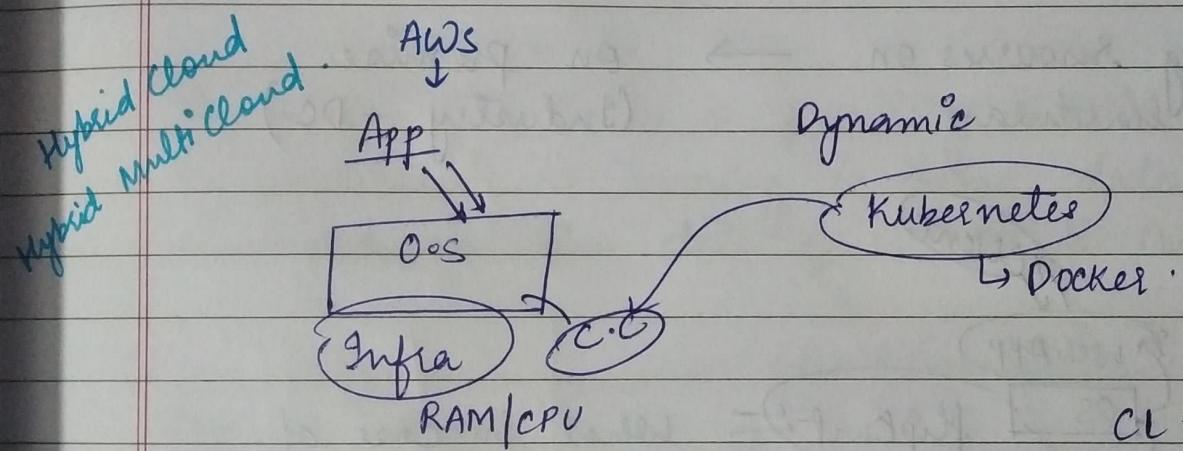
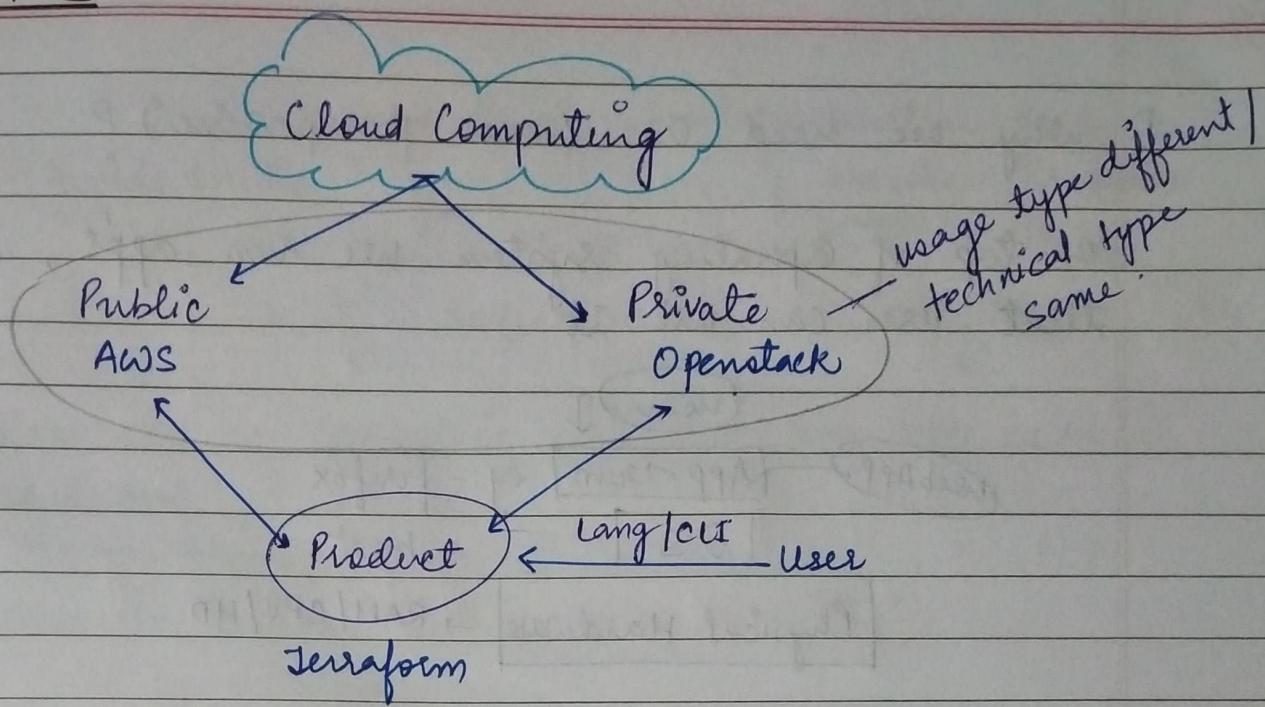
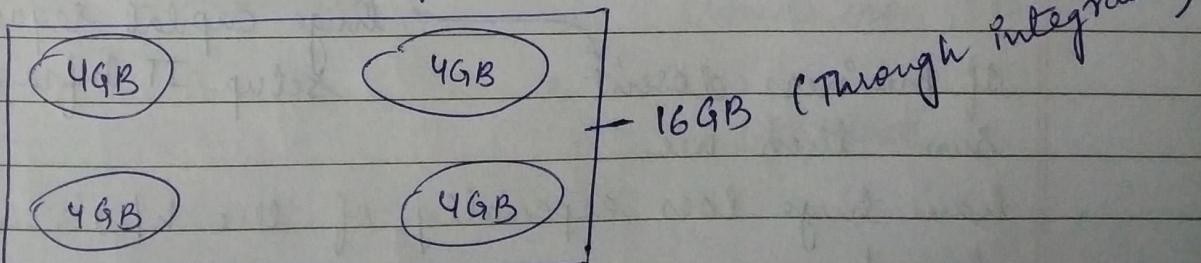


DAY - 1



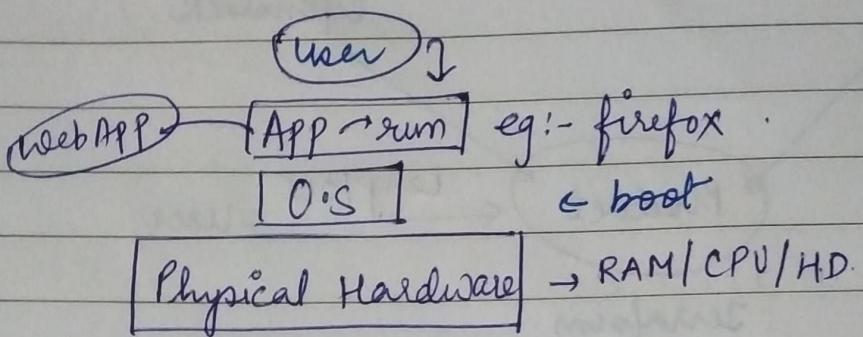
- All topics of AWS - CSA will be covered and additional services.

Openstack on top of AWS OR

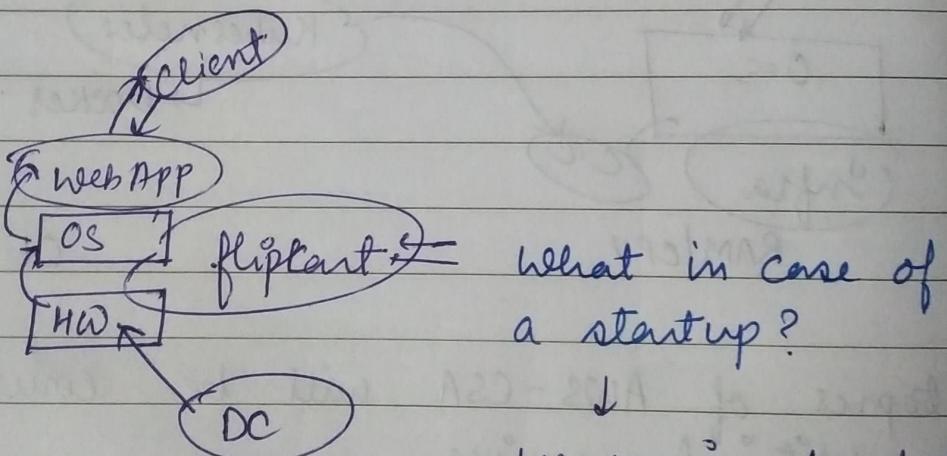


D Why we need OS (user perspective)?

On top of operating system we run apps, so that user can use it.



running resources on own hardware → on-premise (Industry - DC)



what in case of a startup?

↓
we require land to setup hardware / DC

↓
huge capital required to setup IT Infrastructure

If business doesn't run then we

have huge loss especially of the h/w's we have bought.



Solution

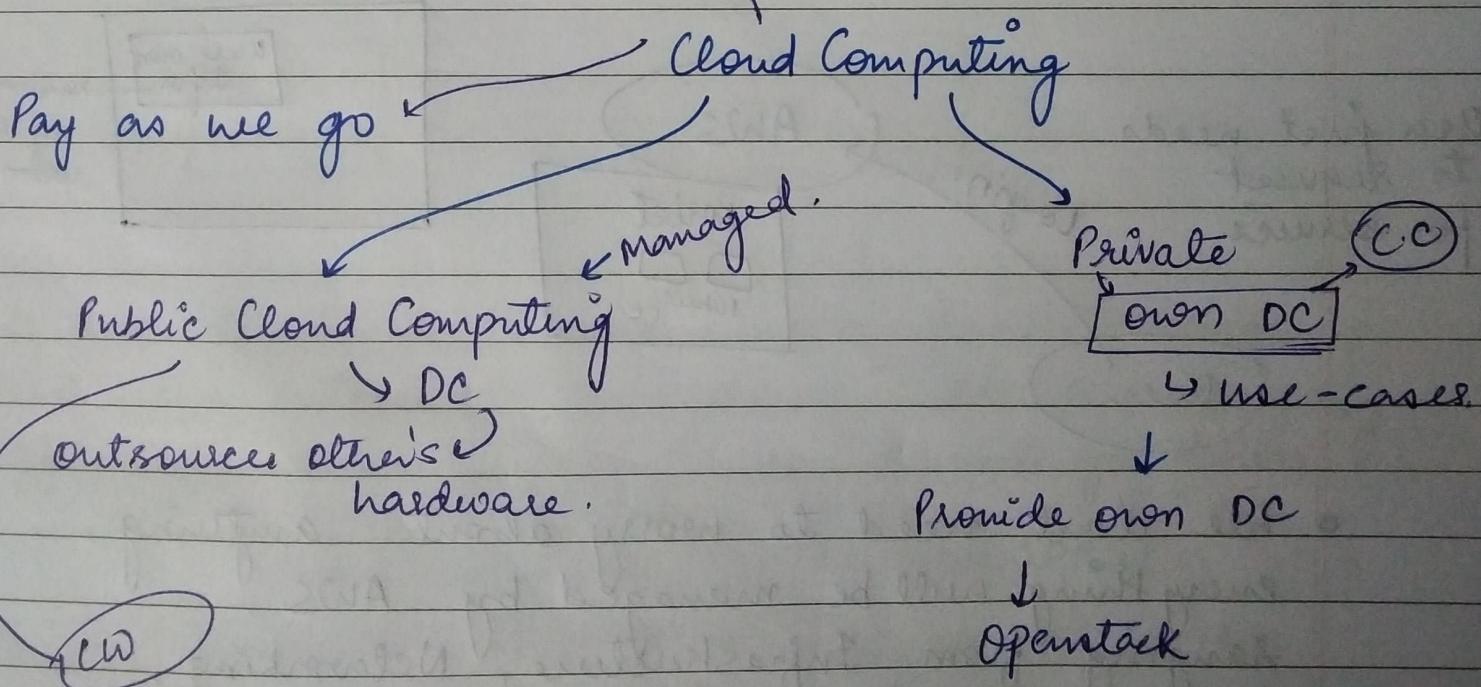


Cloud Service Provider - Infrastructure as a service Provider (IaaS).
Their business is to provide I/IW, Infrastructure

RAM / CPU - Computing Unit → run the website.
Hard-disk - Storage

Where is [amazon.in] runs?
→ not concerned to user.

- Somewhere the Cloud is providing the Computing
- My application is running in some data-center managed by the data-center owner / manager



▷ Public Cloud

→ some service provider (company) is there to provide services

Eg:

Amazon
AWS

Microsoft
Azure

Google
GCP.



wide range of services

Networking, database, storage, computing, etc.



block storage,
object storage

▷ Amazon AWS

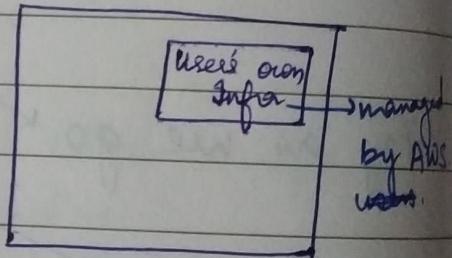
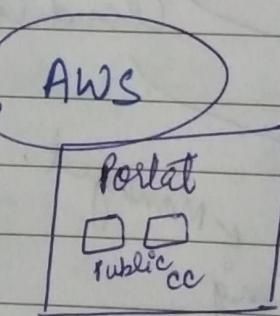
→ Public Cloud Service Provider

AWS Infrastructure

User just needs
to request
for service

login.

User



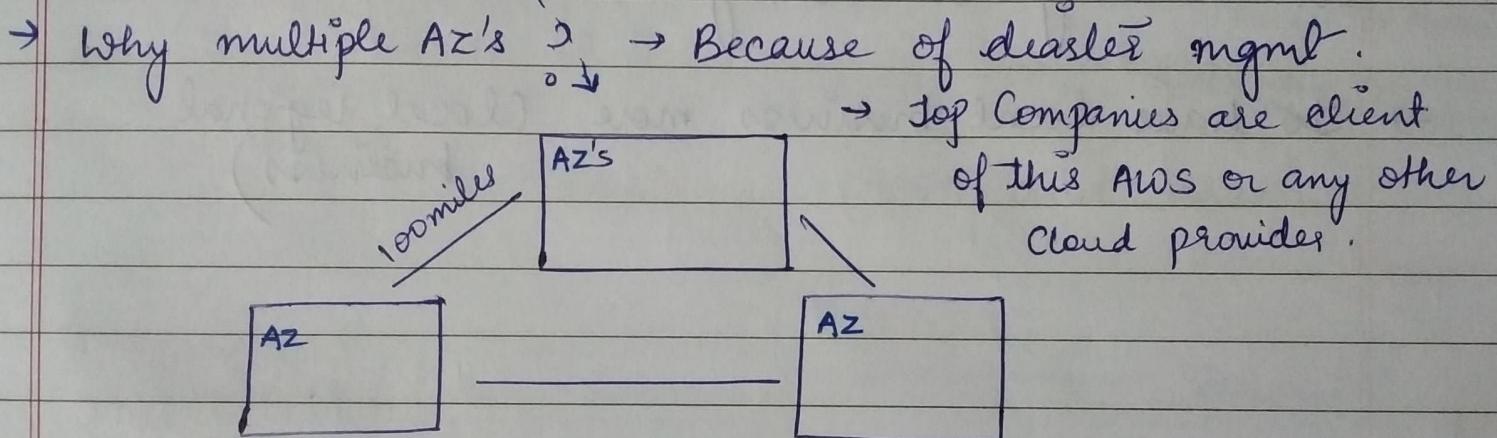
- We don't need to worry about anything, everything will be managed by AWS ranging from Infrastructure, Networking, firewall, security, storage, scaling etc.
- All we need is to setup AWS account.

- ▷ Data-Center ↗
- ~ Availability zone (same)
- ~ AWS have multiple regions that contain multiple AZ's or datacenters.
- ~ 76 AZ's in AWS (currently)

(Region)

India ~ Mumbai → atleast 2 datacenter's (AZ's)

↓
3 AZ's .
they launch



If we launch 1 DC and some disaster comes up.
and the entire DC goes down . All the company
sites and services running on it will go down

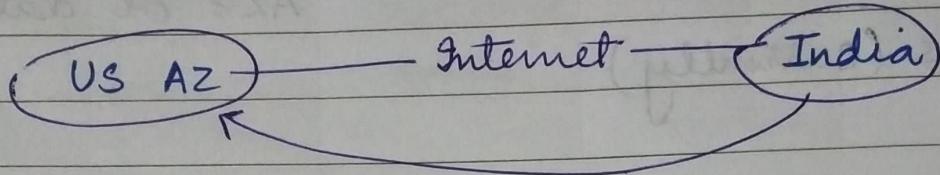
↓ Public Cloud Providers have (DR's)

Disaster Recovery (DR) - One more DC or AZ
100 miles away

Regions across the world - 24 Regions . (AWS)

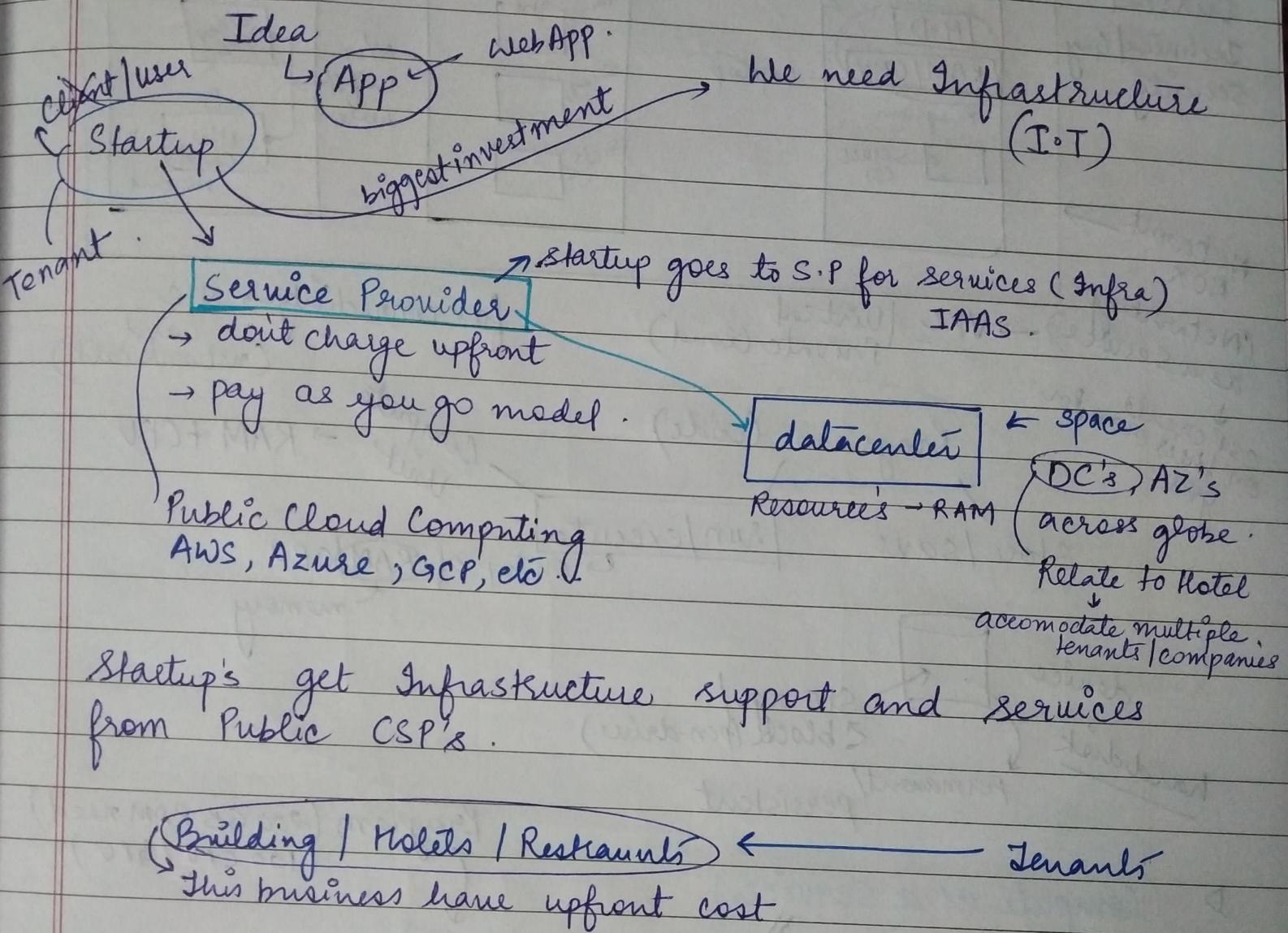
▷ Why multiple DC's in multiple regions?

Main - North Virginia - 6 AZ's -
Region.



- To reduce delay (latency)
- If some application is made for use in India only, and the website is hosted in USA then datapacket needs to travel a lot leading to latency.
- To have local business more (local regional business)

EC2 | VPC | EBS | EIP | ENI... .



Multi-tenant - concept in cloud computing
multitenancy
↓
Name-space.

- Cloud gives you virtual feeling
[Virtualization]

KVM → OVN

- feeling of Isolation is provided by CSP to each tenant

EC2 - CPU/RAM Compute

EBS - Storage

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Building
↓

⇒ Infrastructure

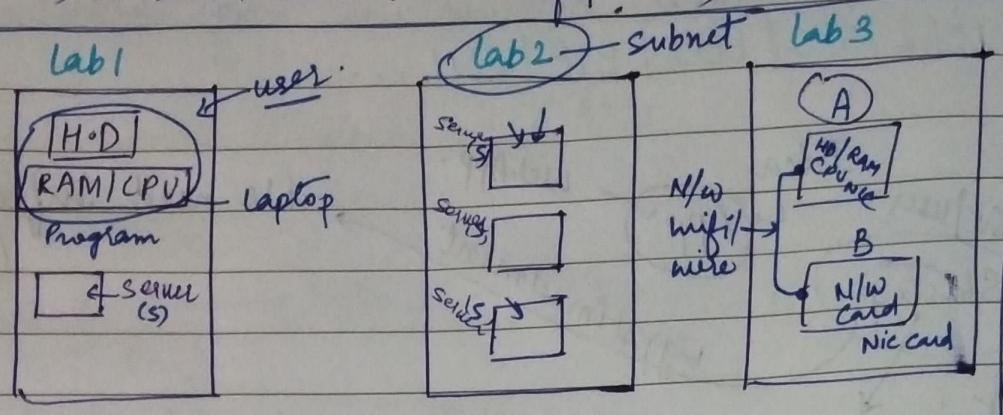
→ To run business → successful IT

Current
Technical Guy
Security.

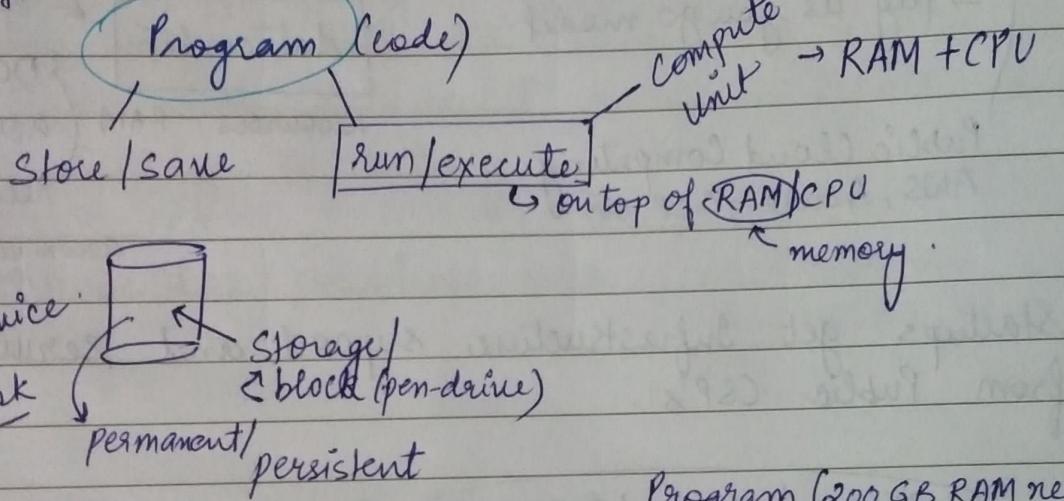
Network
BOT

(Networking
as a Service) → VPC (Virtual
Private Cloud)

CSP create
on their own for
you



for connectivity → NIC
(card
(network card))



▷ (Compute as a service)

Program (200 GB RAM need)
(100 CPU/GPU)

Compute (RAM/CPU)

Upfront

1 million

Rent

1 hr → 2 USD

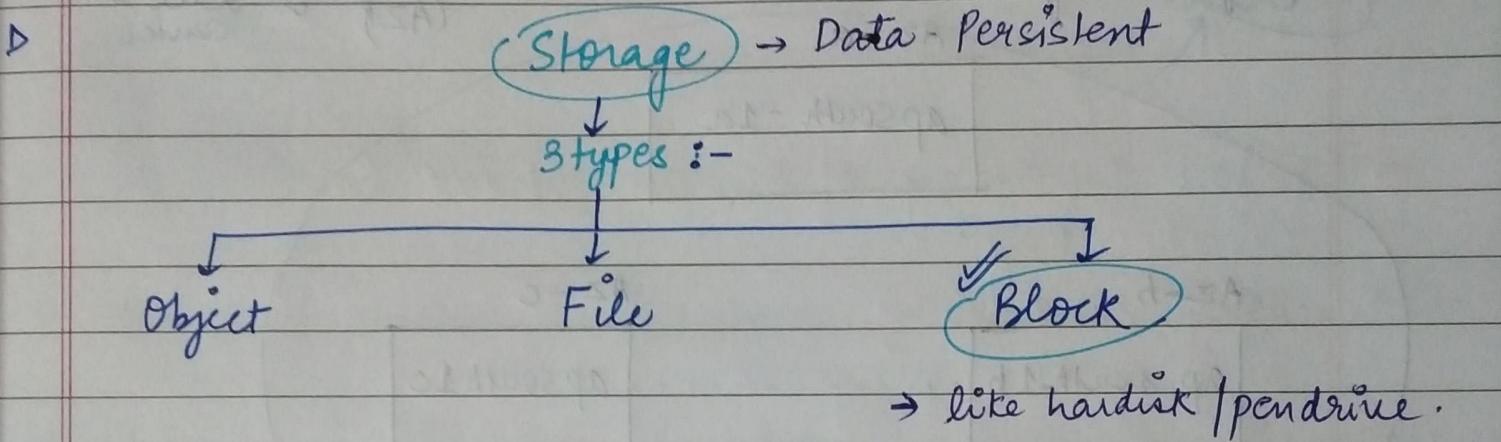
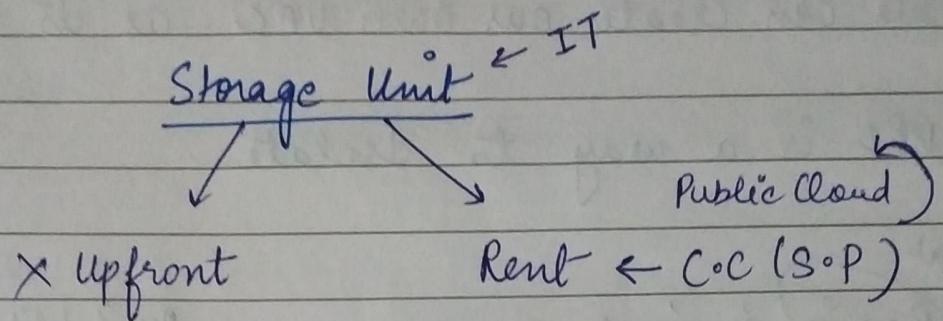
Business.

C.C

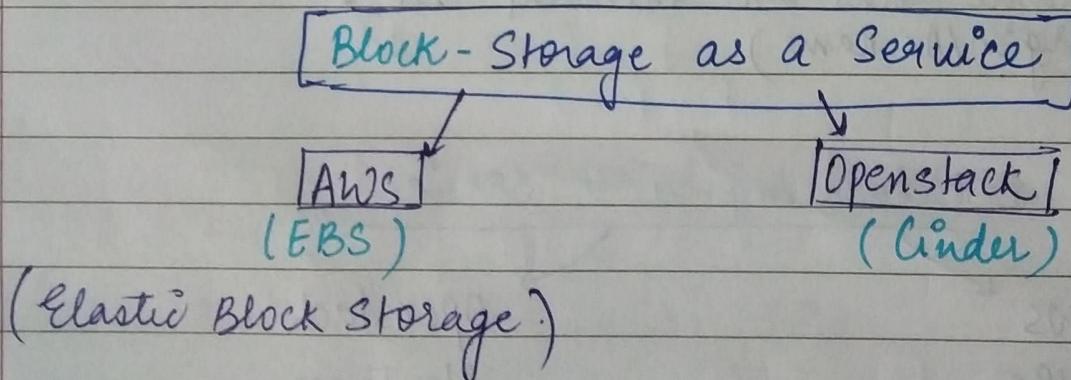
CAAS
(Compute as a Service)

- EC2 - Service from AWS Cloud
 - Compute as a Service
 - we can get (RAM + CPU)
 - Elastic Compute Cloud (EC2)

- ° NOVA - (Compute Service in Openstack).
- If we want to store data permanent / persistent



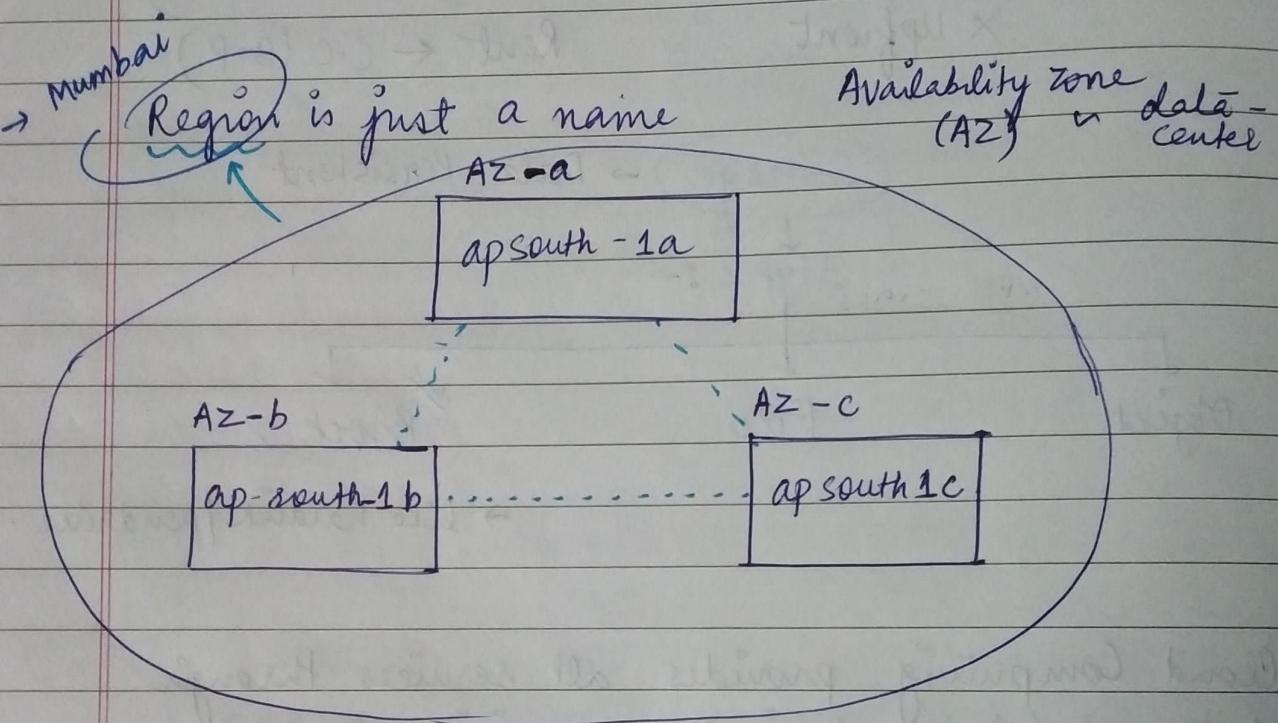
- Cloud Computing provides all services through Internet (Internet is pre-requisite to CC)



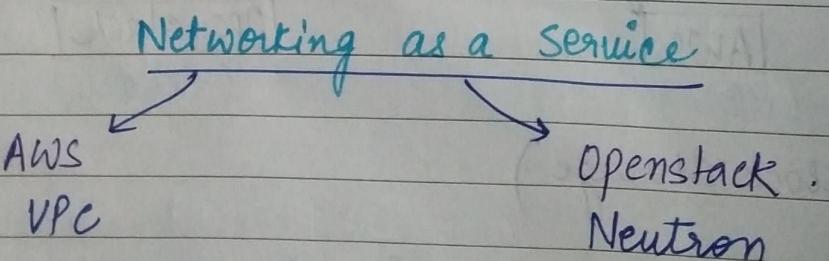
- EBS is one sub-service of EC2
- Whatever data you give to CSP its isolated due to VPC.
 - ↓ Provides Isolation (Security, privacy)

VPC subnet I think of as a lab
→ AWS Global Infrastructure

- As soon as you create an account at AWS a VPC is created for you (default VPC is created)
- We can create our own VPC as it's a service.
- VPC is a way to Isolate.



→ every name has an internal id.
(Region/AZ name)



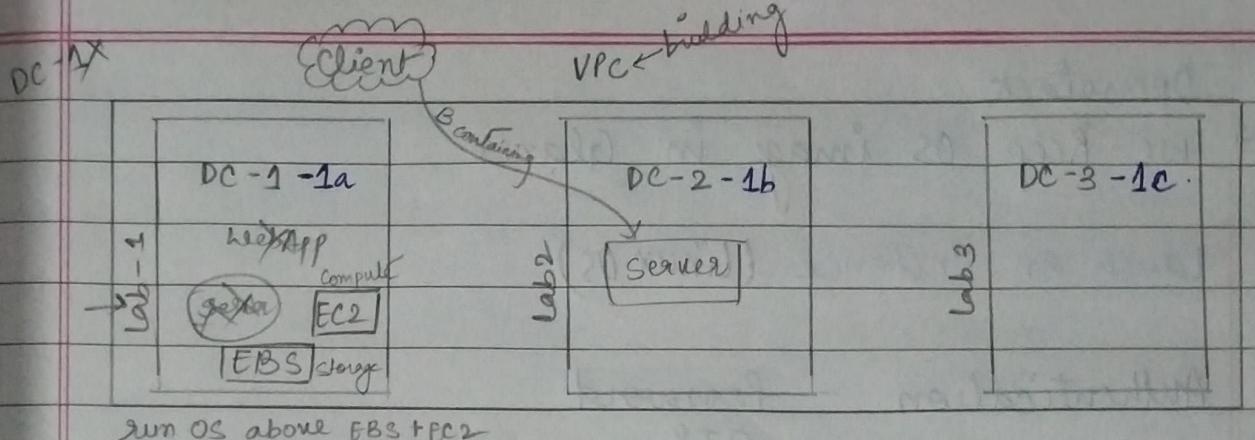
- 1st lab is created in 1st DC of the region.
- 2nd lab is created in 2nd DC.
- 3rd lab is created in 3rd DC

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lab as subnet



- ▷ fault tolerance - due to subnets existing in different Data Centers.
- ▷ [Install OS] and then [boot OS] - OS Provisioning.
- Operating System ↳ Instance ↳ Virtual Machine.
- ※ Compulsory to tell the subnet-name to launch instance / OS / VM.
- # NIC (Network Card) - for connectivity
 - Network Interface (AWS ENI) → Elastic Network Interface (ENI)
 - for network card. (one or more)
- Network Interfaces inside EC2

- ▷ When you have to install OS you require
 - physical hardware
 - Bootable DVD of OS. (required) / ISO file - OS Image.
- In AWS already provided all Operating System Images.
 - AMI (Amazon Machine Image)

- ▷ Openstack
- we keep OS image in Glance

Q. Launch an Instance (Linux OS)

- Authentication
 - Password
 - OTP

→ Key based Authentication

SSH Key Gen.

- before launching of OS we have to create key
- why need OS?
 - To run the program.

• Step 1 → Create Key . (Password)

EC2 → (Network and Security)

↓
Key Pairs

put in secure place
Create Key Pair → Give name to Key pair
(ppk format) → create

• Step 2 → Launch OS

need? → RAM / CPU and Storage
(EC2) (EBS)

→ EC2 service is meant to launch OS.

- Charge per second basis (min basis)
(only for Linux)
- for windows - per hr basis.

1 month - 750 hrs
CLASSMATE for
free

Data
free
per hour limits
for Linux.

