CHAPTER – VI

CONCLUSION AND FUTURE ENHANCEMENTS

6.1 SUMMARY OF FINDINGS

Since computing machines are grown large in number and communication networks increases numerous, the computational mechanisms and required data have been scattered in distributed frame work. Hence the paradigm of distributed computing emerges with new dimensions and techniques. Recently such kind of computing namely cloud computing emerged a key contributor to the distributive arena. It offers various kind of services and layers that minimizes the computational workloads and processing time. While various kinds of services are being offered by a cloud vendor, it is appropriate to enhance the functionalities of the cloud with value added services. In this thesis, such kind of value added services namely brokerage has been focused and with the help of brokerage concept, the cloud service vendor functionalities have been further simplified and client applications can easily identify the desired services in a federated cloud environment. Though the concept of brokerage is a well established one, in this thesis we have advocated the brokerage model in a cloud environment their by certain value added services such as user authentication, data displacement, partitioning data in a multiple data centers have been included.

An extensive literature survey exposed in the second chapter claims the validity of the proposed work also it discusses the brokerage concept to the inclusion of internal and external brokering. While designing a broker, it is always to create an intermediate trusted third party with designated roles and responsibilities accordingly aggregation and integration are the prime roles of the Trusted Third Party since the vendors of the cloud often enters in a federated cloud environment. Besides the above factors data security in the cloud data centre has been focused with respect to the brokerage concept. Accordingly the extended broker performs data displacement strategies and secured data movement among various cloud data centers is being provisioned under certain security settings.
A model of credential service has been included in our research work which includes the following functionalities i) The user must request the authentication key from the Trusted Third Party, ii) The Trusted Third Party generates the security key using One Time Password model for the particular user, iii) The TTP shares the security key to the user as well as the Cloud Service Provider, iv) The user then starts the authentication to CSP with the key which is shared by the TTP, v) The CSP verifies the security key and allow the user to access the data centers for its required work for the current session, vi) and made the accountability about the transaction of the user and forward it to the data owner. There are various benefits provided by the proposed model that includes i) Enhanced Security, ii) New Data Displacement Strategies, iii) User oriented Service Level Agreement and iv) Improving the quality of service.

The proposed model utilizes the concept of OTP Generation system. OTP model plays an important role in the banking system to prove the authentication of the user. It is a proven model that works well in securing the customer from unauthorized user’s access. Hence we have advocated an OTP model in accessing data stored in a data centre as a service of credential. To strengthen the proposal, the intelligent broker based services have been further extended with the focus of data movement among various cloud data centre. To identify optimal data movement strategies, the advantage of partitioning has been taken into the consideration and thus vertical partitioning based data displacement is included. For any such cloud data centre based data displacement procedure, software tools that simulate the required environment is needed. Hence cloudsim has been designated for simulating the cloud environment for the proposal adopted. The various view layers (prototypes) shown in the thesis claim the novelty and validity of our work.

The experimental investigation shows that the vertical partitioning algorithm based on one time password generation for a federated cloud environment scores optimal user satisfaction and usability. The proposed algorithm scores various parameters such as high efficiency, high throughput, desirable obtainment of Qos parameters and Service Level Agreements. In the next section, we have listed various promising research directions from our end.
6.2 FUTURE WORK

In our work we have assumed that user feedback is the prime criteria for attaining desired SLA. It meant in terms of various parameters which are static in nature.

Usually users SLA agreements need undergone dynamic changes, therefore such dynamic SLAs are to be dealt differently and certain new kinds of SLAs fulfillment strategies are to be followed.

Data retrieval is being concerned with respect to availability of number of data centers in a cloud environment. Irretrievability is being often regularized and affected if more data centers stores and operate data. Hence efficient and optimal strategies and algorithms to be drawn for further effectiveness.

These are all the proposals that to be further extended as future enhancement of the thesis.