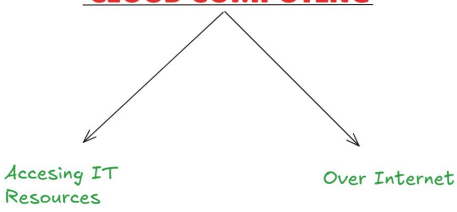
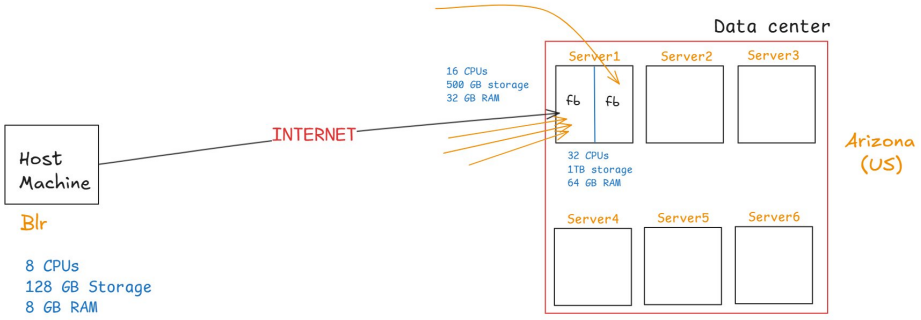
CLOUD COMPUTING



>> Cloud Computing is the technology which is used to access any IT resources over the Internet, eg: processing powers, servers, databases, networking equipments ,etc.



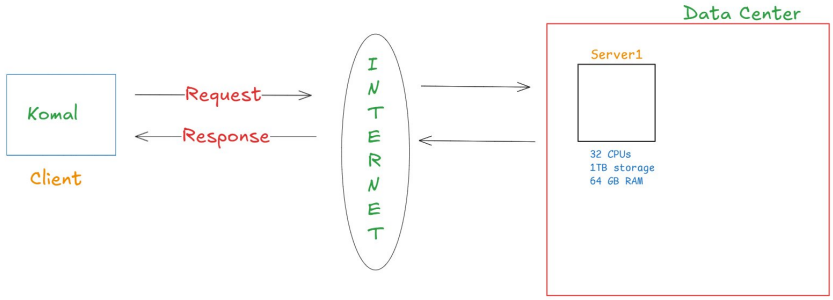
Features of Cloud Computing:

1. On-demand self-service: capability of creating & managing compute resources like\ servers, VMs, storage, etc., whenever it is required, w/o human interaction & we can get it in an instance.

2. Pay As You Go: refers to paying only for the resources which are being utilized.

3. Avoids large upfront investments: By using cloud, we can avoid paying large up-front fees for the resources & services.

4. Client-server Model:



Cloud Services Providers:

- AWS
- GCP
- Azure
- Oracle Cloud
- IBM Cloud
- Salesforce
- Vercel
- Dell
- SAP
- VMWare
- AliBaba

Types of Cloud Computing:

1. Cloud Deployment Model
2. Cloud Service Model

1. Cloud Deployment Model

>> defines where the cloud infrastructure is present, who controls it & how it is accessed.

1. Public Cloud:

>> It is open & allowed for the public to use & it is open to all the users.

>> There are no restrictions to anyone to use it.

>> It follows 'Pay-As-You-go' model.

>> Maintenance & management will be done by the Cloud service provider itself.

>> Less secured.

2. Private Cloud:

>> mainly used by an particular organization.
>> People related to that particular organization can only use it.
>> Authorized users only have the permission to use it.
>> More secured than the public cloud.
>> Maintenance & management will be done by the organization itself.

i. On-premises:

TCS --> own professionals --> Built the infra
-- servers
-- databases
-- storage

ii. Externally based:

--> Cloud Service Provide(AWS) to built the physical infra.

3. Hybrid Cloud:

>> Combination of both public & private cloud.

eg:
Deploy the app -- > Public cloud
User data --> Private Cloud

>> Maintenance & management will be done by the Cloud service provider itself.

4. Multi Cloud:

>> Use of multiple cloud services from different CSP.

eg:
Infra.(server & db) --> AWS
Data Analysis --> Azure
AI work --> GCP

>> combining services from multiple cloud service providers for a particular solution.

2. Cloud Service Model

>> describes different ways in which cloud computing services are delivered to the users.

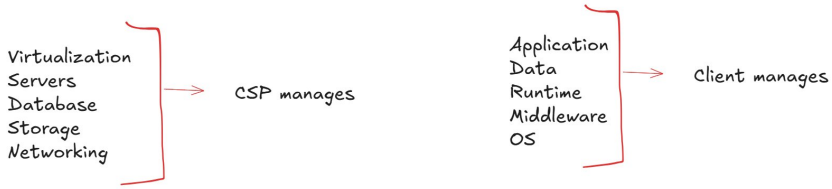
SERVICES

-- Virtualization
-- Servers
-- Storage
-- Database
-- Application
-- Data
-- Runtime
-- Middleware
-- Networking
-- OS

1. Infrastructure As a Service (IAAS):

>> IAAS is a form of cloud computing that delivers IT infrastructure resources to the users over the Internet such as Virtualization, servers, networking devices, storage & databases.

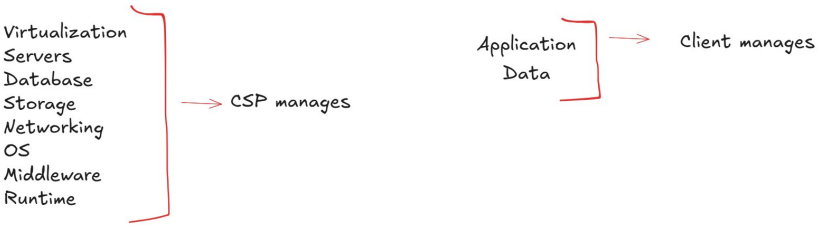
>> The underlying infra. to achieve cloud computing will already be provided by the CSP.



2. Platform As a Service (PAAS):

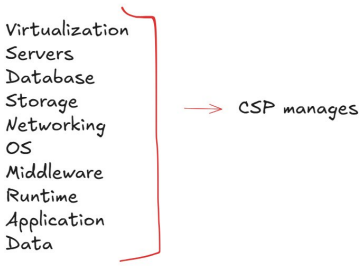
>> PAAS means a platform is provided and the client utilizes it to perform the task.

>> In PAAS, the whole platform will be provided with the infra and hardwares OS, runtime, middleware, so that client can only focus onto building, deploying and managing the application.



3. Software As a Service (SAAS):

>> In SAAS, a complete/wholesome software is provided and as a client we have to use the software to the perform the task.



>> SAAS is a software which is accessible over the Internet without being installed in the local machine.