



Module 1: Describe Cloud Computing (Unit 1 - 4)

What is Cloud Computing?

↳ Cloud Computing: delivery of computing services over the Internet.

Computing services include common IT infrastructure such as virtual machines, storage, databases, and networking.

Shared Responsibility Model:

↳ In a traditional ^{corporate} datacenter,

Company responsible for

- maintaining physical space
- ensuring security
- maintaining or replacing servers if anything happens.

IT department responsible for:

- maintaining all infrastructure and S/W needed to keep the datacenter up and running.
- likely to be responsible for keeping all systems patched and on the correct version.

With the shared responsibility model, these responsibilities get shared by the cloud provider and the consumer.

↳ Physical security

- Power
- Cooling
- Network connectivity



↳ Responsibility of cloud provider.

Consumer isn't collocated with datacenter,
so no sense for consumer to have these resp.

↳ • Data stored in cloud ↳ Responsibility
 • Information
 • Access security of consumer.

↳ (You give access to
those who need it)

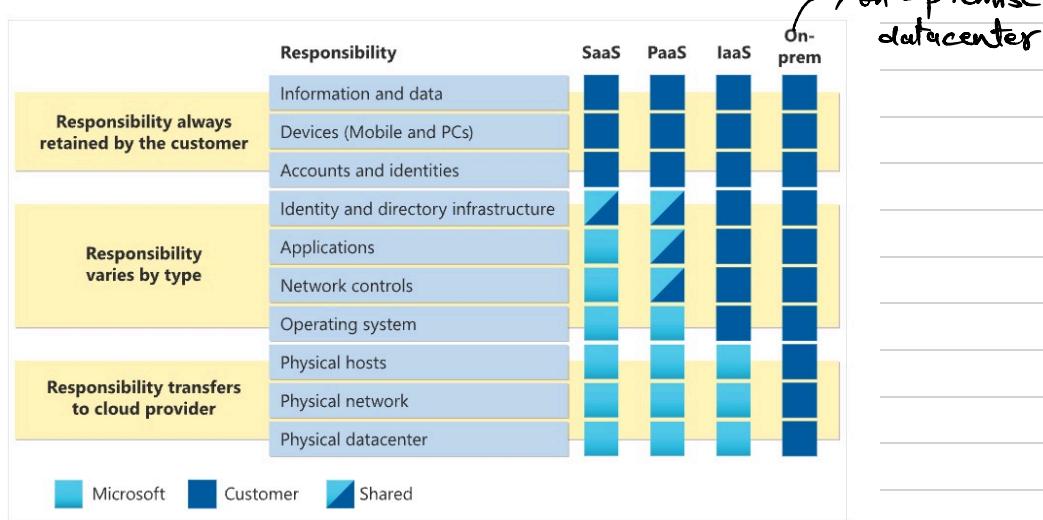
Then for some things, the responsibilities depends on the situation.

↳ If you're using a cloud SQL database, the cloud provider would be responsible for maintaining the actual DB. However, you're still responsible for the data that gets ingested into the DB.

If you deployed a virtual machine and installed an SQL database on it, you're responsible for DB patches and updates, as well as maintaining the data and info stored in the DB.

heavily

- ↳ The Shared responsibility model is "tied" into the cloud service types:
 - Infrastructure as a Service (IaaS)
 - Platform as a Service (PaaS)
 - Software as a Service (SaaS)
- IaaS places the most responsibility on the consumer, with the cloud provider being responsible for the basics of physical security, power, and connectivity.
- SaaS places most of the responsibility with the cloud provider.
- PaaS, being a middle ground b/w IaaS and SaaS, rests somewhere in the middle and evenly distributes b/w the cloud provider and the consumer.



→ When using a cloud provider, you'll always be responsible for:

- The info and data stored in the cloud.
- Devices that are allowed to connect to your cloud (cell phones, computers, and so on).
- The accounts and identities of the people, services, and devices within your organization

The cloud provider is always responsible for:

- The physical datacenter
- " " " network
- " " " hosts

Your service model is responsible for:

- OS
- Network controls
- Applications
- Identity and Infrastructure.

(Unit 5-8)

→ Cloud models:

↳ They define the deployment type of cloud resources.

3 main cloud models:

- Private
- Public
- Hybrid

→ Private cloud: → in some ways, is the natural evolution from a corporate datacenter.

- ↳ used by single entity.
- ↳ hosted in a dedicated datacenter offsite, potentially even by a third party that has dedicated datacenter to your company.

→ Public Cloud: → built, controlled, and maintained by a third-party cloud provider.

- With this, anyone that wants to purchase cloud services can access and use resources.

→ Hybrid Cloud: → is a computing environment that uses both public and private clouds in an inter-connected environment.

- ↳ can be used to allow a private cloud to surge for increased, temporary demand by deploying public cloud resources.
- ↳ can be used to provide an extra layer of security.
- ↳ Users can choose flexibly which service to keep in public cloud and which to deploy in private cloud infrastructure.

| Public cloud | Private cloud | Hybrid cloud |
|---|--|---|
| No capital expenditures to scale up | Organizations have complete control over resources and security | Provides the most flexibility |
| Applications can be quickly provisioned and deprovisioned | Data is not collocated with other organizations' data | Organizations determine where to run their applications |
| Organizations pay only for what they use | Hardware must be purchased for startup and maintenance | Organizations control security, compliance, or legal requirements |
| Organizations don't have complete control over resources and security | Organizations are responsible for hardware maintenance and updates | |

→ Multi-cloud: → You use multiple public cloud providers.

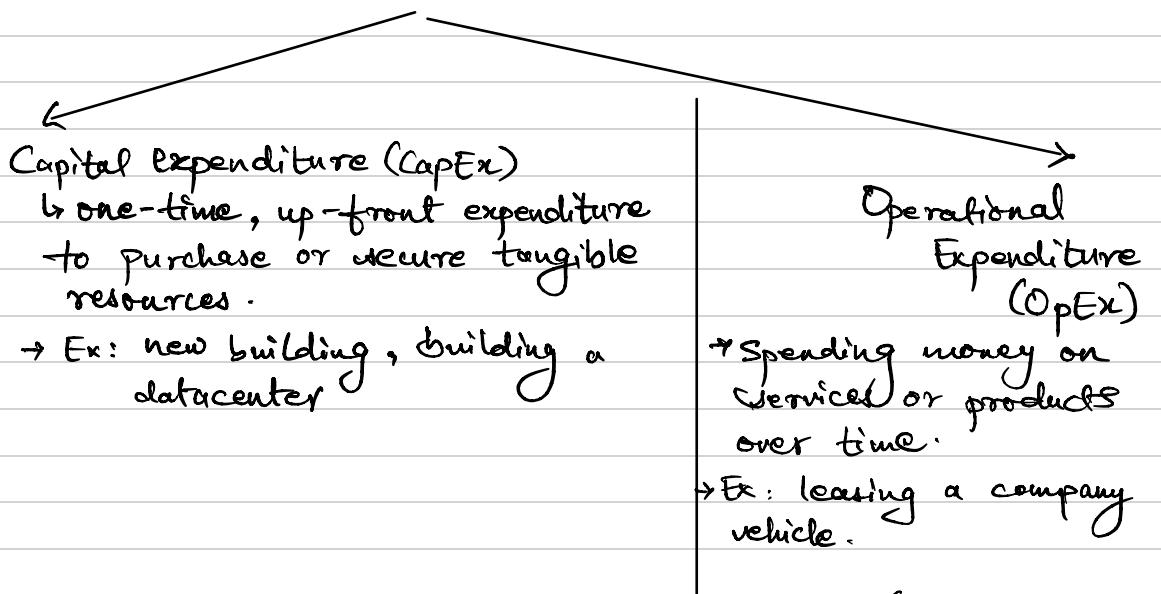
↳ You deal with two (or more) public cloud providers and manage resources and security in both environments.

→ Azure Arc: set of technologies that helps manage your cloud environment (every type of cloud model)

→ Azure VMware Soln: lets you run your VMware workloads in Azure with seamless integration and scalability!

*→ Consumption-based model :

When comparing IT infrastructure models,
there are two types of expenses
to consider:



Cloud Computing falls under OpEx. (Consumption
based model)

You pay for IT services you use.

Pay-as-you-go model.

Module 2: Describe the benefits of using cloud services.