CLOUD COMPUTING

Sneha[1], Aman Giri[2], Ashu Gupta[3], Rishabh[4]
[1]Asst. Professor CSE, [2,3,4]Department of CSE, BMCEM, Sonepat (Hr.)

Abstract: "Cloud" is a collective term for a large number of developments and possibilities. It is not an invention, but more of a "practical innovation", combining several earlier inventions into Something new and compelling. Much like the iPod is comprised of several existing concepts and technologies (the Walkman, MP3 compression and a portable hard disk), cloud computing merges several already available technologies: high bandwidth networks, virtualization, Web 2.0 interactivity, time sharing, and browser interfaces. Cloud Computing is a popular phrase that is shorthand for applications that were developed to be rich Internet applications that run on the Internet (or "Cloud"). Cloud computing enables tasks to be assigned to a combination of software And services over a network. This network of servers is the cloud. Cloud computing can help businesses transform their existing server infrastructures into dynamic environments, expanding and reducing server capacity depending on their requirements. A cloud computing platform dynamically provisions, configures, reconfigures, and deprovisions servers as needed. Servers in the cloud can be physical machines or virtual machines. Advanced clouds typically include other computing resources such as storage area networks (SANs), network equipment, firewall and other security devices.
Keywords: Types of Cloud, Cloud Service Model, Virtualization, Hardware and Software Virtualization.

I. INTRODUCTION

Cloud computing means on demand delivery of IT resources via the internet with pay-as-you-go pricing. It provides a solution of IT infrastructure in low cost. Actually, Small as well as some large IT companies follows the traditional methods to provide the IT infrastructure. That means for any IT company, we need a Server Room that is the basic need of IT companies.

In that server room, there should be a database server, mail Server, networking, firewalls, routers, modem, switches, QPS (Query per Second means how much queries or load will be handled by the server), configurable system, high net speed and the maintenance engineers. To establish such IT infrastructure, we need to spend lots of money. To overcome all these problems and to reduce the IT infrastructure cost, Cloud Computing comes into existence.

II. ADVANTAGES OF CLOUD COMPUTING

There are various advantages of cloud computing technology. The important advantages of cloud computing are given below.
1) Lower cost computer for users
In cloud, you don't require a high-powered (and accordingly high-priced) computer to run cloud computing's web based applications because applications run on cloud not on desktop PC or laptop.

2) Lower IT infrastructure cost
By using cloud computing, you need not to invest in larger numbers of more powerful servers, you also need not to require the IT staff for handling such powerful servers.

3) Fewer maintenance cost
The maintenance cost in cloud computing greatly reduces both hardware and software maintenance for organizations of all sizes.

4) Lower Software Cost
It reduces the software cost because you don't need to purchase separate software packages for each computer in the organization.

5) Instant software updates
Another software-related advantage in cloud computing is that users don't need to face with the choice between obsolete software and high upgrade costs. If the app is web-based, updates happen automatically and are available next time when the user logs in to the cloud.

6) Increased computing Power
The execution capacity of cloud servers are very high. It processes the application very fast.

III. VIRTUALIZATION IN CLOUD COMPUTING

Virtualization is the "creation of a virtual (rather than actual) version of something, such as a server, a desktop, a storage device, an operating system or network resources".
In other words, Virtualization is a technique, which allows to share a single physical instance of a resource or an application among multiple customers and organizations. It does by assigning a logical name to a physical storage and providing a pointer to that physical resource when demanded.

How does virtualization work in cloud computing?
Virtualization plays a very important role in the cloud computing technology, normally in the cloud computing, users share the data present in the clouds like application etc, but actually with the help of virtualization users shares the Infrastructure.
The main usage of Virtualization Technology is to provide the applications with the standard versions to their cloud users, suppose if the next version of that application is released, then cloud provider has to provide the latest version to their cloud users and practically it is possible because it is

more expensive.

To overcome this problem we use basically virtualization technology, By using virtualization, all severs and the software application which are required by other cloud providers are maintained by the third party people, and the cloud providers has to pay the money on monthly or annual basis.
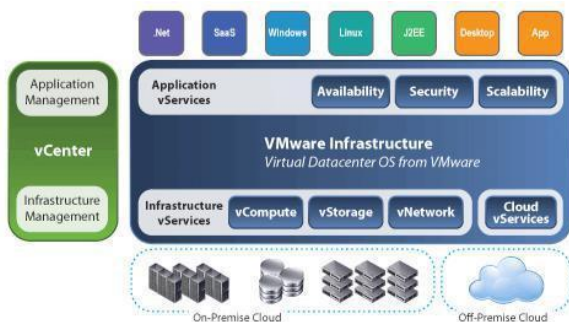
Some Economic goals of Cloud Computing :

Hitting market with lowest "Pay – per – use" model

Cloud Service providers are trying very hard to lower the cost of their services so that a large number of users can acknowledge the merits of cloud and enjoy the freedom which cloud concept provides.

Auto Scaling

Cloud Service providers are researching to provide easy scalable architectural models for cloud computing, which delivers resources on demand and can be made scalable automatically.

It is becoming possible for big companies to do so, thanks to Artificial Intelligence and Parallel Programming.

Less overhead expenses

With the advancement of Virtualization technology, it has become easier to maintain only the operational cost or expenses and offering no investment in the form of capital investment.

Trust and Great service delivery

Service Level Agreement (SLA) is a vital piece of product which must be considered for great reliability and support of the cloud services which we are using.

But the sad part is these agreements are somewhat expensive, due to this some consumers didn't want to take advantage of it.

Cloud vendors are promising to provide a much lower cost for these agreements and also offering the same features for the Total cost of ownership (TOC).

Summary

Cloud computing is the availability of computing resources and services over the internet. In other words, cloud computing allows you to use resources and services online instead of having to build and maintain the infrastructures necessary. Cloud computing has many benefits. For one, it works on a pay-for-use basis. This means that you only pay for resources that you are using and only spend exactly as

much as you need, not a penny more. Secondly, something that is very appealing is the elasticity of the resources. You can increase or decrease your usage any time you want depending of your need of that resource. A third aspect of cloud computing is that services previously provided by IT administrators will be accessible to any user at any time.

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