

Christopher Uy, Sanchez BSIT-3

1. Explain the essential characteristics of Cloud Computing.

The essential characteristics of cloud Computing are *Rapid Elasticity, Measured Service, On-Demand Self Service, Resource Pooling, Broad Network Access*.

- On-Demand Self Service enables consumers to get computing resources as and when required, without any human intervention necessary. Also allow users to have a ready to use services out of the box with a self-service interface that is user-friendly.
- Broad Network Access is accessed via the network, usually the internet, from a broad range of client platforms such as desktop computer, laptop, mobile phone, thin client. It eliminates the need for accessing a particular client information and enables access anywhere across the globe.
- Resource pooling the provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand.
- Rapid Elasticity can be elastically provisioned and released, in some cases automatically, to scale rapidly outward and inward commensurate with demand. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be appropriated in any quantity at any time.
- Measured Services Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be monitored, controlled, and reported, providing transparency for both the provider and consumer of the utilized service.

2. How is Cloud beneficial compared to the traditional IT model?

- The cloud brings benefits by reduced IT cost avoiding up-front capital expenditure, also Business agility support provides the ability to add new

resources quickly, Flexible scaling can easily scale the system, High availability ensures application runs 24/7 and restriction will matter with the policy and priority of the application and lastly it consumes less energy to operate since it is a cloud base. The traditional IT model does the opposite of the cloud base system.

3. Explain the different Cloud services models.

There are 3 different Cloud services models Infrastructure-as-a-Service, Platform-as-a-Service and Software-as-a-Service. Infrastructure-as-a-Service offers capability to consumers to hire infrastructure components such as servers, storage, and network. Also enables users to deploy, run software, including OS and application, Platform-as-a-Service can deploy consumer-created or acquired applications on the Cloud provider's infrastructure and consumer is billed for platform software components OS, Database, Middleware. Lastly Software-as-a-Service provides consumer running applications in the cloud infrastructure and the flexibility in accessing various client devices, like thin clients or web browsers and billing is based on the application usage.

4. Describe the various Cloud deployment models.

- The community cloud deployment model operates as a public cloud. The difference is that this system only allows access to a specific group of users with shared interests and use cases.
- A hybrid cloud is a combination of two or more infrastructures (private, community, VPC, public cloud, and dedicated servers). Every model within a hybrid is a separate system, but they are all a part of the same architecture.

5. What are the challenges of Cloud Computing?

- For a provider's perspective some challenges are Service warranty and service cost Resources must be kept ready to meet unpredictable demand, Huge numbers of software to manage Huge number of applications and platform software to purchase, No standard Cloud access interface Cloud customers want open APIs but needs agreement among cloud providers for standardization.
- For a consumer's perspective security regulation might be a problem by some users, Network latency real time applications may suffer due to network latency and limited bandwidth, supportability some client existing legacy applications might not support the new infrastructure and lastly Interoperability lack of standardization across cloud-based platforms.