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Introduction:

- Cloud computing is basically providing IT services over the internet
- There isn't a one-time payment plan; you are charged for as much as you use.
- You yourself do not need to buy and maintain servers or data centers instead you outsource it.
- Data centers and servers are used for tasks such as computing power, storage, etc.
- There are three main cloud providers AWS, Azure, and GCP which have their own cloud infrastructure.
- Each cloud provider has there own unique certification.

Traditional Architecture:

- Consists of both hardware and software resources
- Includes data center, server, networking computers, and software applications
- This setup is very costly and unreliable

Cloud Computing:

- The basic definition is technology to operate the cloud.
- Virtualized IT infrastructure (A single server can be divided into multiple servers)
- Cloud Lowers IT costs (no inhouse infrastructure required)
- Cloud computing increases the efficiency of the enterprise (can also empower certain users for support or development mainly)
- Cloud is not costly, you can purchase capacity/scale as per your requirement hence it is cost-effective

Characteristics:

- On-Demand Self-Service: No administrator is required, users are empowered
- Broad Network Access: Easy to access from anywhere over networks and devices.
- Resource Pooling: Resources like storage can be shared with customers, and more than one client can use the same physical cloud resource.
- Rapid Elasticity: Use as much as you need, can increase or decrease scale depending on your need.
- Measured Service: monitored therefore there's accountability.

Why Cloud:

- Can scale up/down quickly
- Instant bandwidth increase
- Reduced cost; no maintenance, no management required
- Secure
- Reduced failures, due to the provider's integrity
- Quick and easy data recovery
- Easy access from anywhere over the internet
- IaaS: rent hardware, complete control over hardware, most flexible (What is VM and EC2?)
- PaaS: read to use, write and execute high-quality code, helps create applications quickly. (Azure SQL DB)

- SaaS: complete product, fully managed by the provider, hosted online (Gmail,MS office 365)

Cloud Deployment Models:

- Public Cloud: Third Party, Available to anyone on the internet, Scaling is quicker and easy (AWS, Azure and GCP)
- Hybrid Cloud: Combo of both public and private cloud, More in demand (Microsoft Azure Stack)
- Private Cloud: Dedicated to a single organization, physical components stored on site (virtualized resources) (HP Data Centers)