves above problems and accomplish all obligations.

There are two noteworthy segments of the CIA, first is the logger, and second is the log harmonizer. The logger is gets downloaded with the information when client get to the information, and it get duplicated at whatever point the information is replicated. Logger monitors each duplicate of the client's information and keeps up logging access to that duplicate. The log harmonizer is the part which helps the client to get to the log documents made by the logger.

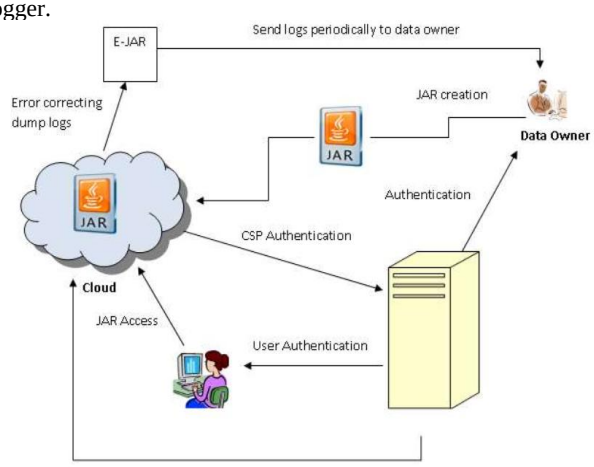


Fig.1: system framework model

1. Creation of Jar with the assistance of RSA key.
2. Constructing a reliable Jar Access.
3. Obtaining Authentication request to the cloud service Provider (CSP)
4. To the request of Authentication request in return CSP will provide the authentication response.
5. After the proper response from the CSP the improved encrypted logging can be completed successfully.
6. Next task to generate the Certificate Revocation List (CRL)

There by its verification will completed by the suitable certificate authorities.

4. Results and discussion

The algorithm was simulated on java jdk tool its screenshots are shown as:

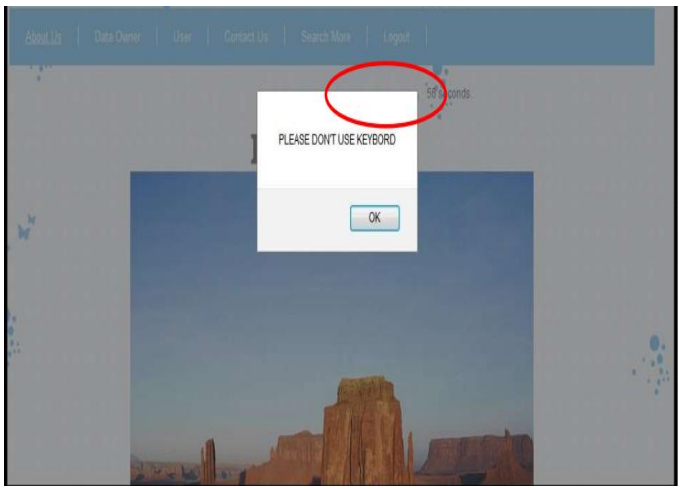


Fig.2: Copying Attack

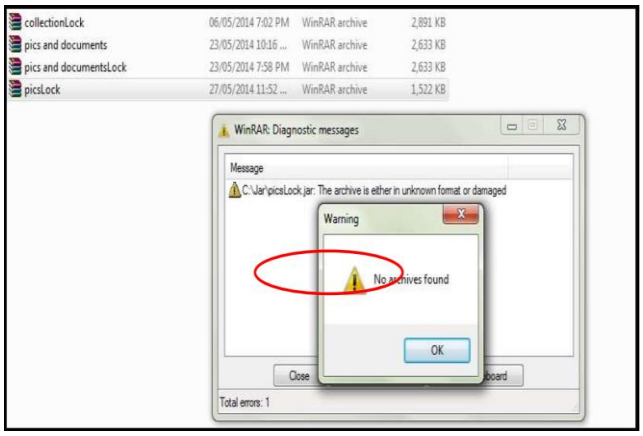


Fig.3: Disassembling Attack

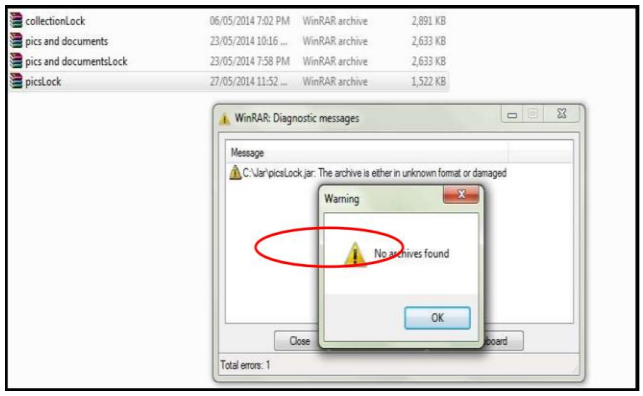


Fig.4: Man-in-Middle Attack

5. Conclusion

Some protection problems and their countermeasures are mentioned in this paper. It has several models to defend its data for the enterprise customers. A company used personal clouds within its organization to prevent from lack of data. Security in cloud computing consists of security abilities of net browsers and internet provider shape. We also discussed the cloud data accountability framework for data sharing inside the cloud. We have completed Distributed responsibility as according to the privilege level of users, which is absent in the existing machine. We have efficaciously applied "https "protocol.

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