

# *AWS Solution Architect and DevOps Training program*

Cloud Classes

# *Module 1:*

*AWS Solution Architect (32 hours  
+ 8 hours Q & A)*

Cloud Classes

✓ *Module 1 (A): Introduction to Cloud Computing.*

*Cloud Classes*

*What is Cloud Computing*

*Advantages of Cloud Computing*

*Types of Cloud based on Service and Deployment models*

*Overview of AWS Amazon Web Services*

*Regions and Availability Zone*

*Global Infrastructure*

*Computing: use of a computer to process data or perform calculations.*

## *Module 1 (A): Introduction to Cloud Computing.*

*What is Cloud ? What is Cloud, How to use Cloud  
Why Cloud ?*

*Cloud in computer science,*

*Cloud has the **Servers, network, storage, services, hardware** that you access over the internet, software and database run on those servers. Cloud servers are in data centres.*

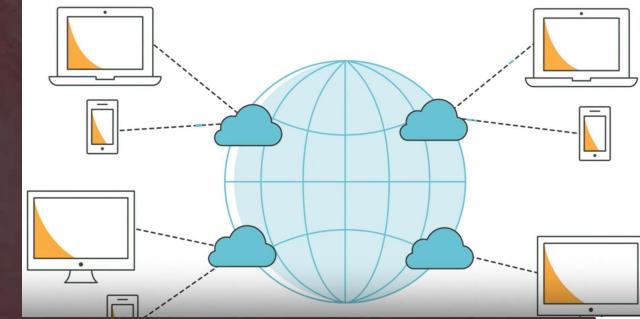
*All data is saved in physical servers in data centre.*

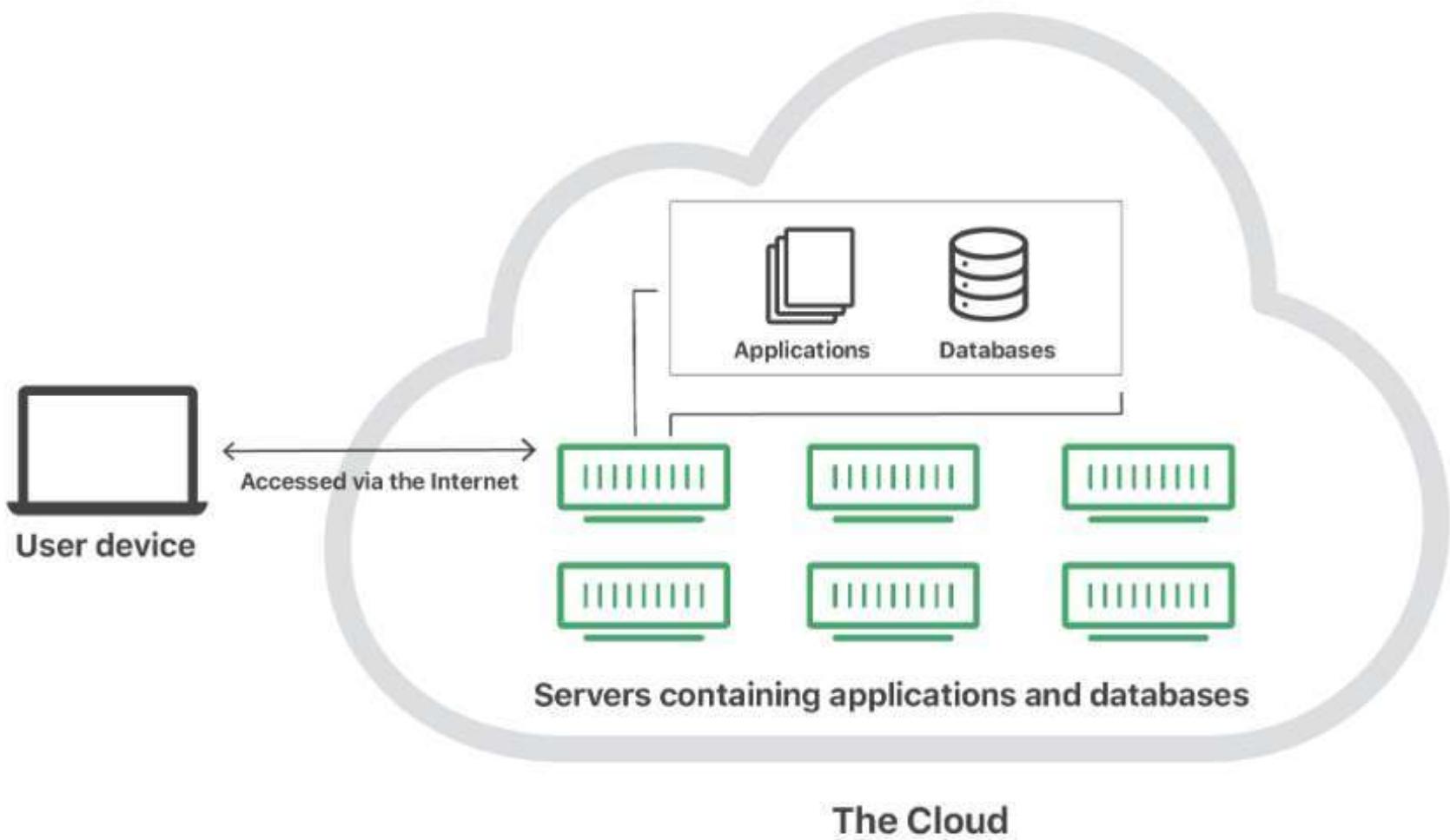
*Cloud computing says, Use Cloud and cloud computing, and users and company do not need to manage physical servers, do not run software on your own machines in their on-premises environment or on-premises data centre.*

*Instead store data on cloud, run software on cloud servers.*

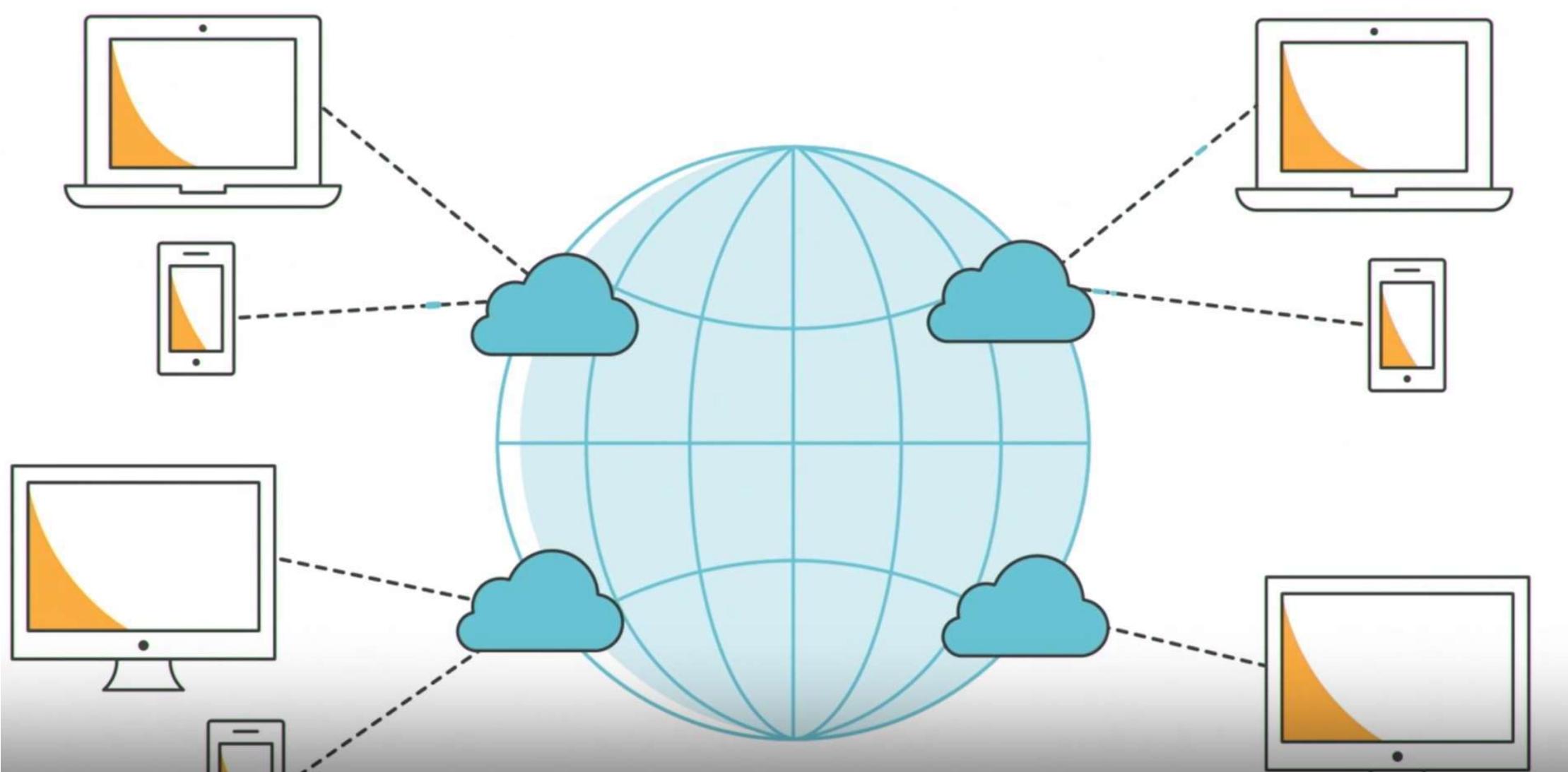
*These server store and manage data, run applications and deliver content and services like streaming video, web mail, office productivity software over the internet.*

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*Use Cloud Services on all devices using internet. You can use on laptop, mobile, tablets, etc.*

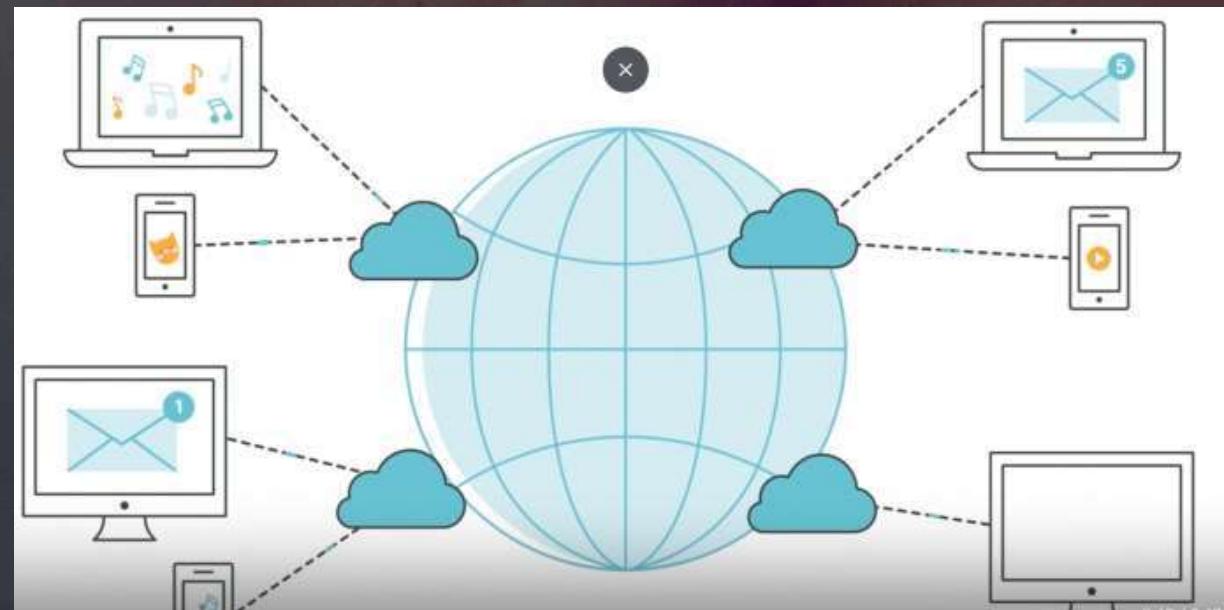


## *Module 1 (A): Introduction to Cloud Computing.*

*Cloud enable you to access same files and application from any devices over the internet, because computing and storage is on servers in data centre. Example: Access Microsoft Onedrive on mobile or laptop, google drive in mobile phone or laptop.*

*For Example: Gmail store emails and attachment on google drive cloud storage, that you can access from any device using internet.*

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## *Module 1 (A): Introduction to Cloud Computing.*

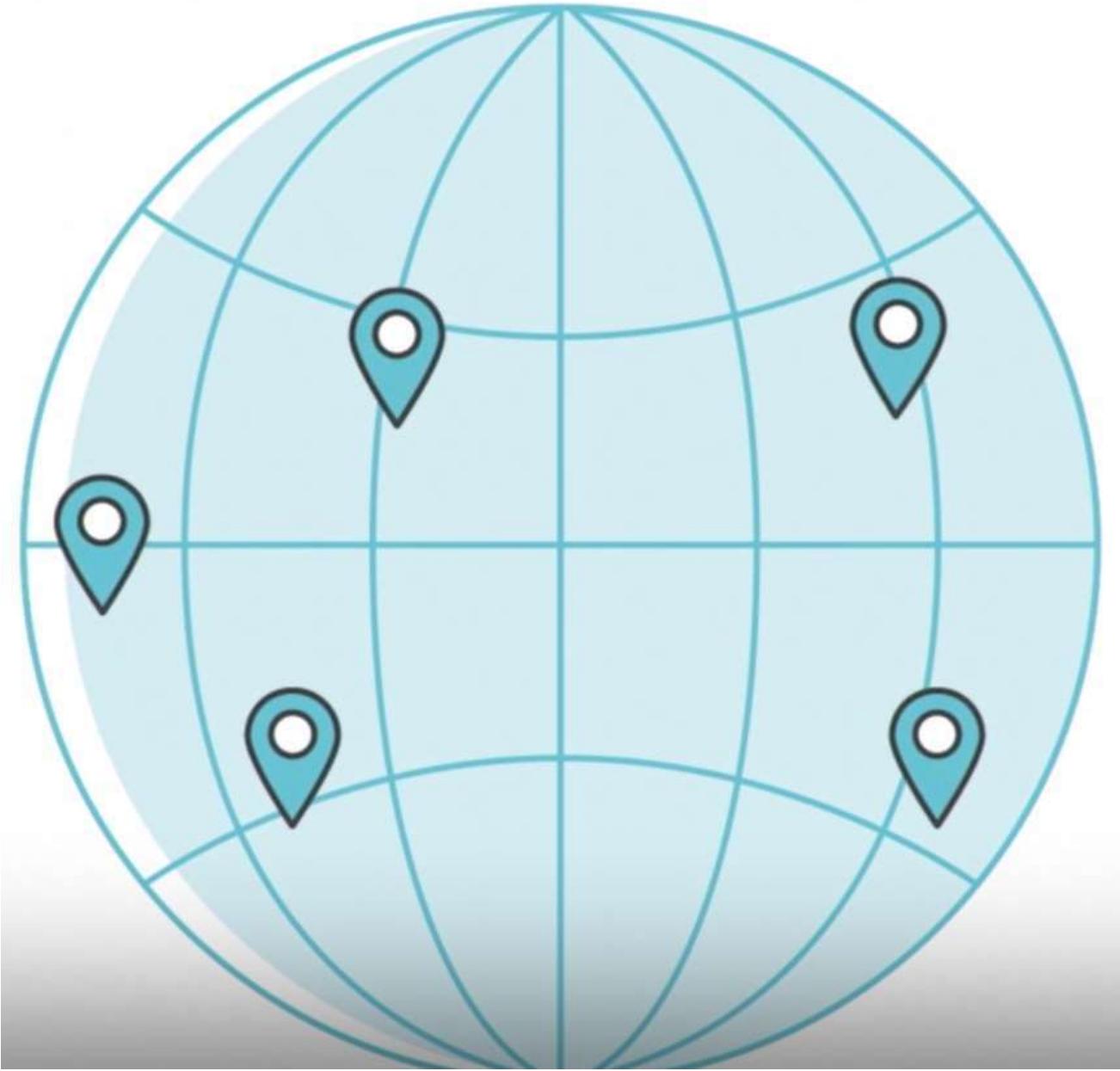
## *Cloud Classes*

*This is why a user can log in to their Instagram account on a new phone after their old phone breaks and still find their old account in place, with all their photos, videos, and conversation history.*

*Because your data photos, videos are stored on Instagram (SaaS) server.*

*It works the same way with cloud email providers like Gmail or Microsoft Office 365, and with cloud storage providers like Dropbox or Google Drive.*

*Examples of SaaS are Google Workspace, Google apps, Netflix, Instagram, etc. Examples of PaaS are the Google search engine, Canva, Github, etc. Examples of IaaS are Google Cloud Platform (GCP), IBM Cloud, AWS, , Azureetc*



*Data centers are all over  
the world.  
AWS Region:  
Mumbai Region has  
three data centres.*

## *Module 1 (A): Introduction to Cloud Computing. What is Cloud Computing ?*

*Ans: 1. Cloud computing is on-demand delivery of IT resources over the internet with pay-as-you-go pricing. Resources are Servers, Storage, networking.*

*Cloud Computing is the remote control, configuration, and use of hardware and software resources of cloud provider.*

*2. On-demand delivery indicates that AWS/ Cloud Provider already has the resources you need. When you need resources, you do not need to tell AWS/ Cloud Provider in advance that you will need resources.*

*Example: Suddenly, you find you need 300 Virtual servers. So, this is just few clicks launch instance, connect and use.*

*OR*

*You need 200 TB of storage.*

*You do not have to tell AWS or other Cloud provider in advance. It is just starting using Storage you need when you want or when you need and pay hourly or per minute.*

*When you do not need server or storage. You can return the servers, storage and stop paying immediately.*

- 3. That kind of flexibility is just not possible when you managing your own data centres.*
- 4. The Idea of IT resources is actually a big part of the AWS Philosophy.*
- 5. We can have a question like, Why AWS/Azure/GCP has so many products and servers ? Answer is really simple, because your business need that products and services.*
- 6. There are IT elements that are common across number of business like*

***Web Servers, Database, Storage, Networking.***

## *Module 1 (A): Introduction to Cloud Computing.*

### *Advantages of Cloud Computing:*

#### **1. *Reduce IT costs:***

*In establishing on-premises data centre, it takes time for purchase infrastructure, like big hardware , HP/ Cisco provide hardware, networking devices, like firewall, switches.*

*First order the infrastructure, they provide estimate and then there is a delivery time around 3 months, 6 months. They come and install hardware.*

*Then System Engineer is required, Network engineer team that cost lakhs of packages.*

*Then installing, configuring, and administering your on-premises infrastructure, maintenance and support is required.*

*However, in Cloud no need to buy infrastructure, installation and no maintenance.*

## Module 1 (A): Introduction to Cloud Computing.

### Advantages of Cloud Computing:

2. **Increase agility and time-to-value:** i.e Fast deployment of servers and application deployment.

Instead of waiting for weeks or months for IT to reply to a request, acquire, and installation and configuration of hardware.

Instead start using Cloud service within seconds, launch instance, connect and use in AWS,

Create VM in azure,

Storage data in AWS S3 Storage instead of having hard disk.

3. **Scale more easily and affordably:** When you require additional capacity with cloud can scale up and down capacity.

You can increase and decrease instance EC2 instance configuration Processor, RAM,

Storage that take a long in on-premises environment.

<https://azure.microsoft.com/en-in/resources/cloud-computing-dictionary/what-is-cloud-computing#:~:text=What%20is%20the%20cloud%3F,productivity%20software%20over%20the%20internet>

## *Module 1 (A): Introduction to Cloud Computing.*

### ***Features of Cloud Computing:***

*Major benefits can be gained by using cloud computing. Here are a few examples:*

*The installation of software is not required to access or operate cloud apps. Like Use MS Teams , Outlook, SharePoint in browser these apps are part of MS 365.*

*Cloud computing provides online development and deployment tools and a programming runtime environment through the PaaS concept.*

*Over the Internet, apps may be accessed as utilities.*

*The applications may be controlled and configured online at any moment.*

*Cloud resources are available over the network platform independently for all client types.*

*Cloud Computing provides self-service on demand. The resources can be used independently of the cloud service provider.*

*Cloud Computing is extremely cost-effective due to its great operational efficiency and optimal use. It merely requires an Internet connection.*

*Cloud Computing provides load balancing, which increases its reliability.*

## Types of Cloud:

*Public Cloud,  
Private Cloud and  
Hybrid Cloud*

**Public Cloud:** Example: AWS Amazon Web Services, Azure, GCP, IBM Cloud, Vmware, Oracle

1. Anyone can use Public Cloud. TCS, Wipro, any organization, company, startup can use public cloud.

We can access by web. You can use AWS resources by <https://aws.amazon.com/> and create your account and starting using aws cloud services.

This is known as AWS Management Console.

For Azure: Start using Azure portal <https://portal.azure.com> and create account and start using Azure services.

Google Cloud <https://cloud.google.com/>

2. In Public Cloud, resources like servers and storage are owned and operated by a third-party cloud service provider and delivered over the internet.

3. Public Cloud is hosted on Cloud provider DC data centre.

4. With a Public Cloud, All hardware, software and other supporting infrastructure are owned and managed by the cloud provider.

5. In Public Cloud, Cloud provider share the same hardware storage and networking with other organization.

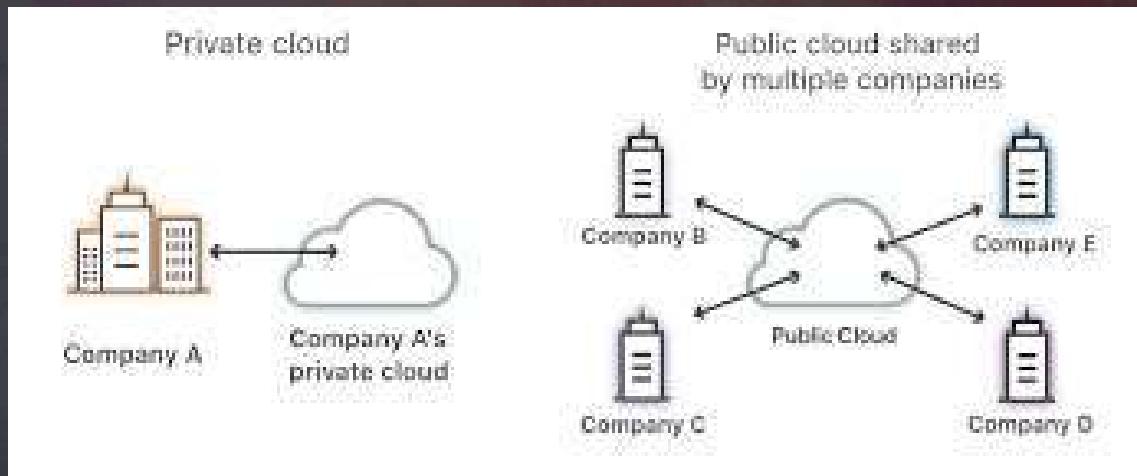
## Types of Cloud:

### **Public Cloud:**

*Example: TCS can use same hardware, storage and networking.*

*IBM can use same hardware, storage and networking.*

*It is very simple to use Public cloud, create account and start using Cloud resources.*



## *Types of Cloud:*

### ***Advantages of Public Cloud:***

1. *Lower cost: No need to purchase hardware and software and pay only for the service you use.*
  2. *No Maintenance: Your cloud service provider maintain the hardware, software, storage and networking devices deployed in their data centre.*
- Example: Switch or Router is not working in our own premises, we need to check, test, buy and install new device.*
3. *Near-unlimited Scalability: On demand resources are available to meet your business needs.*
  4. *High reliability: Cloud provider has a vast network of servers and it ensures against failure.*

### ***Private Cloud:***

1. *Private cloud is used for particular organization and*
2. *Only that organization can access their private cloud.*
3. *Private cloud is physically hosted at organization on site data-centre or in organization premises or it can be hosted by third-party service provider.*
4. *A private cloud consist of cloud computing resources that is used exclusively by one organization or by business.*

## Types of Cloud:

### Private Cloud:

5. In private cloud, the services and infrastructure are always maintained on a private network.

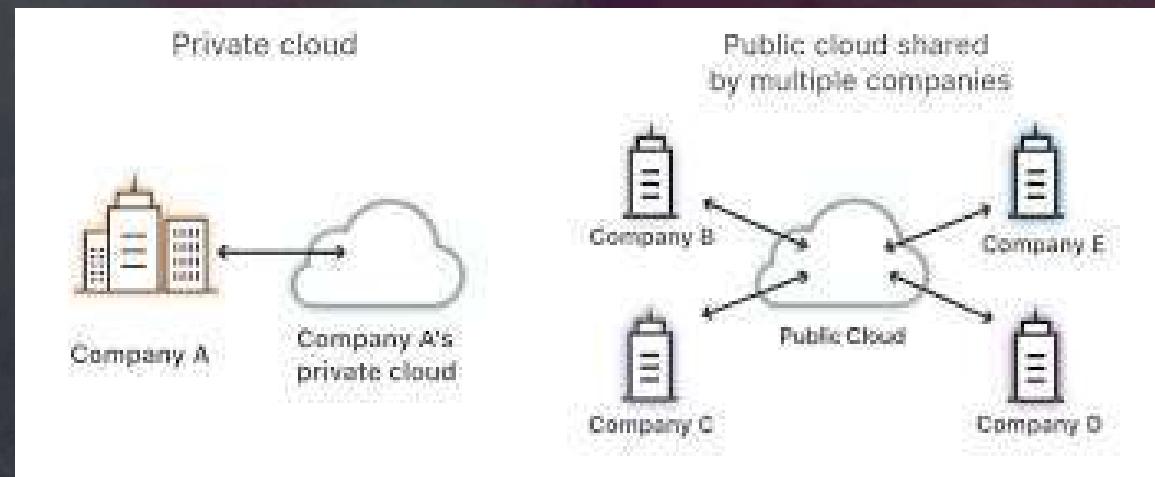
Hardware and software are dedicated solely to your organization.

6. In this way, a private cloud can make it easier for an organization to customize its resources to meet specific IT requirements.

Private cloud is more secure than the public cloud since only that organization has access to their private cloud. Therefore, private clouds are often used by govt agencies.

Financial institutions, like ICICI Bank, SBI Bank

any other mid-large size organization with business-critical operations seeking need control over their environment.



## Types of Cloud:

### **Private Cloud:**

6. *Private Cloud is under control of the organization or organization has the control over their data centre.*

#### *Advantages:*

1. *More flexibility: Your organization can customize its own cloud environment to meet specific business need.*
2. *More Control: Resources are not shared with others, so higher level of control and privacy are possible.*
3. *More Scalability: Scale up and down capacity as per the requirements.*

### **Hybrid Cloud**

1. *Hybrid cloud is combination of both public cloud and private cloud.*
2. *Organization environment that mix at least one private computing environment i.e on-premises IT infrastructure with one or more public cloud are called hybrid cloud.*
3. *A hybrid cloud platform gives organization many advantages – such as greater flexibility  
more deployment option  
security , compliance and getting more value from their existing infrastructure.*

## Types of Cloud:

### Hybrid Cloud

4. When computing and processing demand fluctuates, hybrid cloud gives business the ability to seamlessly scale up their on-premises infrastructure to the public cloud to handle any overflow – with giving access of their entire data centre to third party cloud provider.
5. Organization gain the flexibility and innovation by running certain workloads in the public cloud.

While keeping highly sensitive data in their on-premises data centre to meet clients' needs or regulatory requirements.

### Advantages of the hybrid cloud:

**Control**—your organisation can maintain a private infrastructure for sensitive assets or workloads that require low latency.

**Flexibility**—you can take advantage of additional resources in the public cloud when you need them.

**Cost-effectiveness**—with the ability to scale to the public cloud, you pay for extra computing power only when needed.

**Ease**—transitioning to the cloud does not have to be overwhelming because you can migrate gradually—phasing in workloads over time.