

# Introduction to Cloud Computing

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**Abstract-**Today rapid development in web technologies such as blogging, social networking, online media sharing etc. has moving bulk of data onto internet servers. Cloud computing is an attractive computing model as it allows for resources to be provisioned according on a demand basis. Clouds can make it possible to access applications and associated data from any where .Companies are able to rent resources from cloud for storage and other computational purposes so that their infrastructure cost can be reduced significantly. This paper presents a review on the cloud computing concepts inherent within the context of cloud computing and cloud infrastructure.

**Index Terms-** cloud , cloud computing, deploying cloud, cloud security. Cloud introduction.

## 1 INTRODUCTION

Cloud Computing is a model which is found everywhere; it is suitable; on demand network access to a shared pool of configuration computing resource .The growth of cloud computing can handle such huge data as per the demand basis. For example facebook social networking website users upload videos which use cloud providers storage service so it provides fewer hardware cost for clients. Cloud computing also describes application which uses huge data centers and powerful servers that host Web services and Web applications. Clouds is an over sized pool of simply usable and accessible virtualized resources. The goal of cloud computing model is to make better use of spread resources, put them together in order to achieve high output and able to deal with large scale computation problem.

## 2 CLOUD STORAGE

Cloud storage describes "the storage of data online in the cloud," wherein a company's data is accessible and stored in various distributed and connected resources that comprise a cloud. Cloud storage can provide the benefits of greater accessibility and dependability; disaster recovery purposes; fast deployment; strong protection for data backup; and lesser overall storage costs as a result of not having to purchase, manage and maintain costly hardware. However, cloud storage does have the potential for compliance and security concern.

## 3 DEPLOYMENT APPROACHES

There are basically three major types of cloud deployment models - public, private and hybrid clouds.

### 3.1 Public Cloud

These are the most general type of cloud. This is where numerous customers can access web services and applications over the internet. The customer has no power into how the cloud is managed or does not have any infrastructure details. Public clouds are less protected than the other cloud models since it places an extra burden of ensuring all applications and data accessed on the public cloud are not subjected to malicious attack.

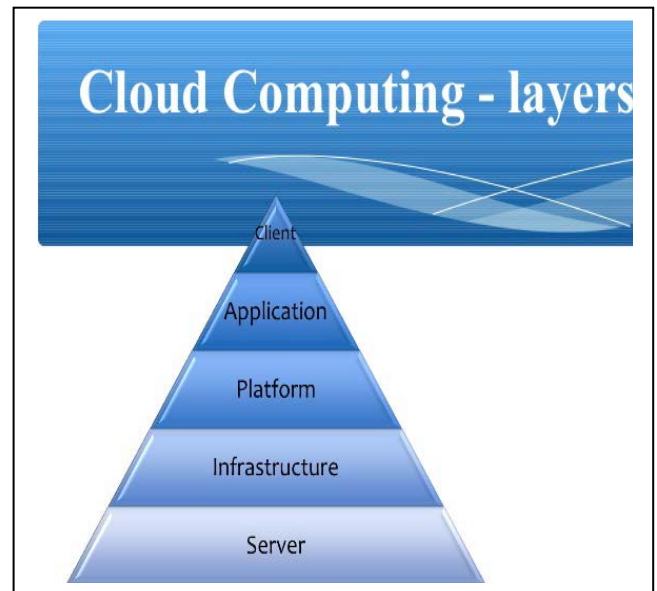
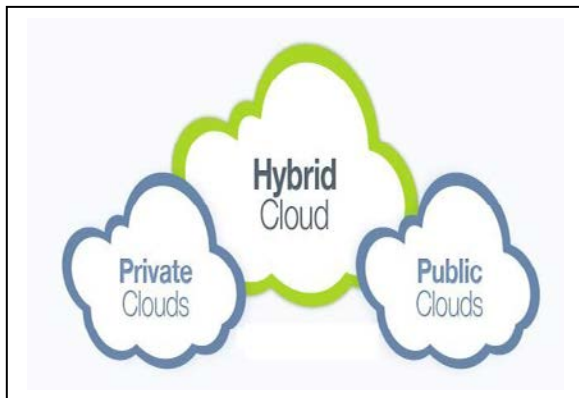
### 3.2 Private Cloud

A private clouds operation is conducted inside the associate organization's internal enterprise data center. The most benefit here is that it's easier to control the security, upgrades and maintenance. Utilization on the private cloud can be much more protected because of its specified internal exposure.

### 3.3 Hybrid Cloud

Hybrid cloud is a grouping of two or more clouds (community, private or public) that remain exceptional entities but are bound together by standardized technology that allows data and application portability .Hybrid Clouds provide have more protected control of the data and applications. For example, an organization could grasp sensitive information on their private cloud and use the public cloud for handling huge traffic and demanding situations.

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## 4 ARCHITECTURE OF CLOUD COMPUTING

Cloud computing system can be divided into two sections: the back end and front the end. They attach to each other through a network, generally the Internet. Front is what the user sees whereas the back end is that the cloud of the system. Front has the client's computer and back has the application needed to access are in the cloud having cloud computing services like servers, numerous computers and information storage. A central server administers the system, monitoring traffic and client demands to make sure everything runs efficiently. It follows a set of rules called protocols and uses a exclusive kind of software called middleware. Middleware allows networked computers to exchange a few words with each other.

### 4.1 Architectural Layers of Cloud Computing

The architecture of a cloud computing can be defined into four layers:

#### i. The Hardware layer

The hardware layer is responsible for dealing with the physical properties of the cloud, together with routers, switches, servers, power and cooling systems.

#### ii. The Infrastructure layer

The infrastructure layer can also be defined as virtualization layer. The infrastructure layer makes a collection of storage capacity and computing resources by partitioning the physical resources using virtualization technologies.

#### iii. The Platform layer

The platform layer based on top of the infrastructure layer, and this layer comprises of operating systems and requisition structures.

#### iv. The Application layer

The application layer consist of the actual cloud provisions, for e.g. Multimedia, Business Applications & Web Services.

### 4.2 Service Models of Cloud Computing

#### i. Infrastructure as a Service (IAAS)

Cloud consumers can straightly use IT infrastructures such as visualized servers, network devices, storage, operating systems, etc as well as hardware services to enable Cloud platforms and software to work. These resources are usually delivered as the virtualization platform by the Cloud provider and can be used across the Internet by the client. The client has complete control of the virtualized platform and is not responsible for handling the underlying infrastructure.

#### ii. Platform as a Service (PAAS)

PaaS provides an application platform as a service which permits cloud consumers to develop their cloud services and applications (e.g. SaaS) straightly on the PaaS cloud. The main dissimilarity between SaaS and PaaS is that SaaS only hosts accomplished cloud applications whereas PaaS offers a development platform that hosts both completed and underway cloud applications. Example of PaaS is Google Appengine.

#### iii. Software as a Service (SAAS)

SaaS clients rent use of applications that are running within the Cloud's provider infrastructure, for example Salesforce. The applications are characteristically offered to the clients through the Internet and are managed entirely by the Cloud provider. That means that the administration of these services such as patching and updating is the provider's responsibility. Examples of SaaS are Google Docs, Salesforce.com, and Google Mail.

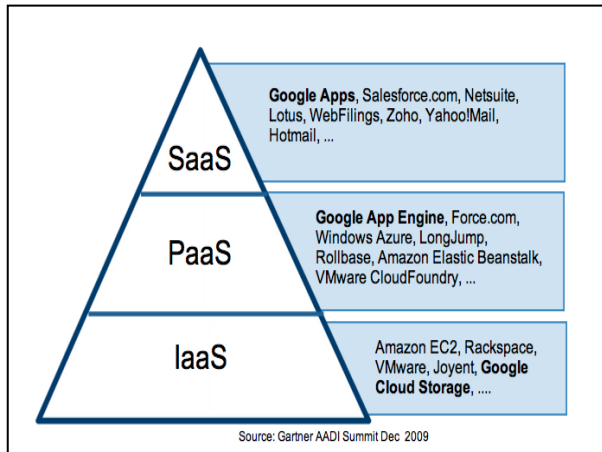


Fig. 4.2 Cloud Computing as Gartner Sees it

## 5 CHARACTERISTICS OF CLOUD COMPUTING

- Less amount of IT skills are needed for implementation.
- Using cloud services minimizes the need to carry data on removable media because network can be accessed anytime, anywhere.
- Maintenance is easier just in case of cloud computing applications as they have not been put in on every pc.
- Pay per use facility allows users to use applications per shopper on regular bases. Performance is often regulated and so it's ascendible.
- Security is excellent or higher than earlier systems as a result of suppliers are able to allocate resources to resolution security problems that several customers cannot afford. However, security still remains a vital concern once the information is private.
- Cloud could be a enormous resource pool that you just should buy in keeping with your need; cloud is basically like running electric, water, and gas which will be charged by the quantity that you just used.

## 6 ADVANTAGES

Cloud computing makes user get service anyplace, through any sensibly terminal. The resources it needed return from cloud rather than evident entity. Users will attain or distribute it safely through an easy method, anytime, anywhere. Users will complete a task that can't be completed in an exceedingly solo personal computer.

## 7 DISADVANTAGES

- Requires a stable Internet connection
- Does not work efficiently with low-speed connections
- Features might be restricted

- Can be Slow
- Data stored can be lost
- Stored Data might not be Secured

## 8 FUTURE OF CLOUD COMPUTING

- In a May 2008 report, Merrill Lynch estimated that 12% of the worldwide software market would go to the cloud in that period.
- IBM said it would spend \$360 million to build a cloud computing data center in Research Triangle Park, N.C., bringing to nine its total of cloud computing centers worldwide.
- Dell CEO Michael Dell says. "Now it's a several-hundred-million-dollar business, and it will be a billion-dollar business in a couple of years—it's on a tear."
- Microsoft has made cloud computing one of five priorities for fiscal 2009, according to a recent memo from CEO Steve Ballmer.

## 9 CONCLUSION

Cloud computing makes user get service anyplace, through any sensibly terminal. The resources it needed return from cloud rather than evident entity. Users will attain or distribute it safely through an easy method, anytime, anywhere. Users will complete a task that can't be completed in an exceedingly solo personal computer. Cloud computing have several advantages over non-cloud environment and have potential to handle most sudden, temporary peaks in application demand on cloud infrastructures. In today's global competitive market, companies must innovate and get the most from its resources to make it. This requires enabling its business partners, employees, and users with the platforms and collaboration tools that promote improvement. Cloud computing infrastructures are upcoming generation platforms that can provide fantastic value to companies of any size. Privacy, legal issues and so on. To greet the coming cloud computing era, solving the today's issues becomes utmost importunity! Cloud Computing gives Software, Platform, Infrastructure, Storage, Security, Data, and Test Environment etc. as a service. It can also make your own datacenter into a private cloud and permit you to extend the functionality to many other organizations. Cloud computing brings us the roughly infinite good scalability, computing capability, service on-demand and so on, also challenges at security.

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