Introduction to cloud

Why Cloud?

1. Previous setup was
   a. Costly
   b. Troubleshooting was big issue
   c. Traffic is not constant

Furthermore, since everything is going online today, the amount of data generated is huge. Thus, the previous setups were bound to be limited & cloud was inevitable.

Think of previous setup as stacks of websites. Now, think of similar stacks of data centers. Cloud basically lets your function choose the data centres required, then rent only one particular service needed. This makes it very cost-efficient.

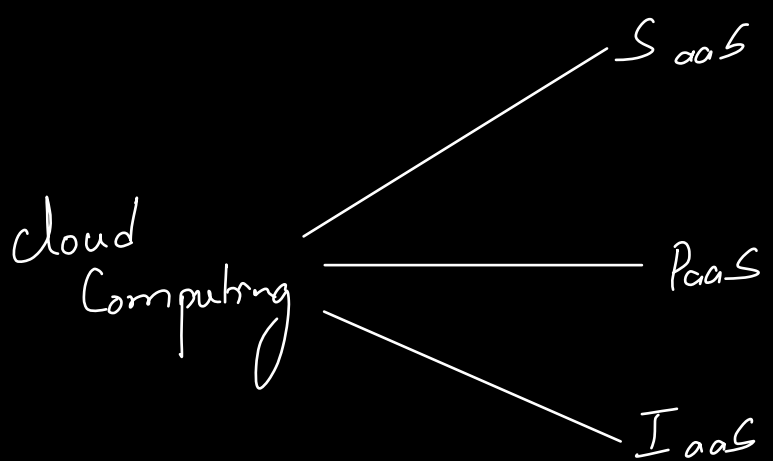
Then, What is Cloud Computing?

→ storing data / application on remote servers

→ Processing data / application from servers

→ Accessing data / applications via internet.

Let's look at Cloud Service Models



① SaaS

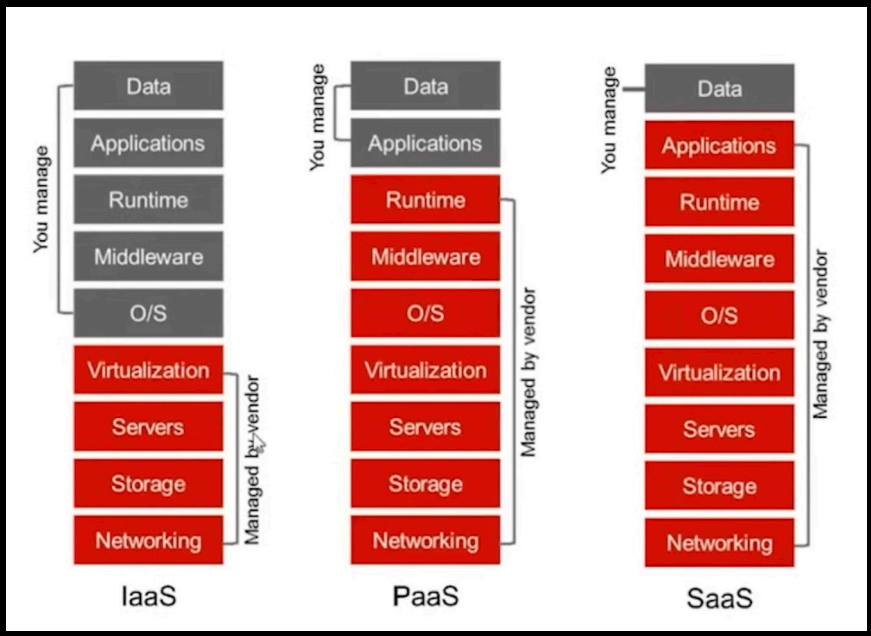
- CSP leases applications or software which are owned by them to its client
- Eg: salesforce.com provides the CRM on a cloud infrastructure to its client and charges them for it, but the software is owned by salesforce company only.

(2) PaaS

- No control over underlying architechture including OS, storage servers etc.
- The cloud provider gives the ability to the customer to deploy customer created apps using programming languages, tools etc that are provided by cloud provider.

(3) IaaS

- Provides a virtualized computing resources over the internet
- No worries about the underlying physical machine
- Abstract the user from physical machine.



Imagine eating a pizza:

(a) Order it online & eat at home (SaaS)

(b) Go to a restaurant & eat it (PaaS)

(c) Make it (IaaS)

Cloud Deployment Models

(a) Public cloud

- A CSP makes resources, such as applications and storage available to general public over the internet.
- Easy and inexpensive set-up because hardware, application and bandwidth costs are covered by the provider.
- No wasted resources because you pay for what you use

(b) Private Cloud

- Offers hosted services to limited number of people behind firewall, so it minimizes the security concerns

- Private cloud gives companies direct control over their data

© Hybrid Cloud

- A cloud computing environment which uses mix of on-premises, private cloud & third party, public cloud services
- It helps you leverage the best of both worlds.

On premise V/s Cloud Computing

· On-premise Approach

On premise computing refers to the scenario where an organization hosts its IT infrastructure including software application, data and hardware, within its own facilities. This traditional model requires significant investment in physical hardware and on going maintanance. Below is a detailed exploration of various aspects of on-premise computing.

Key components

1. Hardware

Servers: physical machines that runs applications and store data

Networking: Routers, switches, and other network devices to manage internal & external

communication

Storage devices: Hard drives, SSDs and other storage media for data storage & backup

2. Software

- OS a foundational software that manages hardware resources
- Applications: business-specific software installed on servers or individual workshops
- Middleware: software that connects different applications and ensures they work together

Infrastructure

- Data centers
- Workstations

Key Characteristics

@ Control

- full control over entire IT environment including hardware specifications, software

configurations and security measures

(b) Security

- Data is stored on-site, providing a precipitation of higher security
- Physical security measures can be implemented, such as access control, surveillance and on site-guards

(3) Compliance

- Easier to meet certain regulatory and compliance requirements, particularly those mandating data to remain on-site.
- Organizations can ensure full control over data residency and address

(4) High Costs

- Significant initial investment required
- limited scalibility & costly to scale
- cost for hardware maintainance

· cost for disaster recovery

· Cloud Computing Approach

What is cloud?

→ It is a huge online space, that holds collection of servers orchestrated to provide you various services.

Imagine using electricity in modern day households. On-premise model is similar to having a powerplant in your house and using the electricity. And, cloud computing is to buy electricity from a Electricity Provider and pay the usage based on units. The provider worries about everything, and for us there is very less thing to worry about. So, cloud computing is also a pay-as-you-go model.