Cloud Computing

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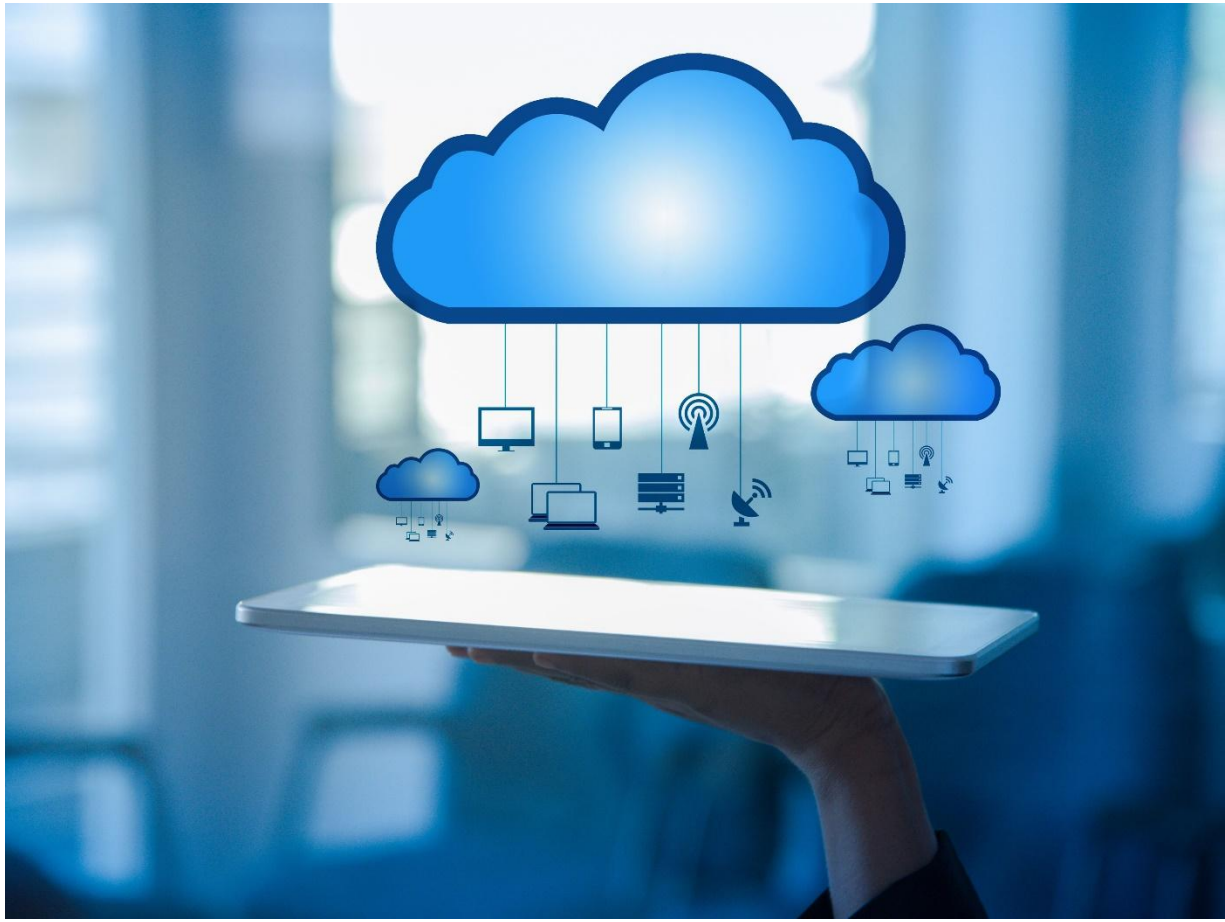
Cloud Computing

- 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.

- **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.

Why Do We Need Cloud Computing?

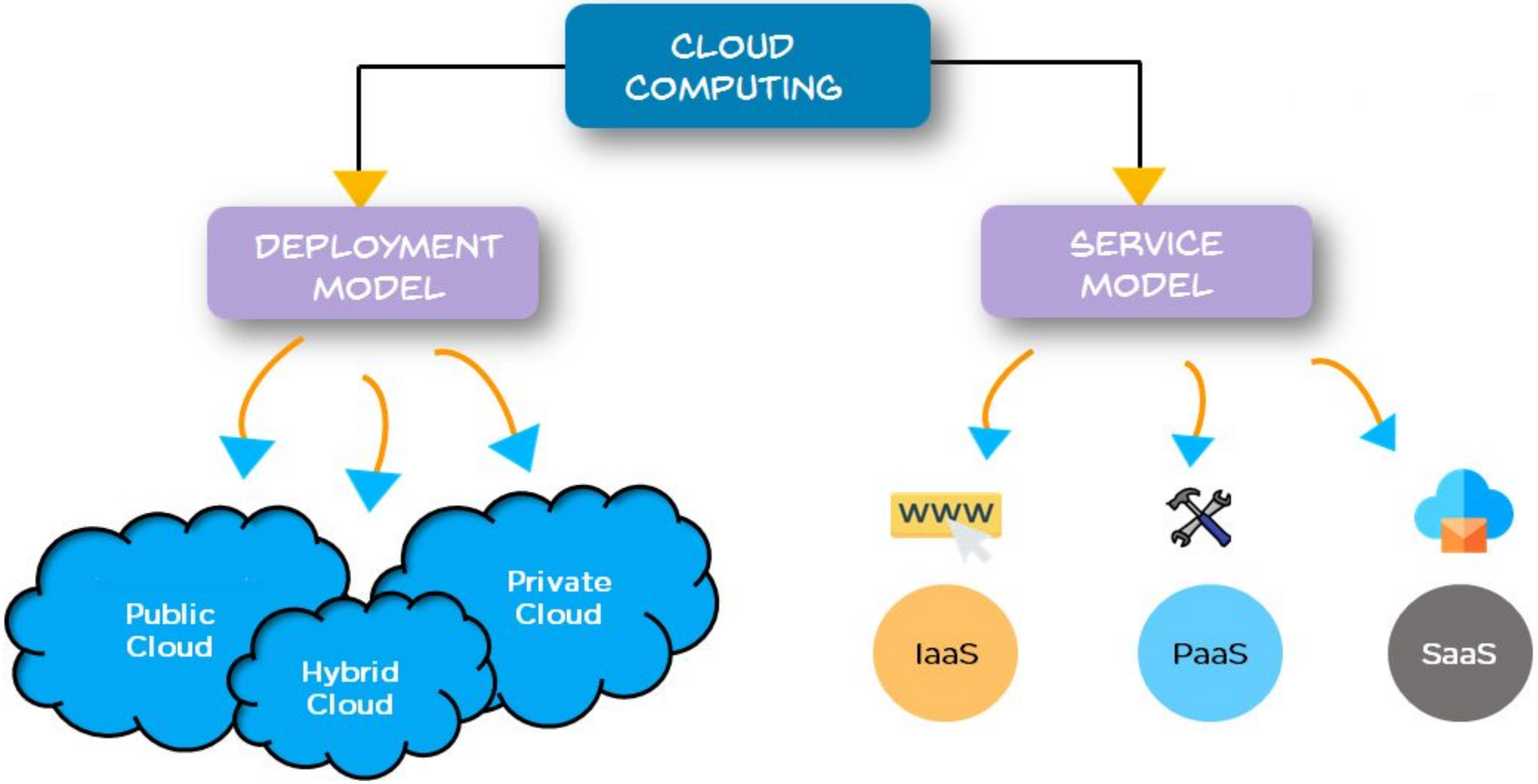
Why we need cloud computing?

- Hosting one's own website require large amount of servers, money, management for traffic control over the internet, constant maintenance is required and need security for user's data.
- All things are going online such as online shopping, online reservations etc. that result in increasing the amount of data day by day.
- Large amount of space and money is required to manage all these.
- All these issues like cost , data security, maintenance and space is resolved by the clouds.
  - As they have large amount of space that is available online for usage.
  - They have collection of data centers- (where you store your data or host your applications)

Why we need cloud computing?

- There was a group of people or organization that rented or bought these servers storage places.
- All you have to do was, go a head and rent those resources only to the amount you needed
- Also take those resources for the time you need it and pay amount accordingly. So, this is what cloud did.
- All you need is a good internet connection. So it makes the world accessible, it let you have your application where you want to manage them accordingly.

Types of Cloud Computing

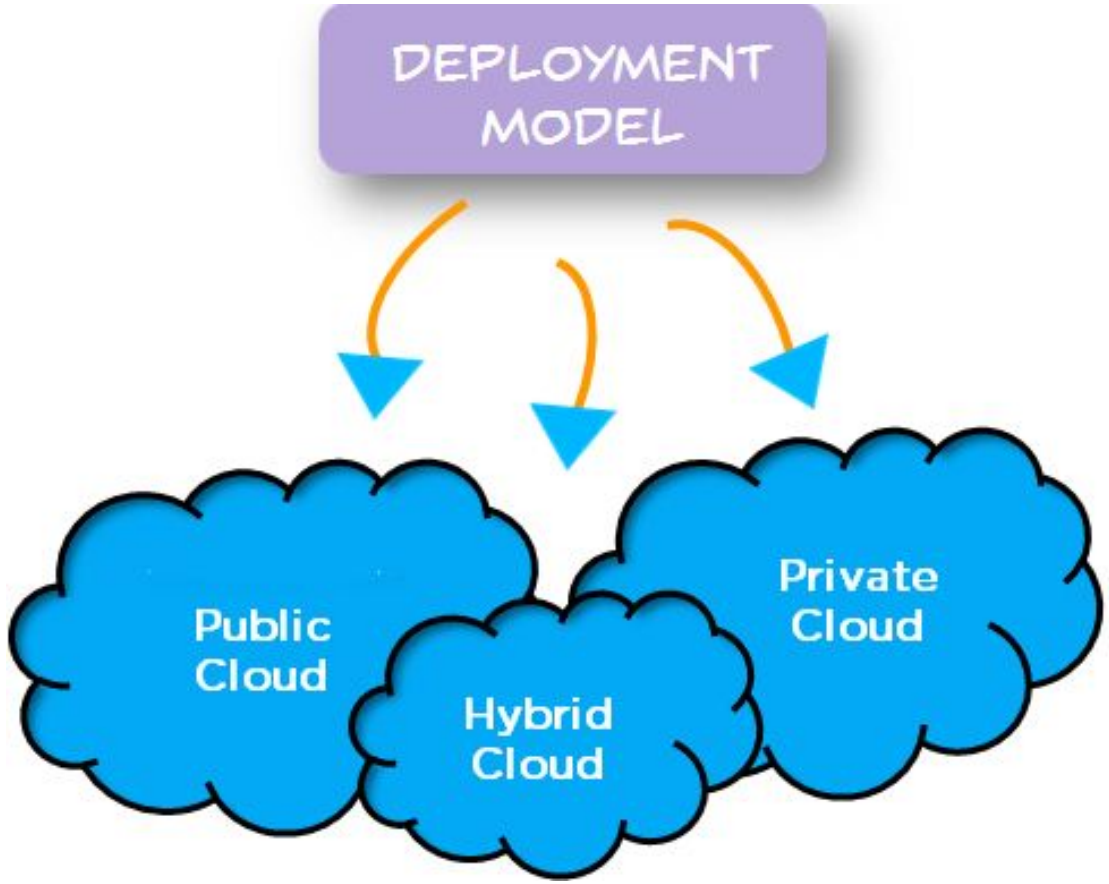


Deployment Models

- Deployment models define the type of access to the cloud

- Can have any of the three types of access:

i. Public
ii. Private
iii. Hybrid



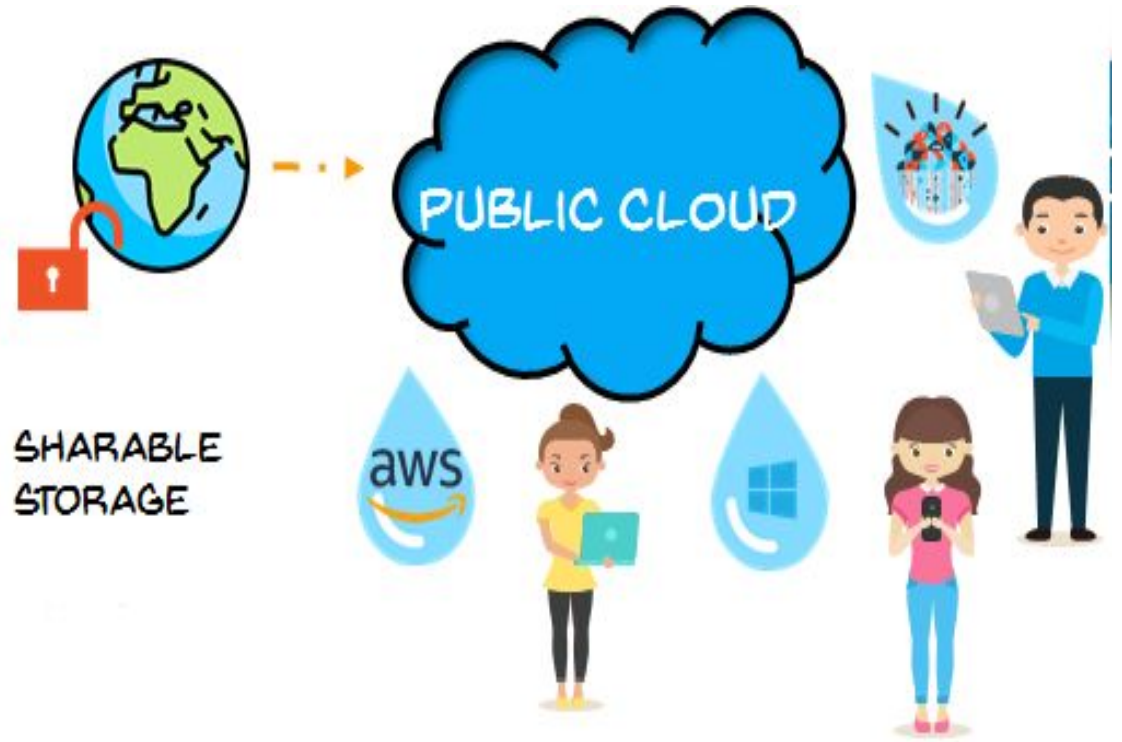
Deployment Model

Public Cloud

The cloud infrastructure is made available to the general public over the internet and is owned by third-party organizations.

The most popular public clouds include :

- Amazon Web Services
- Google App Engine
- Microsoft Azure.



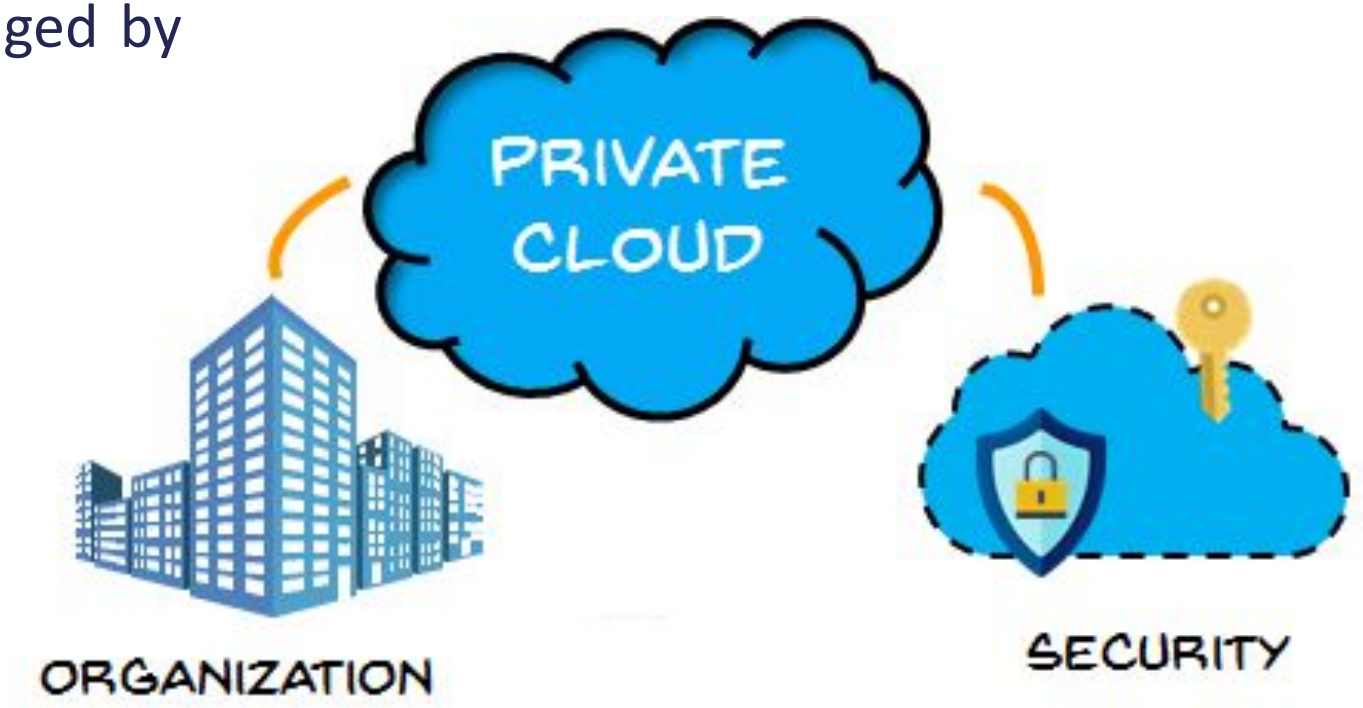
Deployment Model

Private Cloud

The cloud infrastructure is exclusively operated by a single organization. It can be managed by the organization or a third party.

Some private clouds are :

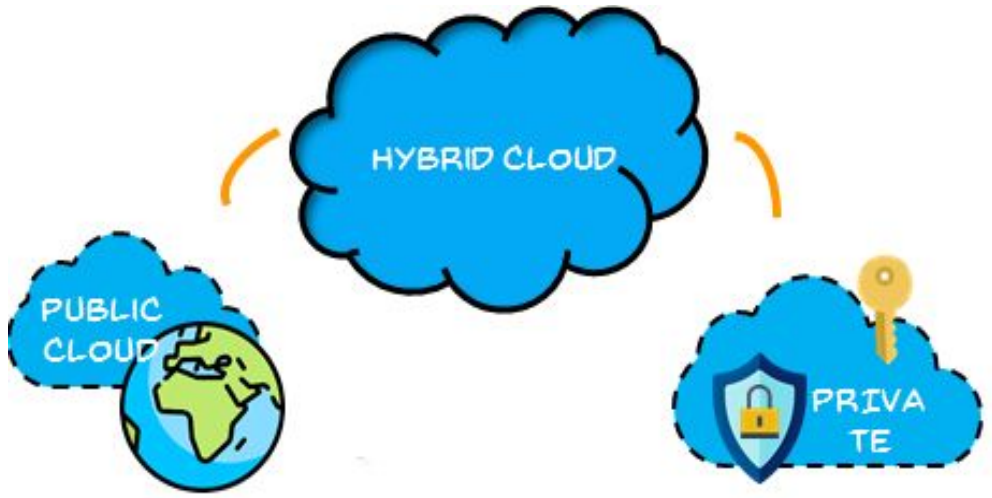
- VMWare
- V Cloud Director
- OpenStack.



Deployment Model

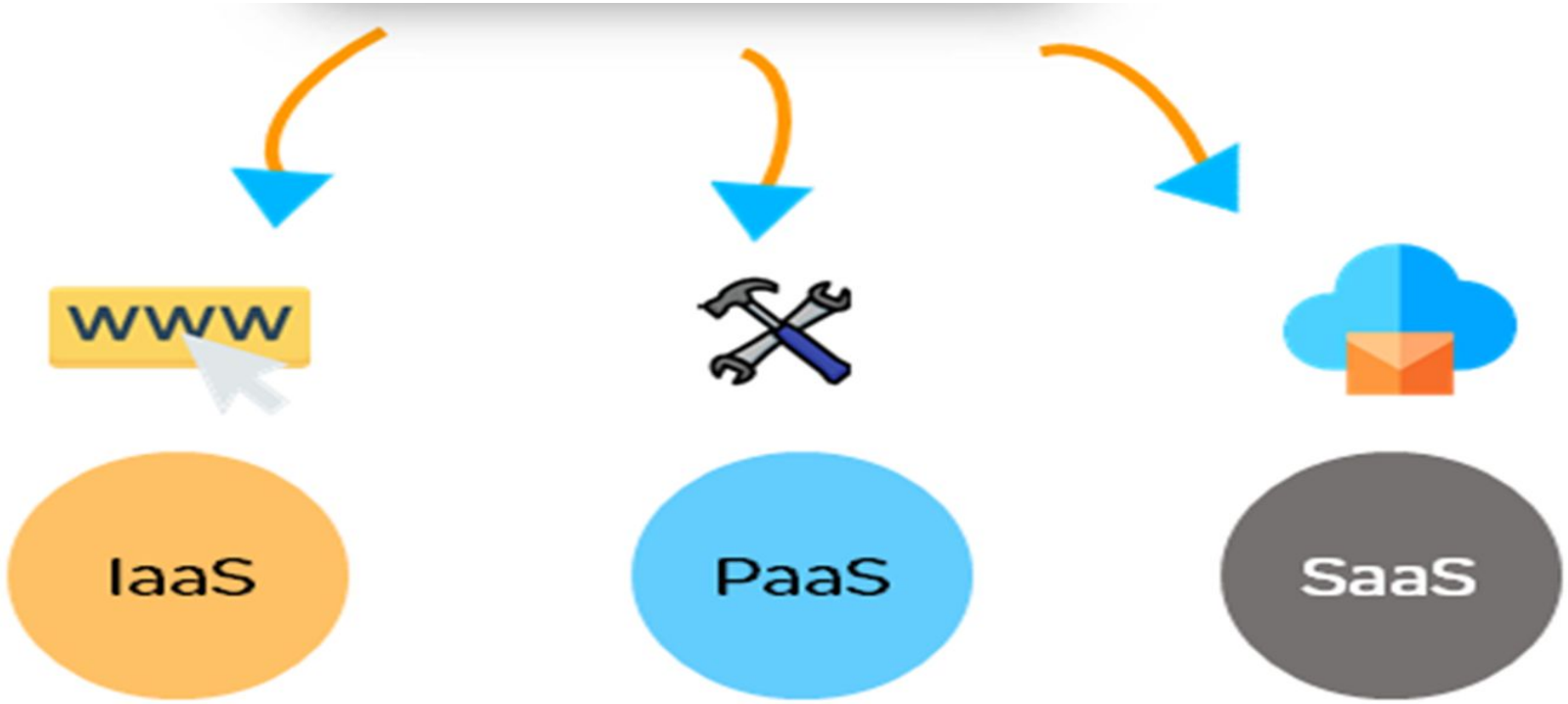
Hybrid Cloud

- Hybrid cloud is a mix of computing resources provided by both private and public clouds.
- In this model companies can use public cloud for transfer of non-confidential data and switch on to private cloud in case of sensitive data transfer or hosting of critical applications.
- For example: Federal agencies opt for private clouds when sensitive information is involved Also, they use the public cloud to share datasets with general public or other government departments



Service Models

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



Infrastructure As A Service (Iaas)

- **IaaS** is a cloud service that provides basic computing infrastructure
- Services are available on pay-for-what-you-use model
- **IaaS** provides access to fundamental resources such as physical machines, virtual machines, virtual storage, etc.

1. billed based on usage
2. Multi-tenant Environment
3. 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.
- 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

Microsoft Online Services: Business Productivity Online Suite
SharePoint Online
Office Communications Online
Exchange Online
Office Live Meeting

facebook

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

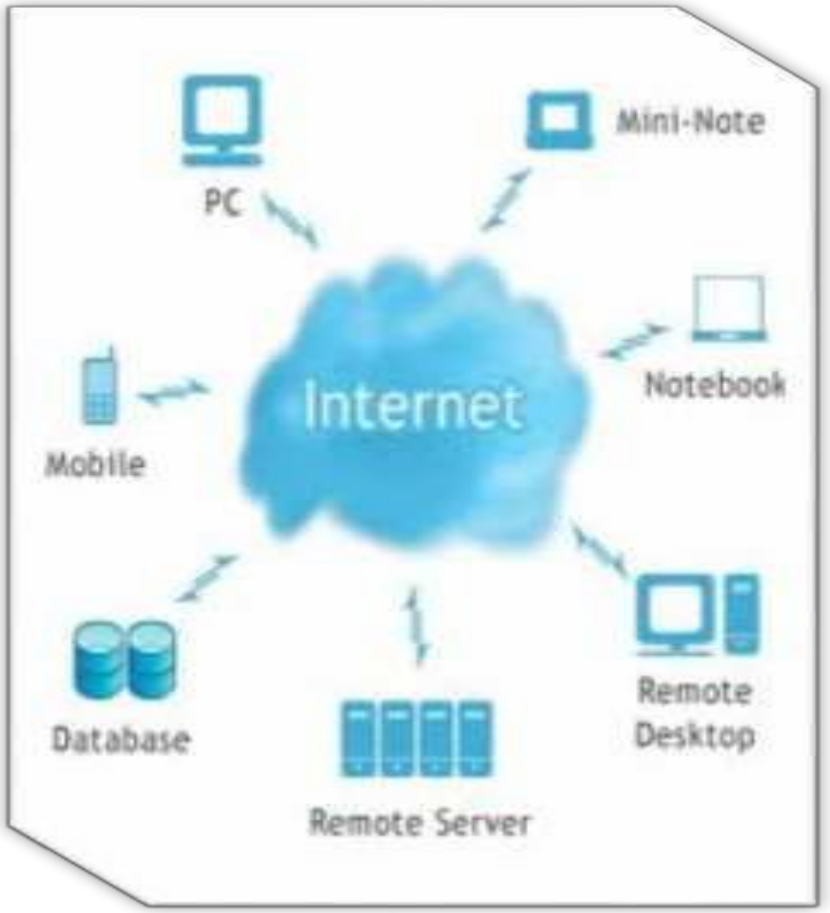
Do you Use the Cloud?

Benefits of Cloud Computing

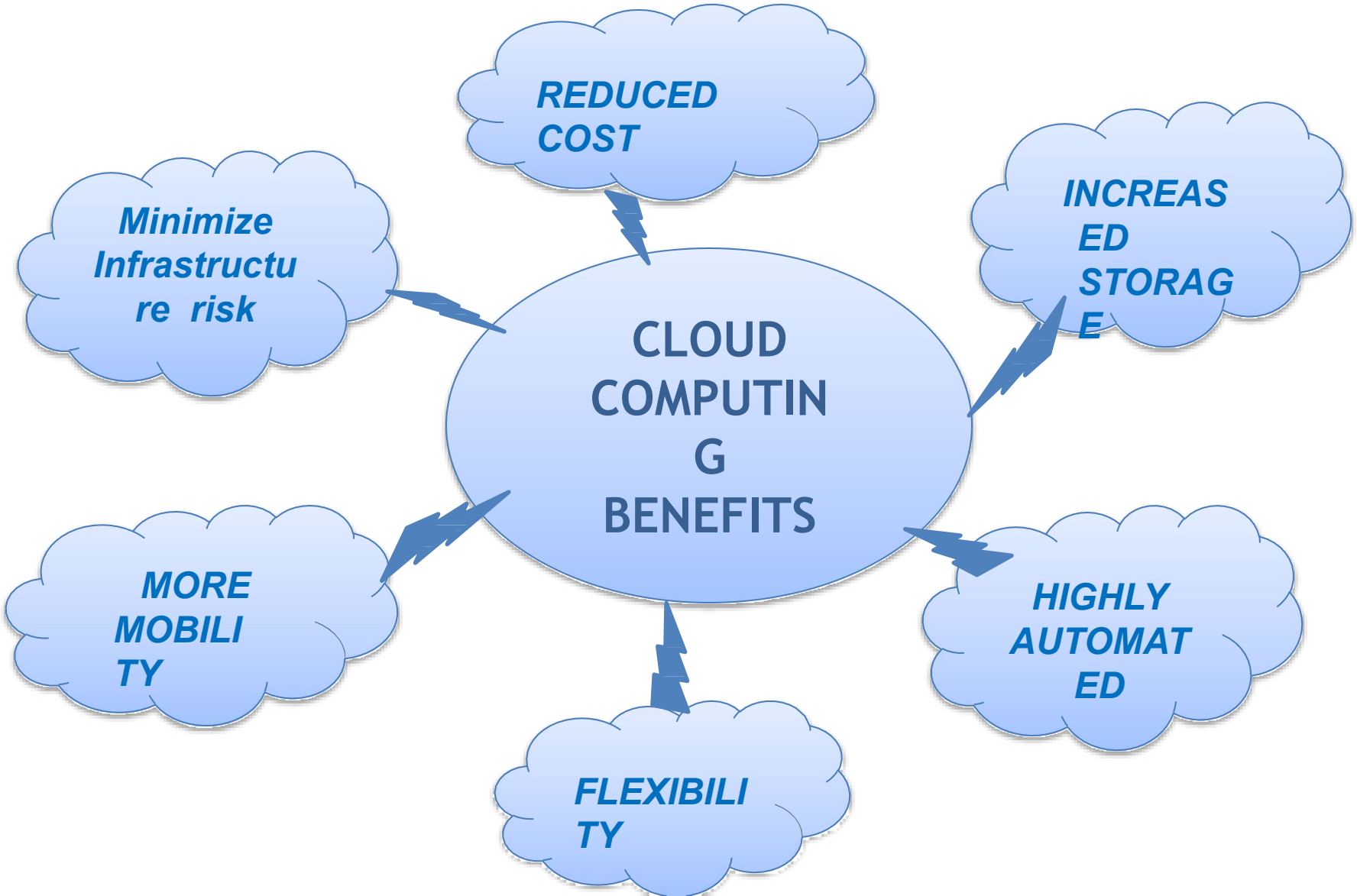
PRACTICALLY LIMITLESS AND EASILY ACCESSIBLE

IT SAVES THE COST OF INFRASTRUCTURE AND HARDWARE MAINTAINANCE

IT PROVIDES THE ACCESS TO COMMERCIALY AVAILABLE APPLICATIONS



Benefits of Cloud Computing



Drawbacks

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

Lecture End