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ENSURING BIG DATA STORAGE SECURITY IN CLOUD COMPUTING

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Abstract: *Cloud computing is considered as important in the enterprise of IT's next generation. The traditional solutions in the IT involved controls of the logical and physical personnel, but with the cloud computing it would involve databases and software of application leading to big data centers that the managements operation there would not be trusted fully. However, such a special attribute would contain various security challenges that are not understood and comprehended fully. Here, there is focus on the security of the cloud data storage as it was considered as a very significant part of the quality of service provided. To make sure that the data of users in the cloud in correctly stored, a scheme that is efficient and flexible is suggested containing two new features that are nonexistent in the previous ones. The utilization of the homomorphic tokens alongside verifying the file data of erasure-coded nature, would allow our scheme to provide insurance in storing correctly, in addition to the localization of data errors. That is, locating servers that are misbehaving. Those two features would provide support that is effective and secure regarding the data blocks, which means data appending, deletion and updating.*

Keywords: *Cloud computing, IT, Big data, Data storage security*

I. INTRODUCTION

Various trends have available in the cloud computing era as it is a development, which is internet based and one which includes the implementations of the technologies of the computers. When attempting to transfer the data to a cloud, an opportunity would be provided which allows great comfort to various users since there is no need to worry regarding the management of the direct hardware [1].

When considering the security of the data which is often if not always considered to be of great importance when assessing the service provided, one must note that Cloud Computing contains an aspect which is very useful in dealing with the threats encountered in today's technological world for various reasons. many types of data which can be put to use by users in the cloud and to create a continuous assurance and safety for the users' data as this issue which is faced when verifying the degree of correctness of the data storage existent in the cloud would be more of a challenge. Furthermore, cloud computing is not regarded as a warehouse which is used for third party data [2].

The data which is saved in the cloud would get updated continuously by specific users which include various operations such as reordering, appending, modification, in addition to deletion and insertion and many others; in order to make sure that the storage. existent in the dynamic data is updated as this is considered as an element of great magnitude. With that being said, this feature of dynamic nature can offer an integrity insurance procedure which can satisfy and fulfill requirements by proving various solutions and services. Moreover, the implementation of the Cloud Computing would have to power using the data centers which often are operated simultaneously and in a very distributed and cooperated way [3]. This data which belongs to various users would ultimately be saved redundantly in various physical locations in order to lower the threats which the data may face, this is why the protocols and procedures which are distributed in order to properly store data would prove to be the best way which can aid in the achievement of a secure and robust cloud data all over the world where storage is safe and secure [4].

The consistency and accuracy in the operation of storing data when any other alternative is nonexistent between two records or files which are updates has come to be known as Data integrity, since a cloud service will be able to offer users with a high level of security and integrity to ensure privacy. Though outsourcing data would be considered more economical due to the cost and how complicated the data storage can be, it still is unable to provide and ensure users with a strong integrity of data and availability. These would explain as to why various individuals and corporations do not adopt such a service [5].

The project focus on cloud data storage security that has been an important aspect of quality of service

II. EXISTING SYSTEM

The traditional cryptographic which is used to protect the data by providing security but this cannot be easily adapted by users for the sole purpose of the fact that they may lose control over their data when is placed in a cloud computing. This would be very important which is to consider the data storage and verify it properly as it must be evaluated with no prior explicit knowledge of the data. As one should and must consider the many types of data which can be stored by users in the cloud and to create a continuous assurance and safety for the users' data as this issue which is faced when verifying the degree of correctness of the data storage existent in the cloud would be more of a challenge

III. PROPOSED SYSTEM

In proposed system, a flexible and efficient scheme of distribution containing data support that is dynamic is provided, in order to make sure that the data of users is stored correctly in the cloud. A reliance on the erasure proper code existent in the distribution preparation of the

file in order to make sure the data is dependable and redundancies are provided. Such construction would lower the storage and communication overhead a lot when compared to the file distribution methods that are replication based and traditional.

IV. BACKGROUND

Cloud computing would represent a shift which has occurred recently for the computer structure and its provision in order to outsource the storage and the computations demand and services in addition to requirements to be used to fully manage such infrastructure. This would contain surely security threats which are challenging for various reasons [6].

V. SYSTEM REQUIREMENT

(a) Hardware Requirements

- Personal computer (512 MB RAM, Pentium IV, 40GB Hard Disk).

(b) Software requirements

- Windows 10
- JAVA
- Tool Used: Wamp server, NetBeans

VI. SYSTEM DESIGN

Systems design is the process of defining the architecture, modules, interfaces, and data for a system to satisfy specified requirements of users. The logical design of a system pertains to an abstract representation of the data flows, ER diagrams, inputs and outputs of the system.

Data Flow Diagram is a simple graphical formalism that can be used to represent a system in terms of the input data to the system, various processing carried out on these data, and the output data is generated by the system

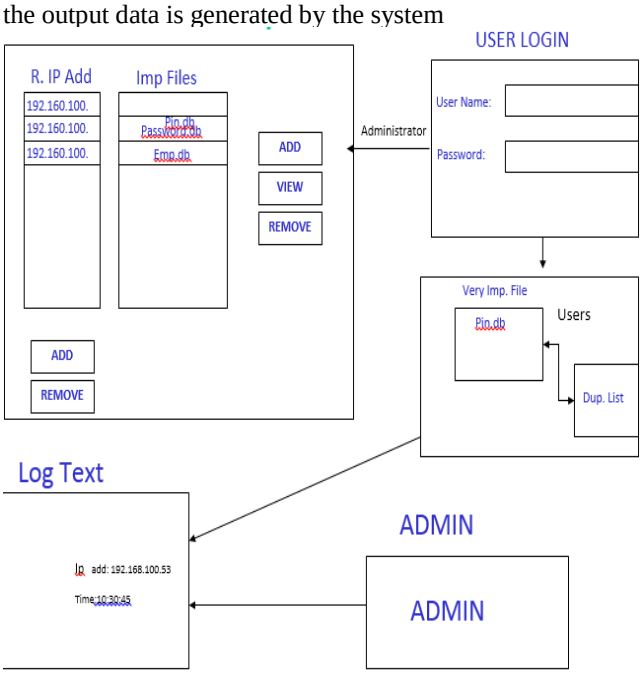

Fig 1: Cloud Server Data Security Architecture Diagram

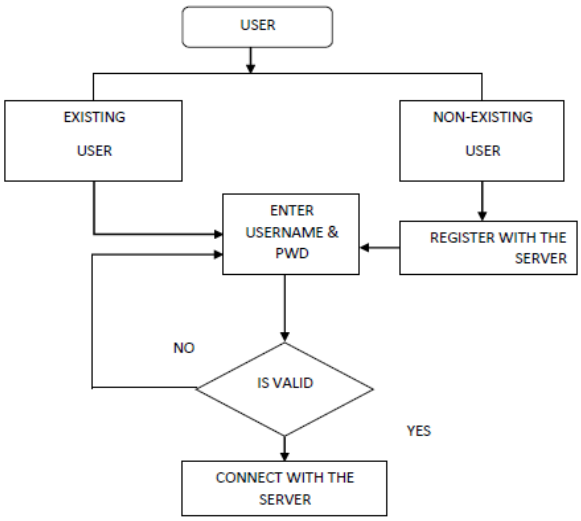

Fig 2. DFD Client

UML is a general-purpose, developmental, modeling languagein the field of software engineering, that is intended to provide a standard way to visualize the design of a system. UML offers a way to visualize a system's architectural blueprints in a diagram.

A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.

USE CASE DIAGRAM

A use case is a set of scenarios that describing an interaction between a user and a system. A use case diagram displays the relationship among actors and use cases. As shown in figure 2 in the use case diagram there are two actors administrator and user, the diagram shows how each actor will interact with the system.

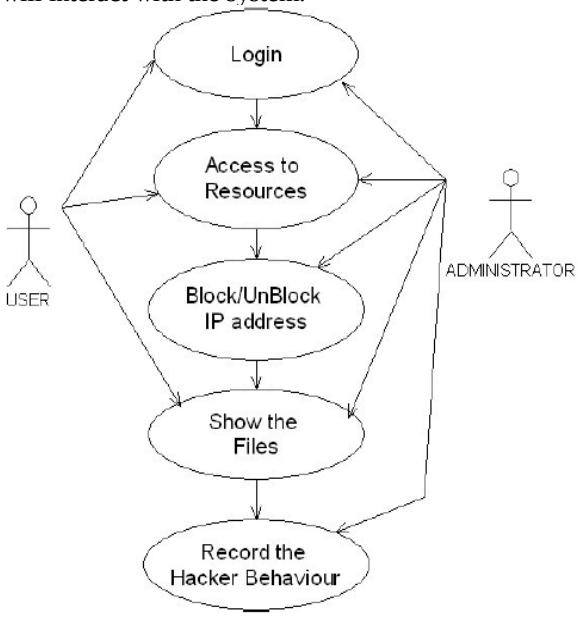

Fig 3: Use case diagram of BIG DATA STORAGE system

The other Structural and Behavioral UML diagrams are also made for the BIG DATA STORAGE before final implementation step

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VII. SYSTEM IMPLEMENTATION

System Implementation uses the structure created during system design and the results of system analysis to construct system elements that meet the stakeholder requirements and system requirements developed in the early life cycle phases. These system elements are then integrated to form intermediate aggregates.

The Wamp Server software was downloaded in order to create cloud database to be used in this project. Then, Wamp Server includes several applications in order to make PC as wep server. The implementation of this project includes two part; server to receive file and client to upload file. Fig 3 represents the main interface of system the complete system.

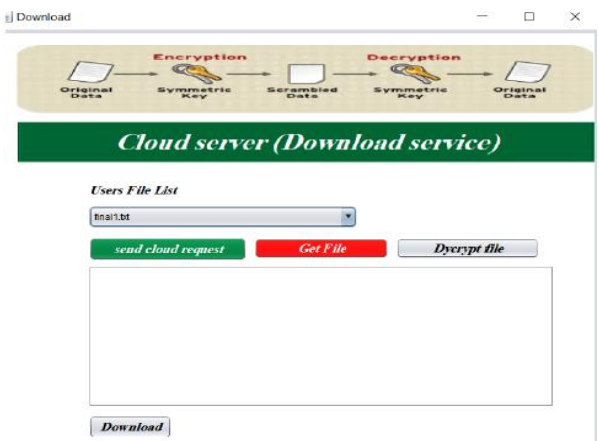
Fig 4: Home interface

Then, login interface will appear where function of this interface is to read database. If the user hasn't username and password, registration process is required.

The design steps are implemented with JAVA code and system is build.

VIII. SYSTEM TESTING AND RESULTS

Software testing techniques include the process of executing a program or application with the intent of finding software bugs (errors or other defects). Once the source code has been generated the software must be tested to uncover an many error as possible before delivery to customer. Unit testing and integration testing is comprehensively done for EDMS. The Black box testing and white box testing approach is used in testing process. The system build is run after all errors are corrected. Some output screen results are shown in the figures below.



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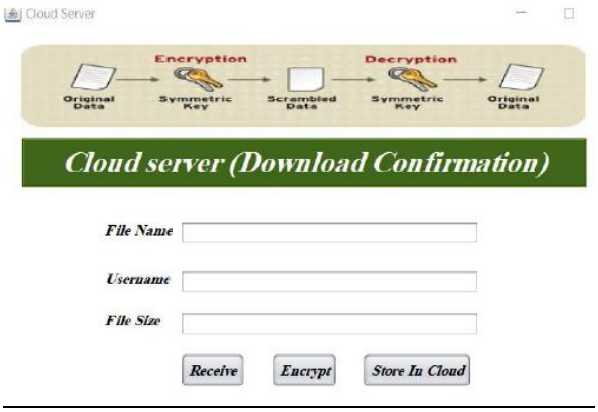

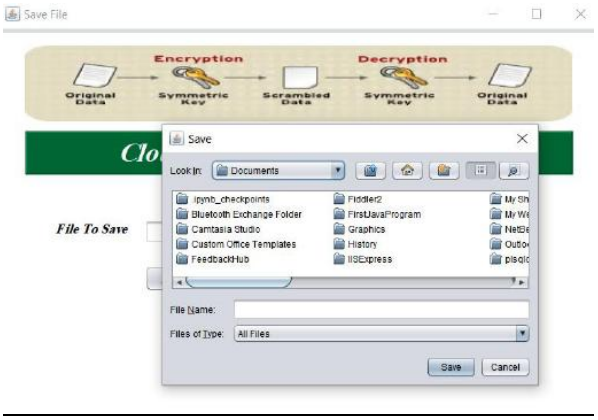

Fig 4 : ENSURING BIG DATA STORAGE SECURITY IN CLOUD COMPUTING Output screens

IX. CONCLUSIONS

In the project, the issue of data security regarding the cloud storage is being conducted, as it is important in a storage system that is distributed. All this to make sure that the data of user's is correct. We have suggested a scheme of distribution that is flexible and effective in order to make sure the data is dependable and that redundant parity vectors is provided.

The security of data storage in the Cloud computing would be full of challenges leading to great importance as it is still in its beginnings and requires various issues to be located in order to be improved, therefore needed various directions for future research regarding this matter. The best one would be the model that enforces public verifiability as it would support the TPA in auditing the data storage of the cloud with no time needed, or resources wasted

X. REFERENCES

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