

Section 1 - Cloud

90% of software companies use cloud. Microsoft azure is a second large public cloud service provider. It has most of the regions and most datacenter in the world. We will see what is data center and region in the cloud going further.

We are going to work on the system READ IT! It is a book shopping app.

Before the cloud and After Cloud:

- Before cloud if we need the server we need to buy it, install it, configure it and maintain it and when it gets old we need to replace it. There was a IT team which was hired to take care of the server. There was also networking, Databases, User Management and more to it. This needed a cost which is called as cap-ex or capital expenditure. This was not a flexible approach.
- Lets say that we have a website of a clothing e commerce. And during august the CPU usage was 60% which is normal. And during Diwali there was a huge traffic at both the shop and website because of which the CPU usage went high. It went to 120%. This makes the website to crash and burn. And when talked with the IT team they have decided to increase the Server to the website. Now we can see that adding more servers means again increase in cap-ex cost. And we will be needing this additional servers only at the time of Diwali. Coz after Diwali the server CPU usage will again fall down to 60%. Then it is not an efficient option to add this servers. Most of the year the CPU is not under use.
- Its like we bought a lot of compute power but we are using this only once a year. We needed a service which could provide us the servers and take care of their availability at their end we can just use it. And here is when the cloud come into picture. We can rent the servers when we needed it and give it back when we dont need them anymore.
- All the services are managed by someone else who is called as a service provider and we just rent it and use it. Cloud providers are responsible for all the neat working of servers and services and we are their customers.
- We only pay for what we use. And we can shut it down when we don't need it. And hence also don't pay anymore after we stop using it.

Types of cloud services:

IAAS, PAAS, SAAS:

- **IAAS** is infrastructure as a service. Cloud provides the infrastructure and client takes the care of everything else. Whatever we do on the infrastructure has nothing to do with cloud platform. Example VM machine.
- **PAAS**: Platform as a service. It provides the runtime applications as a platform. All the update of the platform is done from the service provider and we just need to use this platform to run our code. Example Web Apps. Here we do not have access to the underlying virtual machines.
- **SAAS** stands for software as a service. It is the software running on cloud. We do not need to take care of anything. We don't have access to the underlying infrastructure. We just need to use it.

Types of cloud:

Private, Public, Hybrid:

- **Public Cloud**: This is set up in public network. This is accessible through internet and is managed by large network. This is available to all clients and users. Clients have no access to the underlying infrastructure.
- **Private Cloud**: This is set a cloud set by the organization premises. Managed by organization's IT team. Accessible only in organizations IT network. People who are not part of the organization cannot access this cloud. They work as the subset of the public cloud.
- **Hybrid Cloud**: Here the workload is distributed in two clouds. The sensitive data is stored in the private part of the cloud while the data which is not sensitive is stored in the public cloud. This cloud is combination of both public and private cloud. This has connectivity with public cloud.