Chapter One

Cloud Computing

INTRODUCTION

Cloud Computing provides us a means by which we can access the applications as utilities, over the Internet. It allows us to create, configure, and customize applications online.

With Cloud Computing users can access database resources via the internet from anywhere for as long as they need without worrying about any maintenance or management of actual resources.

What is Cloud?

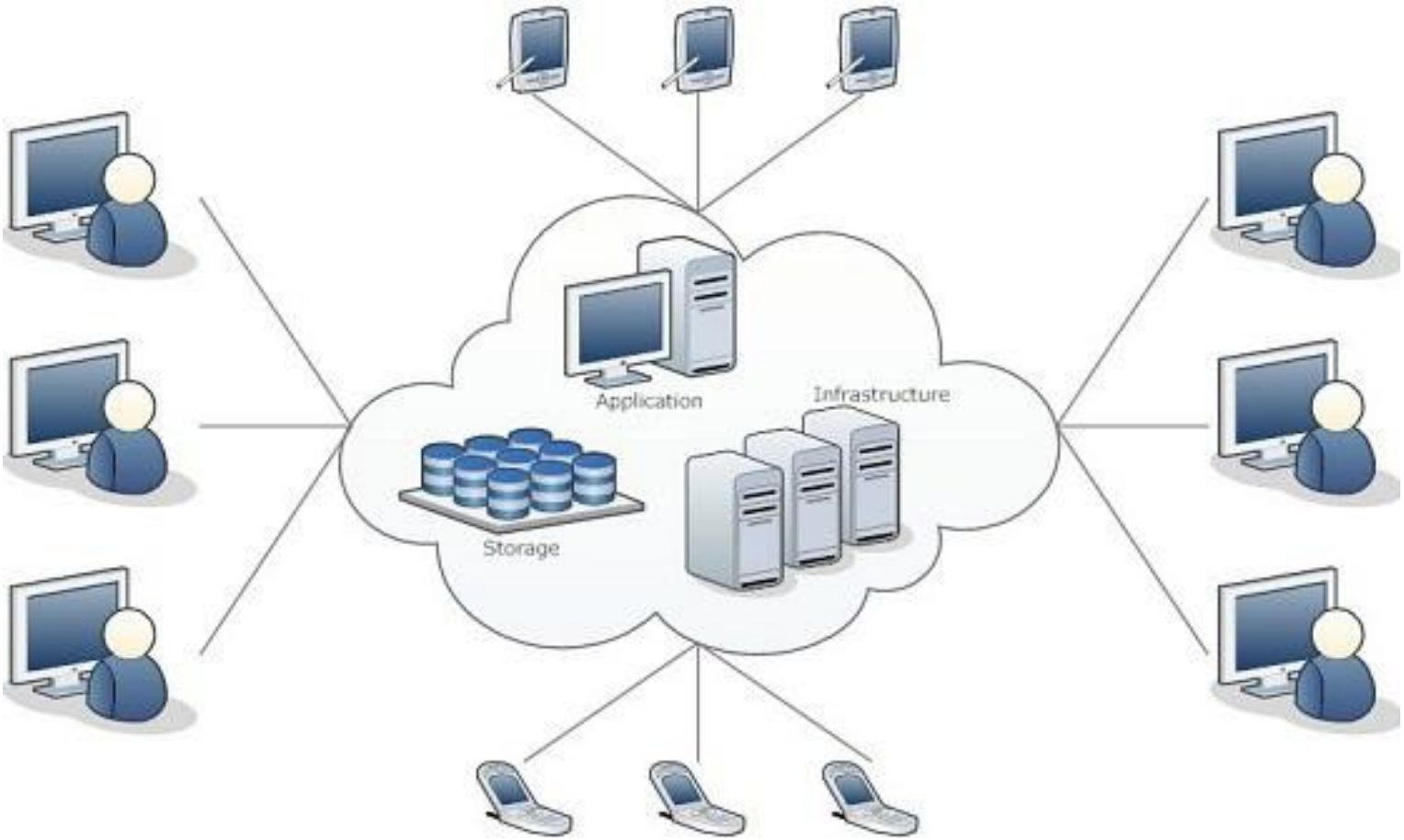
The term **Cloud** refers to a **Network** or **Internet**.
In other words, we can say that Cloud is something, which is present at remote location.
Cloud can provide services over network, i.e., on public networks or on private networks, i.e., WAN, LAN or VPN.
Applications such as **e-mail, web conferencing, customer relationship management (CRM),** all run in cloud.

What is Cloud Computing?

Cloud Computing refers to **manipulating, configuring,** and **accessing** the applications online. It offers online data storage, infrastructure and application.

Cloud Computing is both a combination of software and hardware based computing resources delivered as a network service.

Cloud Computing Architecture



Basic Concepts

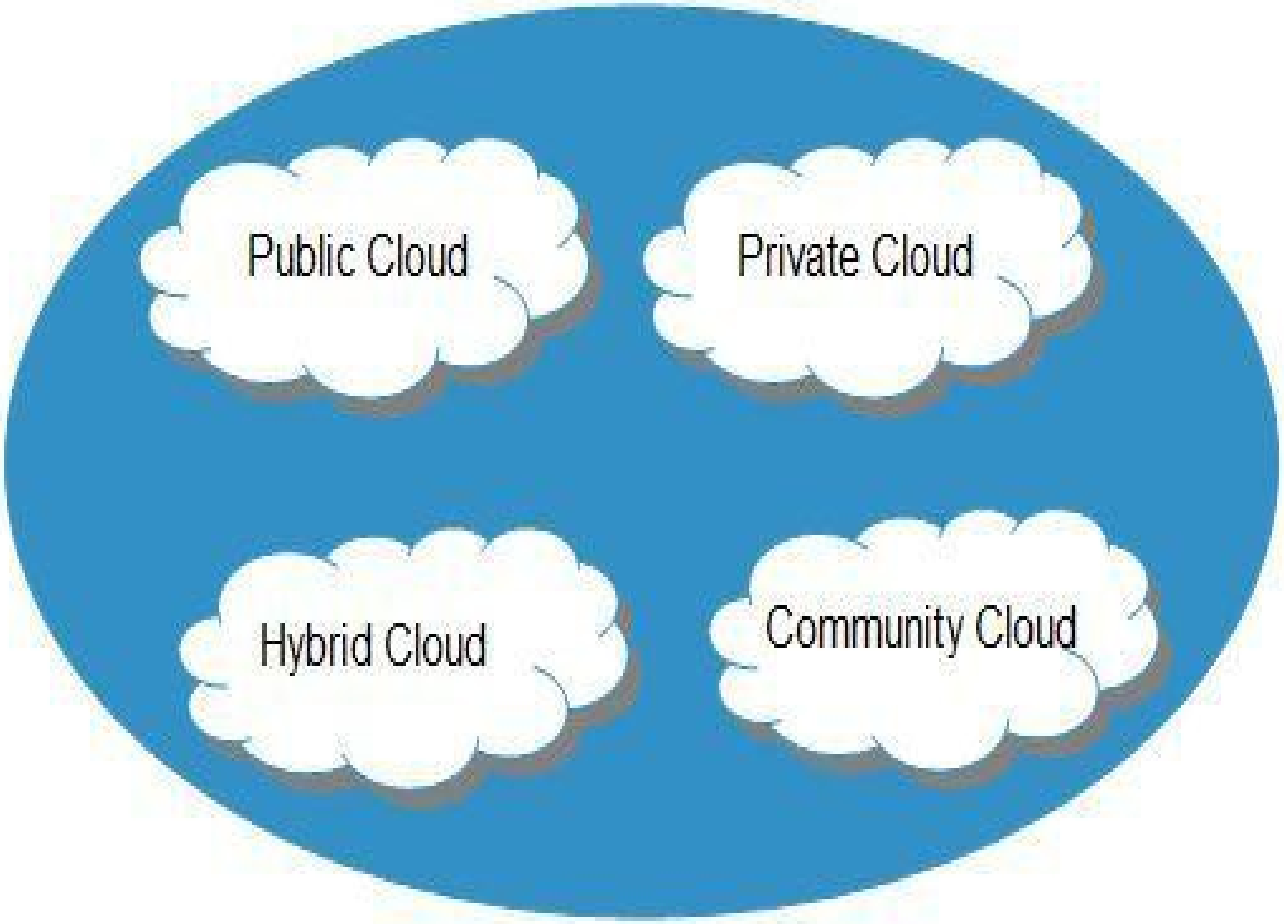
There are certain services and models working behind the scene making the cloud computing feasible and accessible to end users. Following are the working models for cloud computing:

1. Deployment Models

2. Service Models

Deployment Models

Deployment models define the type of access to the cloud, i.e., how the cloud is located? Cloud can have any of the four types of access: Public, Private, Hybrid and Community.


Public Cloud
Private Cloud
Hybrid Cloud
Community Cloud

PUBLIC CLOUD : The **Public Cloud** allows systems and services to be easily accessible to the general public. Public cloud may be less secure because of its openness, e.g., e-mail.

PRIVATE CLOUD : The **Private Cloud** allows systems and services to be accessible within an organization. It offers increased security because of its private nature.

COMMUNITY CLOUD : The **Community Cloud** allows systems and services to be accessible by group of organizations.

HYBRID CLOUD : The **Hybrid Cloud** is mixture of public and private cloud. However, the critical activities are performed using private cloud while the non-critical activities are performed using public cloud.

Service Models

Service Models are the reference models on which the Cloud Computing is based. These can be categorized into three basic service models as listed below:

1. Infrastructure as a Service (IaaS)

2. Platform as a Service (PaaS)

3. Software as a Service (SaaS)

Infrastructure as a Service (IaaS)

IaaS is the delivery of technology infrastructure as an on demand scalable service.

IaaS provides access to fundamental resources such as physical machines, virtual machines, virtual storage, etc.

- Usually billed based on usage
- Usually multi tenant virtualized environment
- Can be coupled with Managed Services for OS and application support

IaaS Examples

Platform as a Service (PaaS)

PaaS provides the runtime environment for applications, development & deployment tools, etc.

PaaS provides all of the facilities required to support the complete life cycle of building and delivering web applications and services entirely from the Internet.

Typically applications must be developed with a particular platform in mind

- Multi tenant environments
- Highly scalable multi tier architecture

PaaS Examples

Software as a Service (SaaS)

SaaS model allows to use software applications as a service to end users.

SaaS is a software delivery methodology that provides licensed multi-tenant access to software and its functions remotely as a Web-based service.

- Usually billed based on usage
- Usually multi tenant environment
- Highly scalable architecture

SaaS Examples

salesforce.com
Success On Demand.

NETSUITE
ONE SYSTEM. NO LIMITS.

postini

facebook

Do you Use the Cloud?

Advantages

- Lower computer costs
- Improved performance:
- Reduced software costs
- Instant software updates
- Improved document format compatibility
- Unlimited storage capacity
- Increased data reliability
- Universal document access
- Latest version availability
- Easier group collaboration
- Device independence

Disadvantages

- Requires a constant Internet connection
- Does not work well with low-speed connections
- Features might be limited
- Can be slow
- Stored data can be lost
- Stored data might not be secure

Cloud Storage

- Create an Account User name and password.
- Content lives with the account in the cloud.
- Log onto any computer with Wi-Fi to find your content

Download For Storage

- Download a cloud based app to on **your computer**
- The app lives on your Computer
- Save files to the app
- When connected to the Internet it will sync with the cloud
- The Cloud can be accessed from any Internet connection