**Introduction to Cloud**

**Define cloud computing concept**

**Define cloud deployment models and cloud service models**

**Identify the characteristics of could computing**

1. Cloud Computing

Cloud computing, also referred to as the cloud, is the delivery of on-demand computing resources. Such as:

* Networks
* Servers
* Storage
* Applications
* Services
* Data centres

Over the Internet on a pay-for-use basis.

It can describe the applications and data that users access over the Internet rather than locally (local computer). Examples of the uses for cloud computing:

* Users using online web apps
* Employees using secure online business applications to conduct their work
* Users storing personal files on cloud-based storage platforms, such as Google Drive, OneDrive, and Dropbox.

Cloud Computing User Benefits

* No need to purchase applications and install them on local computer
* Use online versions of applications and pay a monthly subscription
* More cost-effective
* Access most current software versions.
* Save local storage space
* Work collaboratively in real time

Five Essential Characteristics of the Cloud

1. On-demand self-service:

You get access to could resources such as the processing power, storage, and network you need, using a simple interface, without requiring human interaction with each service provider.

1. Broad network access

The cloud computing resources can be accessed via the network through standard mechanisms and platforms such as mobile phones, tablets, laptops, and workstations.

1. Resource Pooling

It gives cloud providers economies of scale, which they pass on to their customers, making cloud cost-efficient. Using a multitenant model, computing resources are pooled to serve multiple consumers, and cloud resources are dynamically assigned and reassigned according to demand, without customers needing to know the physical location of these resources.

1. Rapid elasticity

You can access more resources when you need them, and scale back when you do not, because resources are elastically provisioned and released.

1. Measured Service

You only pay for what you use or reserve as you go. Resource usage is monitored, measured, and reported transparently based on consumer utilization.

Cloud computing is about using technology as a service by leveraging remote systems on-demand over the Internet. It has changed the way the world consumes compute services by making them more cost-efficient while making organizations more agile on response to change.

Cloud Deployment Models

Cloud deployment models indicate where the infrastructure resides, who owns and manages it, and how cloud resources and services are made available to users.

There are 3 types of cloud deployment models: public, private, and hybrid.

* Public cloud: is when you leverage cloud services over the open internet on hardware owned by the cloud provider, but its usage is shared by other companies.
* Private cloud: means that the cloud infrastructure is provisioned for exclusive use by a single organization. It could run on-premises, or it could be owned, managed, and operated by a service provider.
* Hybrid cloud: when you use a mix of both public and private clouds, working together seamlessly.

Let’s look at the three cloud service models that are based on the three layers in a computing stack: infrastructure, platform and application. These cloud computing models are aptly referred to as Infrastructure as a Service (Iaas), Platform as a Service (Paas), and Software as a Service (Saas).

* Iaas model: you can access the infrastructure and physical computing resources such as servers, networking, storage, and data centre space without the need to manage or operate them.
* PaaS model: you can access the platform that comprises the hardware and software tools that are usually needed to develop and deploy applications to users over the Internet.
* SaaS model: a software licensing and delivery model in which software and applications are centrally hosted and licensed on a subscription basis. It is sometimes referred to as “on-demand software”.