AWS CLF CO2 Notes I

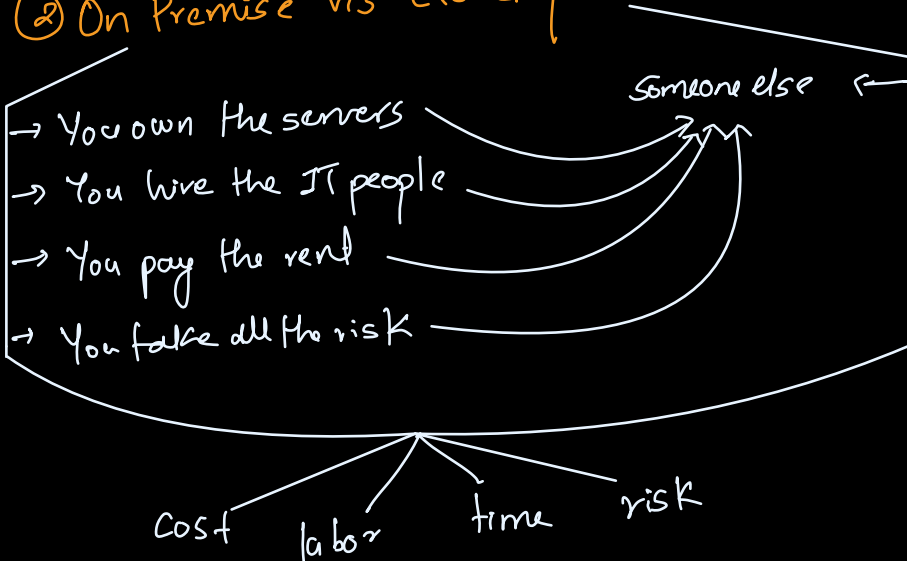## Cloud Concepts

① What is cloud Computing ?
② On premise v/s cloud
③ Evolution of Cloud
④ What is CSP ?

⑤ Common cloud services
⑥ Evolution of computing
⑦ Types of cloud computing
⑧ Cloud computing Deployment models

① What is cloud computing?

The practice of using a network of remote servers hosted on the internet to store, manage and process data rather than a local server or personal computer

② On Premise v/s Cloud providers

→ You own the servers
→ You hire the IT people
→ You pay the rent
→ You take all the risk

Someone else ←

Cost   labor   time   risk

③ Evolution of Cloud Hosting

- **Dedicated Server**

→ One physical machine dedicated to a single business. Runs a single web app/site

- **Virtual Private Server**

→ One physical machine dedicated to single business. The physical machine is virtualized into sub-machines. Runs multiple web-apps / sites

- **Shared Hosting**

→ One phys. machine shared by 100's of businessess.

- **Cloud Hosting**

→ Multiple physical machines acting as one system shared by thousands

# ④ What is a Cloud service provider (CSP)?

If is a company that

① provides multiple cloud services

② those cloud services are chainable to create one cloud architecture

③ those services are accessible via single unified API eg: AWS API

④ those services utilize metered billing — per sec / per hour

⑤ have rich cloud monitoring eg: AWS Cloud trail

⑥ have IaaS offering

⑦ offers automation via IaC (Infrastructure as code)

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① multiple cloud services
② architecturable
③ single API
④ metered billing
⑤ monitoring
⑥ IaaS & IaC

→ if not met, it will be called a cloud platform eg: Hashicorp

⑤ Common Cloud Services

A CSP can provide 100 different services but four
are the most common

Storage ↑   Databases ⌐

↕   ↕
Compute   Networking
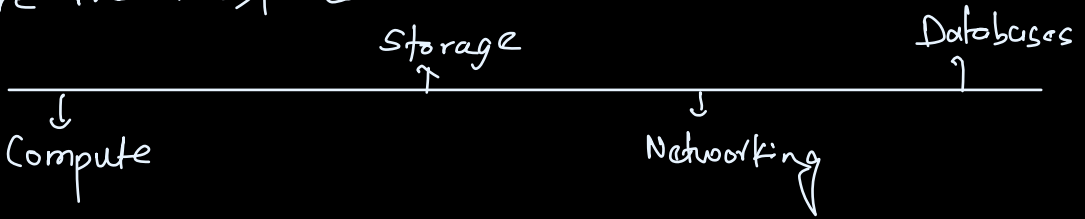
① Compute
     → virtual computer that can run app,
     progs and code

② Storage
     → virtual hard-drive

③ Networking
     → a virtual network defining internet
connections or network isolations

④ DB
     virtual databases for storing / reporting
data

⑥ Evolution of Computing

① Dedicated Server

→ a physical server wholly utilized by a single customer

→ you will have to guess your capacity

↝ overpay

→ can't vertical scale

⊣ limited by Host OS.

* guarenteed security

② Virtual Machines

→ running multiple machine over one machine porallelly

↝ shared by multiple people

⇉ still overpay for utilized VM.

③ Containers

↝ VMs running multiple contaniors

→ Docker helps you run these contamers

→ maximum utility of VMs

⑦ Types of Cloud Computing

① SaaS (for customers)
  ↳ product run & managed by service provider.
  En: office 365, gmail, drive etc.

② PaaS (for developers)
  ↳ Focus on deployment and management
  of apps. No need to worry about provisioning,
  configuring or understanding the OS.
  En: AWS EBS, Heroku etc.

③ IaaS (for admin)
  ↳ basic building blocks for cloud IT.
  Provides access to networking features, computers
  and data storage space.

⑧ Cloud Computing Deployment Models

① Public Cloud

→ everything is built on CSP.

Also known as: Cloud native / Cloud First

② Private Cloud

→ Everything built on company's data center.

Also known as: On premise

③ Hybrid Cloud

→ using both on premise and CSP, using VPN or direct connection

④ Multi cloud

→ using multiple cloud providers

⑨ Deployment Models use case

Cloud	Hybrid	On premise
fully utilizing cloud services	Using both cloud & on-premise	Deploying resources on premise, using virtualization & resource management tools — called "private cloud"
· Companies that are starting out today, or are small enough to make from VPS to CSP	· Orgs that cannot fully move to cloud due to effort of migration or security compliance	· due to sheer size & security
⤷ startups ⤷ SaaS offerings ⤷ New projects & Companies	⤷ Banks ⤷ FinTech ⤷ Legacy on premise	⤷ governments ⤷ hospitals ⤷ insurance companies