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A SURVEY PAPER ON CLOUD COMPUTING

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ABSTRACT

As today's computational world is becoming more complex cloud computing help us to maintain the large volume of data by its own resources like storage, databases and networking. Cloud is a lot bigger than network computing where in network computingapplication is been hosted in a single company's server but according to cloud everything is been hosted in a multiple companies servers. The data's which is been hosted in cloud can be accessed from anywhere by using a constant internet connection. Cloud computing brings a major change in how we store and retrieve information and run an application. Cloud is been used by many of the IT professional for its unlimited storage capacity. Cloud is been maintained by many of the giant companies like Amazon, Google, Microsoft etc., In this paper description about survey about cloud computing is given. In introduction the history of cloud and its explanation is described. Service model in cloud includes the Iaas, Paas, Saas is explained deployment of cloud, advantages and its disadvantages is discussed.

Keyword: cloud computing, service model, deployment model, advantages of cloud, disadvantages of cloud.

I. INTRODUCTION

Cloud computing is also termed as "internet computing" where its services such as storage, application and server is been provided to a server of any organization or in its devices through internet. Cloud computing dates to 1960s but it is mainly used from 2006 when a Google CEO Eric Schmidt introduced the term in industry conference. Cloud computing is also described as storing accessing and saving data, program or application in the internet instead of doing in pc. If the data is been stored in cloud there is no problem of losing the data because in cloud once the data is stored the several copy or the replication of our own data is been produced and it is been distributed to number of servers in cloud. The risk factor of using the cloud is security that is there is a change of an unauthorized person to access the data. Cloud has two main model development model and deployment model.

The deploymentmodel contains infrastructure as a service, platform as a service and software as a service. Deployment model contain public cloud private cloud and hybrid cloud. It also contains four layersthey are hardware layer, infrastructure layer, platform layer and application layer. By using all these services of cloud it also attracted many of the business organization. Cloud help to maintain and develop a healthy business by its

own services. Cloud contains many of the application such as CRM and SFA. These two plays a major role in sales.

There is also an application called collaborating on presentation which helps to attend an official presentation from anywhere in the world with the help of constant internet connection. Cloud also has many advantages as well as disadvantages. The advantages of cloud are lower-cost computers for users, improved performance, lower IT Infrastructure Costs, fewer maintenance issues lower software costs and instant software updates. The disadvantages of cloud are it require constant instant connection, can be slow, feature might be limited and stored data might not be secure. Cloud is also seemed as cost effective it is not necessary not purchases any hardware. As all the application is been available in cloud the required application can be used and that data can also save in it and can be shared it.

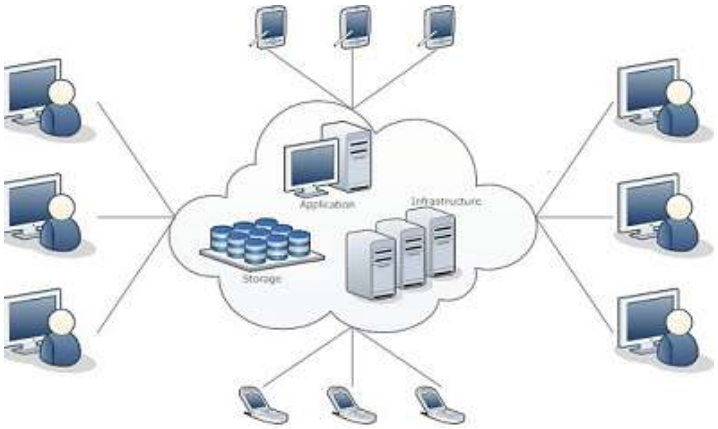
II. WHAT IS CLOUD COMPUTING?

In cloud computing there is no need to run your software programs on the personal computers rather stored on servers accessed with the help of the internet. The document stored in the cloud can be accessed by anyone and editing on those document can also been taking place where the changes will be reflected. Cloud computing is seemed to be user centric, task centric, powerful, accessible, Intelligent and also programmable.

III. WHAT ISN'T CLOUD COMPUTING?

Cloud computing is just different from the network computing. In the network computing application, documents are hosted on a single company's servers and accessed over the company's network cloud computing is different from that where all the documents and application can be accessed with the help of internet.

IV. WORKING OF CLOUD COMPUTING



The cloud is a massive network of servers or even individual pcs interconnected in a grid as shown in the above figure. Individual users connect to the cloud is seen as a single application device or document.

In a cloud it requires some intelligent management to connect all these computers together and assign task processing to multitudes of users.

V. COMPANY IN THE CLOUD

The most noticeable company currently embracing the cloud computing model is Google. Google offers a powerful collection of web based application all served via its cloud architecture. Google offers a cloud based word processing (GooglezAdocs), presentation software(Google presentation) email (Gmail) etc., other companies are Microsoft, amazon and IBM.

VI. MODELS OF CLOUD COMPUTING

Cloud mainly contains two models:

They are

- Service model
- Deployment model

6.1 SERVICE MODEL

Service model is based on three services which cloud provide

- Infrastructure as a service (IaaS)
- Platform as a service (PaaS)
- Software as a service (SaaS)

6.1.1 Infrastructure as a service (IaaS)

The Infrastructure as a service (IaaS)provides avirtualization support to cloud.Iaas providevirtualized computing resources over the internet. It helps the IT administrators to decide which cloud provider is right for their enterprise. Iaas is been used to get benefits of using public cloud services and also to decide the pros and corns of each cloud provider like Google amazon etc., Iaas model hosts the infrastructure components such as a servers, storage networking hardware also the virtualization layer.

Iaas customer accesses the resources by using the wide area network or internet. For eg: the user can log into the Iaas platform to create virtual machines. Install OS in Virtual Machine (VM) and deploy the database. Create the storage bucket for the ongoing workload and install the enterprise in that particular VM.

The entire service model in a cloud requires a support of a provider. The provider is often known as a third party. Here the provider include the AWS (Amazon web service) GCP (Google cloud platform), amazon E2, Go Grid and flexi scale. The physical resources using virtualization technologies such as KVM and VM ware are supported by IaaS.

The cloud owner who offers Iaas is called as an Iaas provider. There are many example of Iaas provider which includes Amazon EC2, Go Grid and flexi scale. The advantages of using the Iaas is it provides a best infrastructure and the organization need not buy any of the hardware or software. Iaas is easier faster and more cost efficient so the business will be faster. There is no need of buying it is just a concept of paying a rent for the

resource which we use. The e.g. of Iaas are simple storage service (S3) and Glacier, EC2 (elastic compute cloud) Google compute engine (GCE).

6.1.2 Software as a service (SaaS)

In SaaS the third party provider offers the application and helps them available in the internet. In cloud there is an availability of all the types of software and application if any of the cloud user is in need of software they can get that particular software in the cloud without paying. The users do not need to pay for the software instead they can pay for just using it. In general to get any type of software the user need to pay and get the software. This facility of providing the application is done by using the API (application programming interface). The user of cloud can access any of the application via API with the help of web.

Saas is very reasonable in cost. For customers it doesn't require any of the upfront investment in servers or software licensing. In according to application developers there is only one application which can maintain a multiple clients. For example by using the SaaS the own software tools can be made and then with the SaaS provider API the integration of those tools is done to the SaaS offering. Saas is also offered by Google by its customer's base.

6.1.3 Platform as a service (PaaS)

In PaaS the hardware or the software is been available in the internet for the users to develop an application.Platform as a service (Paas) is a second category in a service model. This Paas provide the Platform to the Cloud users which help them to develop, deploy, run and manage any of the application without facing any of the problem (or) Complexity about building (or) about maintain the application in the infrastructure typically associated with developing and launching an app.

To build an application or to create software the developed environment is offered as a service. To create the new application the developer uses the building blocks of a vendor which help to create an application easily. The building the application is made easier by using the predefined blocks of code. The different type of predefined code is been developed so the developer can select any of the required code and can develop an application.

Paas provide the users a computing platform which includes operating system, programming language and the execution environment, database and web server. Example of the PaaS is AWS elastic bean stalk, Google App Engine.

6.2 DEPLOYMENT MODEL

The deployment model of a cloud again been divided into the three types they are

- Public cloud
- Private cloud
- Hybrid cloud

6.2.1 Private cloud

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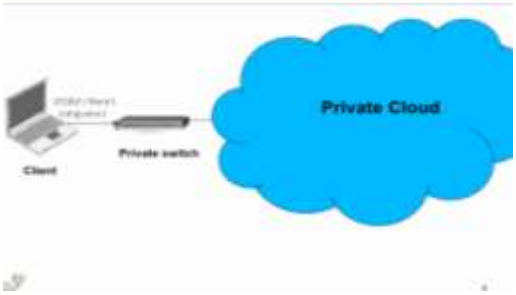

Fig 6.2.1

The private cloud is also called as an "Internal cloud". Private cloud helps to maintain the security. If the user want to use the services of the cloud only inside the company where the security plays a major role the private cloud is been used. If the customer is been maintaining any of the security in the company then there will be risk of security. So to maintain the privacy the private cloud is been used by the cloud users. The private cloud is been compared to the computer networks where the private cloud is been managed inside the organization which helps to maintain the security. The private cloud offers a service within a virtualized environment.

6.2.2 Public cloud

Fig 6.2.2

The public cloud or the external cloud is been used all over the world the security factor in the public cloud is considered to be low. The public cloud is been owned and organized by the government companies or a group of companies. The processing of data maintaining of the resources are not under the control of any of the organization. Hence the public cloud cannot be used by any of the single organization due to the lack of the security. Public cloud is also called as a external cloud where the resources and other services are been provided in the internet by using the web application.

6.2.3 Hybrid cloud

Fig 6.2.3

The hybrid cloud is the combination of the two or more distinct cloud (public and private cloud).In other words the hybrid cloud can be defined as the use of a physical hardware and virtualized cloud server together to provide a single common service.The cloud which we are joining together to form a hybrid cloud is called a "combine cloud". The hybrid storage is been done with the combination of public cloud. This cloud is used to do the archiving function also the replication of local data is done in a public cloud.

VII. ADVANTAGES OF CLOUD COMPUTING

There are various advantages of cloud computing.

- Unlimited storage capacity
- Universal access to the document
- Latest version availability
- Easier group collaboration
- Lower cost computers for users

Unlimited storage capacity

There is no limitation of storage capacity in cloud computing. Imagine when you are working in our pc and it is running out of storage. Then all the data in the cloud need to change its destination but there is no such problem in the cloud as the cloud is been maintained by the huge or giant servers such as Google, amazon etc., so when we are working in a cloud then it is been that our data is stored in a hundred petabytes of storage which is been available in a cloud. Without any of the limitation the data can be stored and accessed.

Universal access to the documents

Imagine when you are going to attend any of the important company meeting and left your presentation in your home. There will be no problem if you upload your data in cloud. When there is a availability of data in cloud then that data can be accessed from anywhere there is no need of carrying the document where ever you go. With the constant internet connection all your document can be accessed at any time.

Latest version availability

This is also considered as a document related advantages of cloud computing. When you are working in one of the version which is been available in your pc and when you edit the same document in your office or in your college the same version will be available in cloud. There is no problem of thinking that you are using an outdated version of any of the application. The cloud users are no need to update the software or the application which they are using constantly the cloud will always offer the updated version.

Easier group collaboration

This is seemed to be the most important and unique advantages of cloud computing where the collaboration of the documents us been done easily in cloud. Here the cloud provides the ability of multiple users to collaborate in a single document.

This advantage is been used by many of the business professional. When the meeting is been taking place and the clients are in the different destination working in a single project. The collaboration is been made easy. Before cloud computing with the help of emails the documents or the information is been send from the one to other and work is been done in it but now with the help of cloud the editing of one user is automatically reflected in another user screen. This is helpful to complete the group projects easily with the full participation of all the clients involved in a project.

Lower cost computers for users

To run a cloud computing's web application or the software the there is no need for the user to maintain the high-powered computers. The web application which we are using is been running in a cloud's giant server not in the own pc. So the user of cloud is just requiring the low price computers with a smaller hard disk, less memory. Even there is no constant requirement of having the CD or DVD drive because there is no need of the software programs that is been having to be uploaded.

Disadvantages of cloud computing:

- Requires constant internet connection
- Stored data might not be secured
- Can be slow
- Cost comparison

Require constant internet connection

Cloud computing cannot do anything for you if you are not having an internet connection. As your own documents is been saved in cloud and you're working in it if you're not having an internet connection then you cannot access your own document. To work in a cloud you must need a high band width of internet connection cloud will not work with a low band width internet. Cloud is all about the internet.

Stored data might not be secure

This is seemed as a most important problem in cloud computing. The data once we are uploading in a cloud will be replicated into duplicated copies. As stated in above section the cloud is been managed by a huge giant servers. The data uploading in one server will be replicated into all the servers so there is a change of availability of a duplication of data. Due to this there is high risk in security. The data in cloud can be accessed by anyone from anywhere. The confidential data cannot be hosted in cloud.

Can be slow

Sometimes even with a high band width internet connection the cloud will be slow. The expected result of working in your own pc cannot be attained. This problem is because that the document which you're working has to send back and forth from your pc to the computer in the cloud. As cloud is been used worldwide there is a change of a hundreds of people using a same application in a same time.

Cost comparison

It true that the host is high for the software which you are installing in your house as compared to the software that is in the cloud. But when comparing to the feature the software that you install in your pc will be better that the cloud software. There is chance of having low feature in the cloud software and you will be charged additionally for using few features. The specific feature of software which is need for your business will be missing and you will be in a risk.

VII.CONCLUSION

Cloud is a developing area where it is a new technology used in the industry since 2000. As comparing a years ago the cloud technology is been improved and it is used worldwide. The cloud also contains many of the applications like Google spreadsheets, Google calendar, Google presentations etc., all these application works like a Microsoft tools only when you are connected to an internet. In this paper we discuss what is cloud computing, the service model of cloud computing companies in cloud and the advantage of cloud as well as the disadvantages.

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