

Cloud Computing

On demand delivery of IT resources through the Internet with payment depending on the use of the service is known as **cloud computing**.

The term **cloud** refers to a **network** or the **Internet**.

It gives a solution for infrastructure at low cost.

Features of Cloud Computing

High scalability - It means on demand provisioning of resources on a large scale without requiring human interaction with each service provider.

High availability and reliability - Availability of servers is more reliable and high because it minimizes the chances of infrastructure failure.

Agility - It shares the resources between users and works very quickly.

Multi-sharing - Multiple user and applications work more efficiently with less cost by sharing common infrastructure using cloud computing.

Maintenance - Maintenance of cloud computing applications is easier as they are not required to be install on each computer and can also be accessed from various places, ultimately reducing the cost.

Low cost - It is cost effective because the company no more needs to set its own infrastructure. It pays according to resources it has consumed.

Advantages of Cloud Computing

Some of the advantages of cloud computing are as follows:

- It does not require a high powered computer to run cloud because applications run on cloud not on desktop PC or laptop.
- The requirement for large number of powerful servers and IT staff to handle them goes down.
- Hardware and software maintenance cost is reduced using the cloud.

- Fast processing of applications as cloud server's capacity of execution is very high.
- A huge amount of storage capacity is provided by cloud.

Disadvantages of Cloud Computing

- Without an Internet connection cloud computing is impossible because, to access any application or document **a constant internet connection is a must.**
- It also requires high speed internet connection because web based apps need a lot of bandwidth to download (large document).
- Security of data on the cloud can be questionable.

Categories of service model

The service models are categorized into three basic models:

- 1) Software-as-a-Service (SaaS)
- 2) Platform-as-a-Service (PaaS)
- 3) Infrastructure-as-a-Service (IaaS)

1) Software-as-a-Service (SaaS)

- SaaS is known as '**On-Demand Software**'.
- It is a software distribution model. In this model, the applications are hosted by a cloud service provider and publicized to the customers over internet.
- In SaaS, associated data and software are hosted centrally on the cloud server.
- User can access SaaS by using a thin client through a web browser.
- CRM, Office Suite, Email, games, etc. are the software applications which are provided as a service through Internet.
- The companies like Google, Microsoft provide their applications as a service to the end users.
- Eg: Google ,Salesforce ,Microsoft ,Zoho

Advantages of SaaS

- SaaS is easy to buy because the pricing of SaaS is based on monthly or annual fee and it allows the organizations to access business functionalities at a small cost, which is less than licensed applications.
- SaaS needed less hardware, because the software is hosted remotely, hence organizations do not need to invest in additional hardware.
- Less maintenance cost is required for SaaS and do not require special software or hardware versions.

Disadvantages of SaaS

- SaaS applications are totally dependent on Internet connection. They are not usable without Internet connection.
- It is difficult to switch amongst the SaaS vendors.

2) Platform-as-a-Service (PaaS)

- PaaS is a programming platform for developers. This platform is generated for the programmers to create, test, run and manage the applications.
- A developer can easily write the application and deploy it directly into PaaS layer.
- PaaS gives the runtime environment for application development and deployment tools.
- Google Apps Engine(GAE), Windows Azure, Salesforce.com are the examples of PaaS.

Advantages of PaaS

- PaaS is easier to develop. Developer can concentrate on the development and innovation without worrying about the infrastructure.
- In PaaS, developer only requires a PC and an Internet connection to start building applications.

Disadvantages of PaaS

- One developer can write the applications as per the platform provided by PaaS vendor hence the moving the application to another PaaS vendor is a problem.

3) Infrastructure-as-a-Service (IaaS)

- IaaS is a way to deliver a cloud computing infrastructure like server, storage, network and operating system.
- The customers can access these resources over cloud computing platform i.e Internet as an on-demand service.
- In IaaS, you buy complete resources rather than purchasing server, software, datacenter space or network equipment.
- IaaS was earlier called as Hardware as a Service(HaaS). It is a Cloud computing platform based model.
- HaaS differs from IaaS in the way that users have the bare hardware on which they can deploy their own infrastructure using most appropriate software.
- Amazon web services, GoGrid , 3 Tera

Advantages of IaaS

- In IaaS, user can dynamically choose a CPU, memory storage configuration according to need.
- Users can easily access the vast computing power available on IaaS Cloud platform.

Disadvantages of IaaS

- IaaS cloud computing platform model is dependent on availability of Internet and virtualization services.