A Secured Cost-effective Multi-Cloud Storage in Cloud Computing and Availability

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Abstract- **As in this paper we have proposed a cloud data storage redefines the security issues and targeted on customer's outsourced data (data that is not stored/retrieved from the costumers own servers). In this project we came to know, from a customer's point of view, relying upon a solo Service Provider (SP) for his outsourced data is not very promising. In this we have proposed security as well as availability in this there are data divided into parts store on different providers the data which is divided is also store on backup servers so if the data could not get retrieve from main server can be retrieved from the backup server so it ensures availability and as data is divided into parts it is secured and whole data could not be changed or retrieved by someone else.**

Keywords- **Cloud Computing, Security, Storage, Cost-effective, Cloud Service Provider, Customer.**

I. INTRODUCTION

Cloud computing becomes the boom invention of today's internet world. Through in this technology users can consume services at any time as per their needs. Before cloud computing, user have to buy individual or costly software, hardware resources but now it become easy to access the services on demand over the network. It facilitates the user to access shared resources, common infrastructure or database resources, for as long as they need, without thinking about the cost and maintenance of resources. It also provides facilities for consumer to develop and manage their own applications over the cloud, which enhance the concept of virtualization of resources. Through virtualization the resources are managed itself.

The best example of cloud computing is Google docs where any document can be accessed using a browser and it can be shared on thousands of computer through Internet.

In cloud computing, subscribers have to pay the service providers for this storage service. This service does not only provides flexibility and scalability for the data storage, it also provide customers with the benefit of paying only for the amount of data they need to store for a particular period of time, without any concerns for efficient storage mechanisms and maintainability issues with large amounts of data storage. In addition to these benefits, customers can easily access their data from any geographical region where the Cloud Service Provider's network or Internet can be accessed

II. EXISTING SYSTEM

The cloud is a term for a group of servers offering a service. So if your storing your data in the cloud, it means you have signed up for a service that allows you to remotely store and retrieve your data. You don't have to worry about the maintaining of hardware/software. The major issue regarding cloud computing is that, the data will be stored on a physical server somewhere. And you never know, the person at the other end, used your data for any malicious purposes or not. Though you do have to trust for third party to secure your data.

III. PROBLEM STATEMENT

Privacy preservation and data integrity are two of the most critical security issues related to user data. In conventional paradigm, the organizations had the physical possession of their data and hence have an ease of implementing better data security policies. But in case of cloud computing, the data is stored on an autonomous business party that provides data storage as a subscription service. The users have to trust the cloud Service Provider (SP) with security of their data. In, the author discussed the criticality of the privacy issues in cloud computing, and pointed out that obtaining information from a third party is much easier than from the creator himself. Following the pattern of paradigm shift, the security policies also evolved

from the conventional cryptographic schemes applied in centralized and distributed data storage, for enabling the data privacy.

IV. PROPOSED SYSTEM

As we seen above, the major issue in cloud computing is security of your data, from any unauthorized person. The main two motives of our system is make it secure and to ensure the availability. As we are dividing data into multiple chunks (or parts), and stored it on different servers, which have different physical locations. So no one can get the meaningful data unless the authenticated one. As we stored data with their backups so we can get the it from backup server if the actual server is suffering from any network issue.

V. SYSTEM REQUIREMENT

A) Hardware Components
B) Software Requirement

Table 1: Hardware Components

Hardware	Specification
System	Pentium IV 2.4 GHz & onwards.
Hard Disk	40 GB
Monitor	15 VGA Color
Mouse	USB
RAM	2 GB

A) **Software Requirement:**

Table 2: Software Requirements

Software	Specification
Operating System	Windows XPSP2 & onwards.
Language	Asp.net & C#.net.
Front End	visual studio 2010
Back End (Data Base)	Sql server 2008
Browser	Any.

VI. Non-Functional Requirements

A. Performance requirements

1. Number of Users that can simultaneously use application:

Large no of people can use the various systems simultaneously. Distribution of data on various

systems will increase efficiency of the whole system and hence increasing its performance.

2. Amount of information to be handled :

A large no. of information can be handled simultaneously with great efficiency and security. Efficiency can be increased if data's are distributed on various systems and less no. of systems are required to retrieve the data.

B. Safety requirements

The database may get crashed at any of the failure of the server. Therefore it is required to take the database backup. Safety can be achieved by distributing the data on various systems so that information can be retrieved by authenticated person.

C. Security Requirements

When security requirements are considered at all during the system life cycle, they tend to be general lists of security features such as password protection, firewalls, virus detection tools, and the like. For security purpose, user must enter the correct user name and password so that no one can misuse anyone's crucial data. After entering correct username and password, user can access the uploaded information.

D. Software quality Attributes:

The quality of our system is maintained in such a way that it provides: Quality will be accessed only in terms of the following metrics:

Functionality:

You can point out the errors in the .net source code as it has to be compiled into .cs file.

Code and design quality:

It is very important. Reviews give you a chance to suggest better ways of doing it, whatever it is, and to discuss potential issues with the way the code has been written.

- **Code Standardization:**
  To ensure that your basic coding standards have been meet, reviews will catch the issues that need human eyes to find.
- **Effectiveness:**
  It proves to be very effective as it provides checking for the following things:
  On demand service, recourse pooling, heterogeneous network access, data availability, security.

- **Understandability:**
  The tool does not require any additional knowledge .it is quite easy to understand.
- **Maintainability:**
  It is easy to maintain information about users using sql server.
- **Portability:**
  The software is easily transferred from one environment to another(this includes the organizational, hardware or software environment).

VII. System Description

Cloud data storage redefines the security issues targeted on customer's outsourced data (data that is not stored/retrieved from the costumers own servers). In this work we observed that, from a customer's point of view, relying upon a solo SP for his outsourced data is not very promising. In addition, providing better privacy as well as ensuring data availability can be achieved by dividing the user's data block into data pieces and distributing them among the available SPs in such a way that no less than a threshold number of SPs can take part in successful retrieval of the whole data block from a customer's point of view, relying upon a solo SP for his outsourced data is not very promising so cost effective and   better privacy as well as ensuring data availability can be achieved by dividing the user's data block into data pieces and distributing them among the available SPs in such a way that no less than a threshold number of SPs can take part in successful retrieval of the whole data block.

VIII. Product Perspective

In cloud computing while storing the data, the biggest danger is of loss of data. If server on which data is stored goes down, the data will be lost, to avoid data loss the data is divided and then stored on various servers, and same data pieces are kept on other servers, so that whenever one of the server goes down we can have that data piece from another server. And while storing data on cloud, if users data contains more pictures and if his data is less important the he should choose the single server system to store his data. Suppose user's data is divided in 3 pieces a, b, c.   His data will be stored on cloud1 and same 3 pieces on cloud2. If he chooses single server system whole data will be stored on single server.
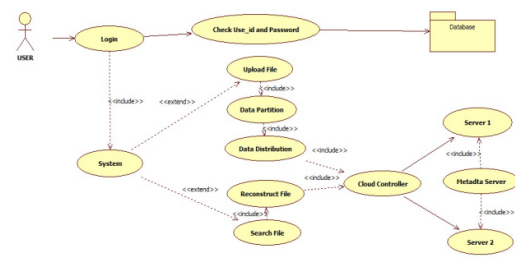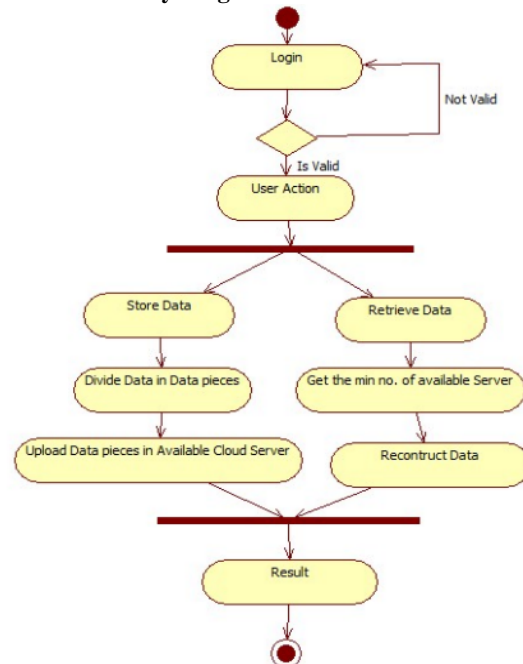
IX. Different Diagrams:
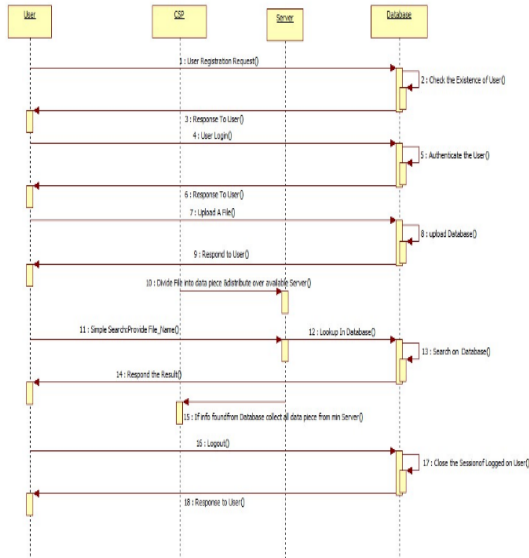
Data Flow Diagrams

A. Level 1 DFD:
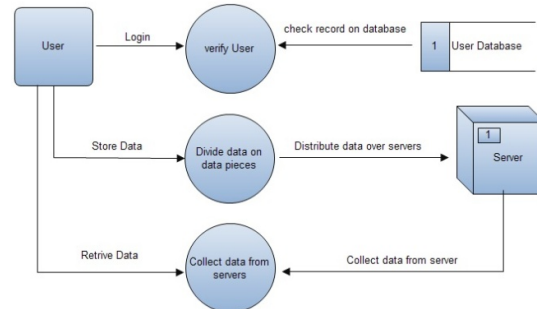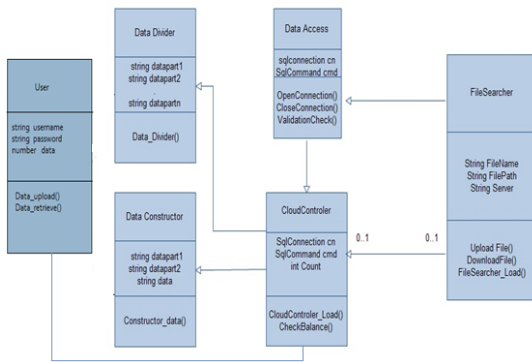

B. Use Case Diagram:

C. Activity Diagram:

D. Sequence Diagram:

Description

User ->user registration request than it itself check for existence of Use And than user login to system authentication is done and upload a file and divide the data into data pieces and than searching the file to which you want to access . lastly logout process is done.

D.   Class Diagram:

X.   Conclusion and Future Scope

Conclusion:

In this project, we proposed a secured cost-effective multi-cloud storage (SCMCS) in cloud computing, which seeks to provide each customer with a better cloud data storage decision, taking into consideration the user budget as well as providing him with the best quality of service (Security and availability of data) offered by available cloud service providers. By dividing and distributing customers data, our model has shown its ability of providing a customer with a secured storage under his affordable budget.

Future Scope:

For the future work ,this research should be extended by adding the ensuring the availability system in this project which in result of availability of data in case of failure of data retrieving process. And even the backup data server can fails so there is no cured mention for this. So this drawback can be covered in next future work of this project task.

References

[1] Yashaswi Singh, Farah Kandah, Weiyi Zhang "Secured cost effective multi-cloud data storage in cloud computing", IEEE INFOCOM WORKSHOP ON CLOUD COMPUTING-Dartment of Computer Science, North Dakota State University, Fargo, ND 58105 ,2011 , NO.05

[2] Rafael Moreno-Vozmediano, Ruben S. Montero, and Ignacio M. Llorente, ," Multicloud Deployment of Computing Clusters for Loosely Coupled MTC Applications", IEEEComputer Society, IEEE TRANSACTIONS ON PARALLEL AND DISTRIBUTED SYSTEMS, VOL. 22, JUNE 2011, NO. 6.

[3] P. S. Browne, "Dataprivacy and integrity: an overview", In Proceeding of SIGFIDET '71 Proceedings of the ACM SIGFIDET (now SIGMOD), 1971.

[4] A. Cavoukian, "Privacy in clouds", Identity in the Information Society, Dec 2008.

[5] J. Du, W. Wei, X. Gu, T. Yu, "RunTest: assuring integrity of dataflowprocessing in cloud computing infrastructures", In Proceedings of the 5th ACM Symposium on Information, Computer and Communications Security (ASIACCS '10), ACM, New York, NY, USA, 293-304,2010.

[6]S. H. Shin, K. Kobara, "Towards secure cloud storage", Demo for CloudCom2010,VOL 02, Dec 2010.

[8] N. Gruschka, M. Jensen, "Attack surfaces: A taxonomy for attacks on cloud services", Cloud Computing (CLOUD), 2010 IEEE 3rd International Conference on, 5-10 July 2010.

[9] R. Gellman, "Privacy in the clouds: Risks to privacy and confidentiality from cloud computing", Prepared for the World Privacy Forum, online at http://www.worldprivacyforum.org/pdf/WPF Cloud Privacy Report.pdf,Feb 2009.

[10] W. Itani, A. Kayssi, A. Chehab, "Privacy as a Service:Privacy-Aware Data Storage and Processing in Cloud Computing Architectures," 8th IEEE International Conference on Dependable, Autonomic and Secure Computing, Dec 2009.

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