

VARIOUS ASPECTS FOR DATA MIGRATION IN CLOUD COMPUTING AND RELATED REVIEWS

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Abstract- Cloud computing systems are deployed, which represents a real shift in the way. Cloud computing systems, are having the massive scale popularization of the Internet and was able to develop some large service companies. Cloud computing is a pay-as- you-go, infinitely scalable, ubiquitous computing systems, with the possible utility makes long-held dream. With cloud computing, you too can start small and grow very fast. That's why it's built on. technology is evolutionary, even though cloud computing is revolutionary. The resources are limitless virtual and physical systems on which the software runs out of the details of the user that is different from that perception. In the current paper we are going to present problems of data migrations in cloud computing and also present different reviews of cloud computing.

Keywords- Cloud Computing, Data Migration, Virtual Machine Migration.

I. INTRODUCTION

Cloud computing technology and services takes them on the Internet and turns into a self-service utility that applications are similar. The term "cloud" makes reference to the use of two essential concepts

• **Abstraction:** Cloud computing users and developers to abstract the details of the system implementation. Applications that run on physical systems are not specified that means the data is stored in unknown locations others outsource the administration of the system, and users ubiquitous access.

• **Virtualization:** Cloud computing resources are virtualized by pooling and sharing system. A centralized infrastructure can be provisioned as the systems needs and storage costs, enabling multi-tenancy is assessed on a metered basis, and resources are scalable with agility. Computing as a utility industry itself dates from the beginning of a dream. Computing is a set of new technologies for more efficient and economical to grow along with the need to enable an on-demand system that has come along.

Data Migration is the method to make a copy of data processing without disrupting or disabling a device or system to process. After the transfer of data, processing uses the new device or system. A smooth transfer process has to be done in a controlled environment so efficiently by assuring data integrity, consistency, reduce downtime, and security as well.

II. ESSENTIAL CHARACTERISTICS OF CLOUD COMPUTING

As described above, the relationship and difference from traditional computing, we explains the 5 essential characteristics of cloud computing.

- *On-demand-self-service*
A user can unilaterally supplies computing capabilities,

such as server time and network storage, as needed automatically without requiring human interaction with each service provider.

- *Broad Network Access*

It has capabilities that are available over the network and accessed through standard mechanisms i.e. mobile phones, tablets, PCs, and computer terminal.

- *Resource Pooling*

Different virtual and physical resources are dynamically provided by computing resources based on consumer demand, which are entrusted with using a multi-tenant model that many consumers are pooled to serve.

- *Rapid Elasticity*

Service provisions are made quickly and with even more flexibility.

- *Measured Service*

Cloud Computing systems automatically control and optimizes resource usage by providing a metering capability to the type of services that is storage, processing, bandwidth, or live user accounts.

III. DATA MIGRATION PROBLEM IN CLOUD COMPUTING

The problem of virtual machines migration has overcome by the use of replicated agent system. When we generate an agent system, it will generate extra over-load upon the group of servers. To reduce the over-loading of agents, we need to perform load balancing by performing data migration with replicated agents. Data transmission between client and server is not authenticated in any way, so to assure the data integrity and security the relevant data must be encrypted by a very strong algorithm.

We have overcome the above mentioned problem of virtual machine migration. Virtualization is a method to generate a virtual or replicated form of a device or resource that can be a server, storage device, any network or an operating system to unload a physical machine that is currently heavily loaded. It is the single most effective way to reduce IT expenses while boosting efficiency and agility as it run multiple OS and app on a single comp. migration is the ability to move VM from one physical server to another. The main challenge is to dynamically distribute the load from that overload physical machine to some other side by moving virtual machine to avoid bottlenecks in cloud computing system.

IV. PARAMETERS OF DATA MIGRATION

Migration- Virtual machines migration is moving a running virtual machine or an application between different physical machines without disconnecting the client or network of the virtual machine is transferred from the original host machine to the destination. The main advantage of this is getting very small (almost zero) downtime of hardly any milliseconds

Response Time:: It means the amount of interval of a specific load balancing algorithm takes to reply in a system that is facing situation as like overloading. It should be minimize in order to raise the system performance.

Fault Tolerance: This has the capability of load balancing algorithm to carry out uniform load balancing either in situation of failure of some arbitrary node or failure of network link.

Migration time: It is the time when one node gets overloaded then the the jobs or resources are transferred from one node to another node. It should be reduced in order to enhance the performance of the system.

Performance Goals in Migration:

- Migrating Virtual Machines helps in reducing the downtime.
- Load balancing and consolidation is possible.
- Reducing the network activity.

Load balancing- The objective of load balancing is to make better performance among network links, central processing units, disk drive to attain optimum resource utilization, maximum throughput, maximum response time, and avoiding overload and under load situations by balancing the load between several resources.

Goals of Load balancing:

- Performance is considerably increased.
- Provisions backup in case the system fails partially.
- To support system stability

V. RELATED WORK

We have studied various research papers which are as follows:-

1. Shu-Ching Wang, Kuo-Qin Yan, Wen-Pin Liao and Shun-Sheng Wang used towards a Load Balancing in a Three-level Cloud Computing Network in which he states that network bandwidth and hardware technology are developing rapidly and resulting in the dynamic development of the Internet. A new concept of cloud computing that uses low-power hosts to achieve high reliability. In which dynamically scalable and often virtualized resources are provided as a service over the Internet has become a significant issue. However, in this study the two-phased scheduling algorithm under a three-level cloud computing network is innovative. The offered scheduling algorithm combines OLB (Opportunistic Load Balancing) and LBMM (Load Balance Min-Min) scheduling algorithms that can utilize more better executing efficiency and maintain the load balancing of system in 2010,

2. Zhongyuan Lee, Ying Wang and Wen Zhou used A Dynamic Priority Scheduling Algorithm on Service Request Scheduling in Cloud Computing. In this paper we are addressing the problem regarding the service request scheduling in cloud-computing system. We are considering the three-tier cloud structure, which is consisted of resource or service providers and buyers. The service request scheduling strategies in this scenario should satisfy the objectives of the service providers and buyers. We are also offering a new strategy of dynamic priority scheduling algorithm (DPSA) to solve this problem and this algorithm is more efficient and optimal than the FCFS and SPSA in 2011,

3. HaozhengRen, YihuaLan and Chao Yin, gives The Load Balancing Algorithm in Cloud Computing Environment in which he states that with the increase of users and the types of application on the cloud computing platform, it becomes a critical problem that how to use the resources in the system effectively to ensure the service level agreement(SLA). This paper presents the idea of dynamic load balancing algorithm based on virtual machine migration under cloud computing environment. The strategy determines the timing of the virtual machine migration through forecasting the timing to determine the timing of the virtual machine migration, which can avoid the problem of the peak instantaneous load trigger. Finally, we test the system and the experimental results show that the algorithm can achieve load balancing and improve system performance in 2012,

4. Hsueh-Yi Chung, Che-Wei Chang, Hung-Chang Hsiao and Yu-Chang Chaogaves, The Load Rebalancing Problem in Distributed File Systems in which they said that Distributed file systems (DFS) are key building blocks for cloud computing applications based on the Map-Reduce programming paradigm. In such file systems, nodes simultaneously serve computing and storage functions; a file is partitioned into a number of chunks allocated in distinct nodes so that Map-Reduce tasks can be performed in parallel among the nodes. However, in a computing environment, the failure is normal and the

nodes may possibly be upgraded, replaced, and added up in the computing system. This results in load imbalance that is the file chunks are not been distributed in a uniform way in the nodes. In this paper, we are illustrating and defining the load rebalancing problem in cloud DFSs. We advocate file systems in clouds shall incorporate decentralized load rebalancing algorithms to eliminate the performance bottleneck and the single point of failure in **2012**,

5. Poonam Devi and Mr. Trilok Gabagives Implementation of Cloud Computing By Using Short Job Scheduling in which they told that "CLOUD COMPUTING" is one of the emerging research area that is been used effectively at the industry level. We are going to define the user request in the form of requirement query by using a new technology i.e. super-sensitive optical sensor (SSOS). It's foreground is to deliver a secure, quick, convenient data storage and computing service over the internet. In this paper we are discussing about cloud computing, also it's working, architecture, principle, different applications and future development of cloud computing in **7th July, 2013**

VI. CONCLUSION AND FUTURE WORK

Cloud computing technology is a new buzzword in the IT industry and has been coming to the world is a new horizon of hope. It is provided as a service over the Internet which is running dynamically scalable and over virtualized resources, which is a style of computing. In the current paper we have presented different aspects and pros cons of the cloud computing. We have also presented here the different reviews of different researcher and focus the problem of data migration in Cloud computing. These reviews further leads us idea to further research in cloud computing.

In future we will present agent based service for resolving the problem of data migration in cloud computing and the data security will be ensured by using the concept of AES.

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