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CLOUD BASE DATABASE SYSTEM FOR CLOUD COMPUTING

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ABSTRACT

Cloud computing is basically a technology which uses internet and central database server to maintain data and applications effectively. It is independent of location,with the help of cloud computing customer do not need to buy all resources from any vendor . Customer can use resources if they are free or pay basis, by this customer can save money and time. Example of cloud is ymail, gmail, hotmail etc. Cloud is for all customers not only for some big companies or enterprises. In cloud computing environment all the data, resources, applications programs are distributed over network and can be access on demand. In this paper we describe the database system of cloud storage. We describe the master slave architecture and paxos architecture of cloud database storage system.

I INTRODUCTION

Cloud computing provide a way to share distributed resources and services over the network. Cloud computing share resources and services in open environment so there are many security problems related to its security. If we are working in our computer we have full control over our data but on the other hand if we are working in cloud computing environment services, data maintances are providing by another party and user are not unaware of where all processes are running and where all his data are store in the network[1]. The vendor has to provide some security architecture for securing these data in the network or over the internet. Vendors use many schemes to secure distributed information to maintain scalability and reliability for accessing the data in the cloud. But there are so many issues related to security of data.

Cloud computing is used for covalently on demand access of shared resources. Cloud computing merges technology, platform for hosting and storage service over internet. The main aim of the cloud computing is to provide scalability and reliability. cloud computing provide inexpensive and on demand resource sharing.

1.1 Principles of Cloud Computing

The principle behind cloud computing that make it more cost effective, flexible and easy for user are:

Resource pooling: in cloud computing many servers and data storage devices are used economically. Vendors computing resources are pooled for various users. They are assigned and released according to user demand.

Virtualization: user need not worry about physical state of their hardware.

Elasticity: addition of more space and data replication can be done if user wants.

Resource Deployment: the user of cloud can set configuration and specification of resource and provider set them automatically.

Metered billing: users charged according to use.

1.2 Types of cloud computing providers

The cloud service provider provide their services to user by SPI model. SPI refers to software as a service(SaaS), plat form as a service(PaaS) and infrastructure as a service(IaaS)[2].

II ROLE OF SERVERS IN CLOUD

Servers play a very important role in the cloud computing. They act as backbone of cloud computing. The cloud computing servers offered some knowledge of configuration that are same across all service providers.

III CLOUD STORAGE

Cloud storage companies follow a three layer architecture, front end, storage logical layer and back end.

Front end: The front end is for communication between user and servers. Cloud storage service can be used by application programming interface(API) or application that support API such as cloud storage gateway. A cloud storage gateway is a server which is present on client side and translate cloud storage API . they enhance the cloud storage, lower monthly charges and diminish data security[3].

Storage logic layer: it control all cloud storage activities. It have features like administrative procedures regarding reliability and availability.

Back end: it works on actual implementation of storage of data with protocols. It works on cost effectiveness and increasing storage capacity.

In cloud storage model data is stored in digital form, this data is stored in logical pools. Physical storage includes multiple storage on many locations[4]. These are called servers, which are owned by hosting companies. These are also called providers, they are responsible for data security, accessibility, availability. Users can buy these applications, can lease storage capacity, and use on pay basis.

Cloud storage is composed of virtualized infrastructure. cloud computing can be accessed from off premises or on premises. Cloud database provider have multiple database architecture having different level of consistency ,costs and latency[5]. According to needs customer can choose from these database. Two different architectures which are used by service providers are – Master/Slave architecture and architecture based on Paxos algorithm.

In the master/slave architecture when a user send write delete request to the server, database server acts as master and request goes to master database server. Then master server check its database and update it and asynchronously

update in other slaves database servers also. Master/slave architecture have small write/delete cpu time, lower write/delete latency and strong query consistency.

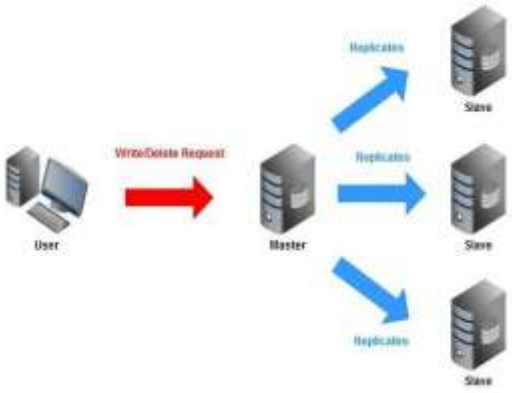

Figure: 1

Figure: 2

In paxos architecture, when a user send a request, it is accepted by network of several data base servers. Then all these databases check their own database and communicate with each other about users request. Paxos architecture purpose better reliability and availability.

There are some consideration which we have take in mind when choosing a cloud base database. Such as

Portability: when client use cloud they transfer their data into cloud. The organizations who use their data inform of relational database portability is must[6].

Reliability and availability: database which uses replication high reliability and availability is important.

Scalability: because of scalability many companies uses cloud based database because cloud base db provide more scalable than traditional db.

Programming environment: we have to keep in mind which architecture have to choose, what database use to built upon and programming environment use for database. There are different database for different languages.

IV SECURITY RISKS

There are many security risks also in using cloud computing. Some of features of cloud computing have risk assessment such as privacy of user data, recovery of data, data integrity.

Data protection: data protection refers to protection of data from encryption, access methods. Because of unsecure models many unauthorized user can access data store in cloud.

Data isolation: cloud storage system does not uses separate storage and different resources for different clients. the mechanism use for resource isolation is also not secure.

Data sanitization: the removal of data from device when it is not in use. Such as when a device failure occur and we throw away device without sanitization.When a user left a cloud the data store in\cloud is not deleted. This can make a problem because of data isolation mechanism[7]. Other clients can assess this data after your termination.

Data loss and recovery : cloud provider shoud care of data and store data at more than more server. If data is lost data restoring process should be fault proof.

V CONCLUSION

The overview of two architectures gives us a better understanding that why some database use by cloud providers are more costly than other or why some database are more consistent than other.

REFERENCES

[1] M. joshi and Y.S. Mudgil, Secure cloud storage, International Journal of Computer Science & Communication Networks,Vol 1(2), ISSN:2249-5789 Oct-Nov 2011 172 171-175.

[2] K.Govinda, V.Gurunathaprasad, H.Sathishkumar, Third Party Auditing For Secure Data Storage In Cloud Through Digital Signature Using Rsa, International Journal Of Advanced Scientific And Technical Research ISSUE 2, VOLUME 4-August 2012

[3] A. Malik, M. M. Nazir, Security Framework for Cloud Computing Environment: A Review, Journal of Emerging Trends in Computing and Information Sciences, 2012.

[4] G. Ateniese, S. Kamara, and J. Katz. Proofs of storage from homomorphic identification protocols. In To appear in Advances in Cryptology - ASIACRYPT '09, Lecture Notes in Computer Science. Springer, 2009.

[5] M. Luis.Vaquero,Luis R. Merino, Jua, critical areas of focus in cloud computing. Technical report, Cloud Security Alliance, April 2009.

[6] D. Song, D. Wagner, and A. Perrig, Practical techniques for searching on encrypted data, In IEEE Symposium on Research in Security and Privacy, IEEE Computer Society, 2000,44-55.

[7] M. zhou, R. Zhang, W. Xie, W. Qian, A. Zhou, Security and privacy in cloud computing : a survey, 2010 6th international conference on semantics, knowledge and grids DOI 10.1109/SKG.2010.19 ,105-112.

[8] R.Gellman ‘Privacy in the Clouds: Risks to Privacy and Confidentiality from Cloud Computing’, www.worldprivacyforum.org/pdf/WPF Cloud Privacy Report.pdf, 2009.

[9] W.T. Lai, H. Trancong, S. Goh ‘A fresh graduate’s guide to Software development tools and technology’,chapter 1,cloud computing,1-27.