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A REVIEW: VARIOUS TECHNIQUES OF DATA MIGRATION OVER A CLOUD SERVER

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Abstract - Cloud Computing is a new computing model that provides on demand business and IT services over the Internet. Cloud Computing also provides the computer resources like networks, server and storage on the requirement of the users. Data Migration is the procedure of moving data from one system to additional although storage, database or application is changed. In this paper, a study of the different cloud Deployment models and their characteristics, different data migration types over cloud network.

Keywords: Cloud Computing, Data Migration, Deployment Models, Migration Types.

I. INTRODUCTION

Cloud Computing is a technology without investing in new infrastructure facilities, training new or procuring new software. Cloud computing is on demand and internet based technology that provides services to clients. It provides anytime access for computer resources at any platform such as mobile phones, desktops etc. Users use the resources as a service and they had to pay only for that part they had used. Examples of cloud computing is Google, Microsoft, Gmail etc.

Cloud computing evolution can handle bulk amount of data as per on requirement service[1]. Cloud computing is a technological development widely accepted by organizations, educational institutions and individual users. It also provides more effective features using the centralization concept for storage, processing, bandwidth and memory [2]. Cloud has three service models:

IaaS is a model that provides computer resources such as h/w, n/w, OS etc to the users on their

demand. IaaS is combination of both public and private infrastructure. In PaaS only platform is provided to the user to develop their own s/w, coding and apps in cloud environment. For example:

Application server (Java, .Net framework) and Database server (My sql, oracle) which client will use to make their own applications. SaaS is available for users through internet and browsers.



Figure 1-Cloud Computing

Data migration is mainly used to change or upgrade servers or storage. In other words, data migration means moving of data from one place to another.

Features of Data Migration:

- I. Supporting all the major database platform and OS.
- II. Easy to use and create a log file.
- III. Easy to choose the order of dumping file.
- IV. Fastest and best way to reorganizing very large database.



CLOUD DEPLOYMENT MODELS

Cloud computing deployment models are :

- 1.Public Cloud
- 2.Private Cloud
- 3.Community Cloud
- 4.Hybrid Cloud.



Figure 2-Deployment model of cloud

1.Public cloud-Public cloud is available to general public. It is available for all the members having an Internet connection and access to cloud space. Public clouds are more unsafe than private clouds. A public cloud does not provide that user's data is accessible to all; dealers of public clouds provide an effective access control mechanism to ensure the integrity of data [3]. Examples of Public Cloud are : Google App Engine.

2.Private clouds- are available for a single group or organization. Access to private cloud's infrastructure is limited to that particular group or organization. This deployment model is implemented for an organization and is managed by either organization or third party [4]. Level of security is highest in private clouds. Example: Amazon Virtual Private Cloud etc. Characteristics of Private Cloud: [5]

I-Security: -Organization data is very crucial so it need to be secured from any misuse from the outsiders. Private cloud provide security against unauthorized access and hacking.

II-Dedicated Resources: -These are the resources which are allocated to a particular user in an organization.

III-Customization:Customization is a term used to define the change in clouds by clients according to their requirements.

3.Community clouds- are shared by several organizations having similar cloud requirements such as security concerns, policies and facilities etc. The cloud environment is managed or hosted by the organizations, or any third party vendors [6].

4.Hybrid cloud is combination of two or more clouds like private , community and public. It has features like Risk transfer and Flexibility.



Figure 3- Hybrid Cloud

II. LITERATURE SURVEY

Ms. Diva Agawam et.al 2012[7], talks about the server compatibility, according to them the age of the PC equipment's as a basic system node had been over, by the popularization of internet and the technology of embedded structure. There are kinds of embedded equipment's as system nodes, besides PC. Embedded equipment's have infiltrated to the grounds of modern Ethernet. If user has a permission to access Web server, he can refer the correlative information. That takings a great convenience for superintendent to manage and vindicate the equipment's. It's a challenge that how to access action over IP .

Zhipeng Tan et.al.,2013 [8] analyzed the problems of load balance caused by data access in parallel file systems and gives an accurate way to estimate the load of Data Servers. On the base of this evaluation, the paper proposes an adaptive loading data migration strategy to balance the load of data servers.

Chentao Wu et.al., 2012 [9] proposed a novel Stripe based Data Migration scheme for large scale storage organizations based on RAID-6 to realize higher scalability. SDM is a stripe level scheme, and the elementary idea of SDM is optimizing data activities according to the future parity layout, which diminishes the overhead of data migration and parity



modification. SDM structure also provides uniform data distribution, fast data lecturing and migration.

R SUCHITRA, 2012[10] provides their overview as Server merging of virtual machines is very much vital in a cloud environment for energy conservation and cost cutting. Consolidation can be attained through live relocation of virtual machines. We propose a modified been packing procedure for Server Consolidation that evades unnecessary migrations and minimizes the instantiation of new physical waiters. We implement ideas after the First Fit algorithm (decreasing strategy) for live migration of virtual machines. We have replicated our algorithm using java with several test cases. The proposed system consequently results in Server Consolidation through minimal migration.

Koong Wah Yan et.al., 2013 [11] based on involvement in migrating data for a Malaysia government intervention, which involves approximately 1 billion rows of data from 31 heterogeneous sources or systems. Some of the data migrated was twisted in the seventies for which the business logic has since been greater or changed. The challenge is further difficult by available data being from proprietary databases that are non-RDMS compliance and includes data that was manually continued in Microsoft Excel spread sheets.

Zhipeng Tan et.al., 2013 [12] analyzed the problems of load balance caused by data access in parallel file systems and gives an accurate way to estimate the load of Data Servers. On the base of this evaluation, the paper proposes an adaptive loading data migration strategy to balance the load of data servers.

III. DATA MIGRATION OVERVIEW

Data Migration is a important element for moving the information from old system to new system. Terms used in Data Migration:

Legacy data – Legacy data be defined as information in current storage system which consists text files ,scanned images etc. All type of data can be migrated to new system.

Data migration- It is a process of moving legacy data from one system to new system. The data can entered manually, disks can moved from one place to other and by using other methods. The particular method used for moving legacy data transfer depends upon the system and nature and state of data being moved.

Data cleansing- Data cleansing is the process that prepare legacy data to move. The data being migrated does not fulfill the requirements of the new system where the data is to be moved. It is a process that makes the legacy data ready to be moved. It refines, manipulates, updates or cleans the legacy data so that it fulfills all the requirements of new system.

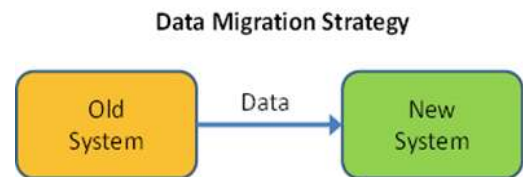


Figure No-4 Data Migration

IV. MIGRATION TYPES

Data Migration means to move the data from one location to another. There are four major migration types are:

Storage Migration: It is the type of migration in which physical media is used by the business people to take the advantage of efficient storage technologies. It is the process of movement of physical blocks of data from one tape to other or from one disk to other . There is very little change in the moved data. Sometimes there is no change in data during its movement.

Database Migration: Data migration is necessary to transfer or upgrade the version of database s/w from one database dealer to other. Data migration requires major changes but in case of storage migration require less physical data. In this physical transfer of data can take place but during transmission data can change . But the behavior of dat in application layer can change and can not be. It depends upon the data manipulation language or protocol.

Application migration: Application migration is the process of changing the application dealer. It is the process of transfer of confidential data that executes only on its own or private platform or model and only interacts with other apps within the organization environment. For selling this s/w in the market the packages are defined for each customer using metadata.

Business process Migration:



It is defined by using business management tools. It executes through a combination of application system actions and user. During this transfer the change effect the organization and customer. In this the data is transferred from one database or application to other. Business migration examples are acquirement and business optimization.

V. CONCLUSION

Data transfer in cloud computing is a term used to transfer or move data from one place to another. Data migration is a tough scheme with the high level of risk. The transfer of data with accuracy is the biggest challenge in cloud computing. There are several techniques used for data migration. In this paper, we have studied cloud computing, data migration and the types of data migration. Based upon this study we will introduce a new data migration algorithm that will improve the accuracy and minimize the error rate of data transfer.

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