

What Is Network :-

* Network is nothing but there is exchange of

two computers.

* Network is simply defined as something that connects things together for a specific purpose.

Ex: Sharing Information (computers, Mobile Phone, Tablets)

* A computer network connects two or more devices together to share a nearly limitless range of information and services.

Ex: Documents, Email, Instant messaging, Websites,

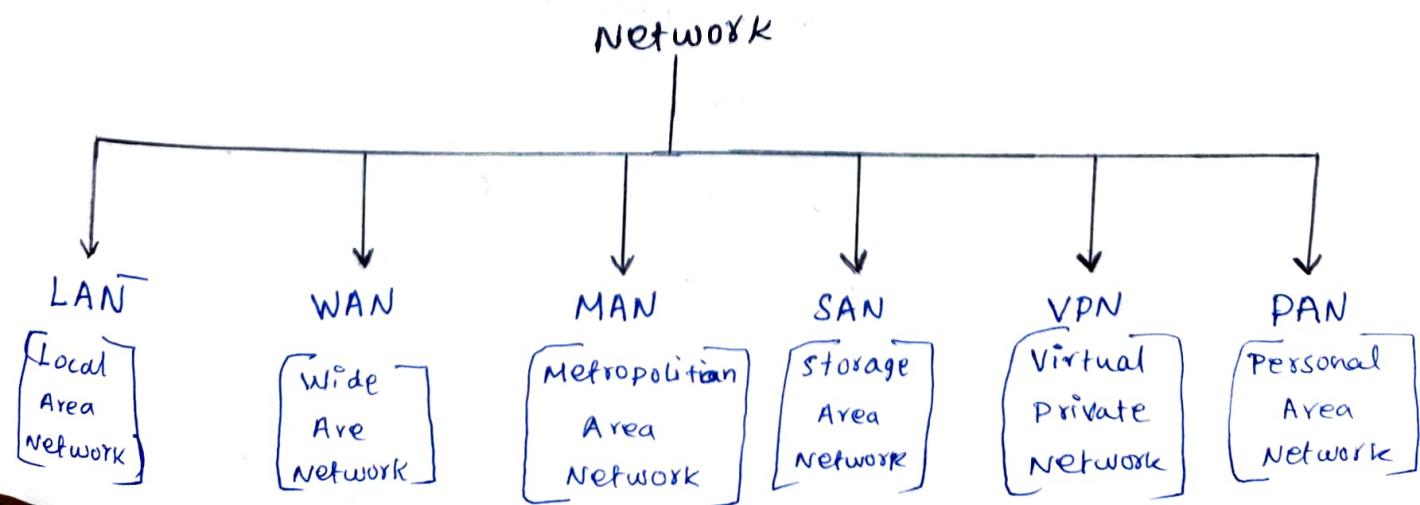
~~storing~~ storing and accessing information from databases,

Streaming Music, Video conferencing.

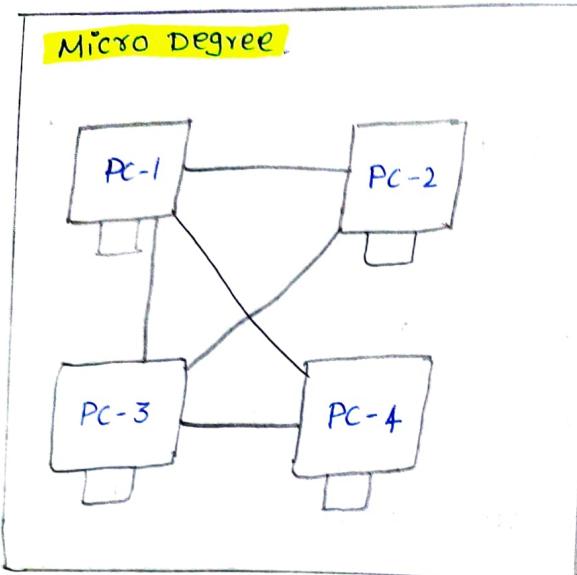
Streaming Music, Video conferencing.

Types of Networking:-

Types of computer Network



1. LAN (Local Area Network)



⇒ A network that spans in a small area.

⇒ A high speed network

⇒ Managed by an organization or a person.

⇒ Private network.

Ex: Network in office building, campus, Home, corporate offices

2. WAN (Wide Area Network)

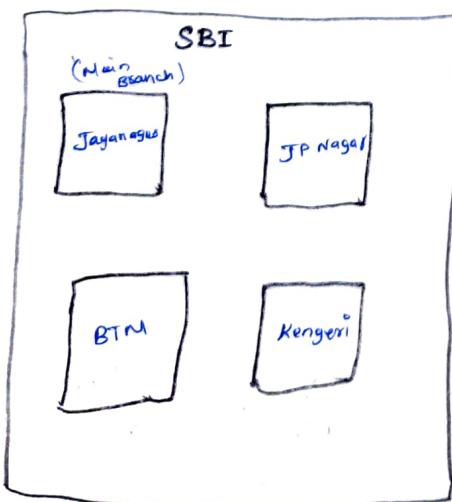
* Simply Internet

* In definition WAN is a collection of LANs on a large geographical area.

* Managed by an organization (ISP - Internet service providers)

Ex: Airtel, Jio, BSNL, ACT, Idea.

3. MAN (Metropolitan Area Network)



* A network that spans across a city.

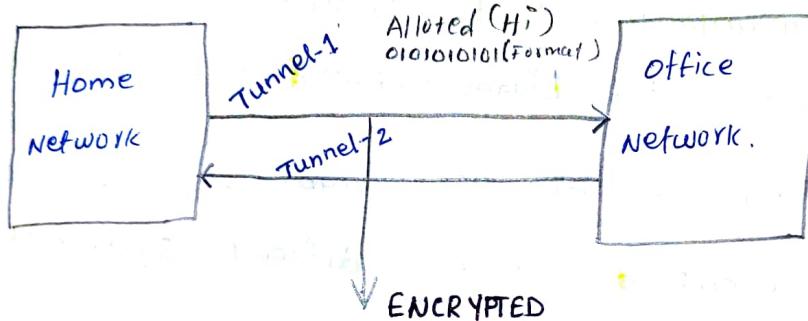
* You can access your account where ever you want in SBI Bank.

4. SAN (Storage Area Network)

- * A network that only for a single purpose, which is Storing Information and providing services.
 - * A network with high speed and ~~faceless~~ connection.
- Ex: Datacenters.

5. VPN (Virtual Private Network)

- * It is secure connection between the Home network and office network.



⇒ ENCRYPTED (Converting the plain text to cipher text or
Converting plain text to unreadable form)

- ⇒ A tunnel through the public domain (Internet) to forward the private traffic
- ⇒ A VPN can be used to connect Branch offices to HQ office (GRE VPN)
- ⇒ It can be used to connect a device like computer to (ON) [Remote access VPN]
- ⇒ It can be used to change location and to become invisible on the Internet. (VPN extension)

6. PAN (Personal Area Network)

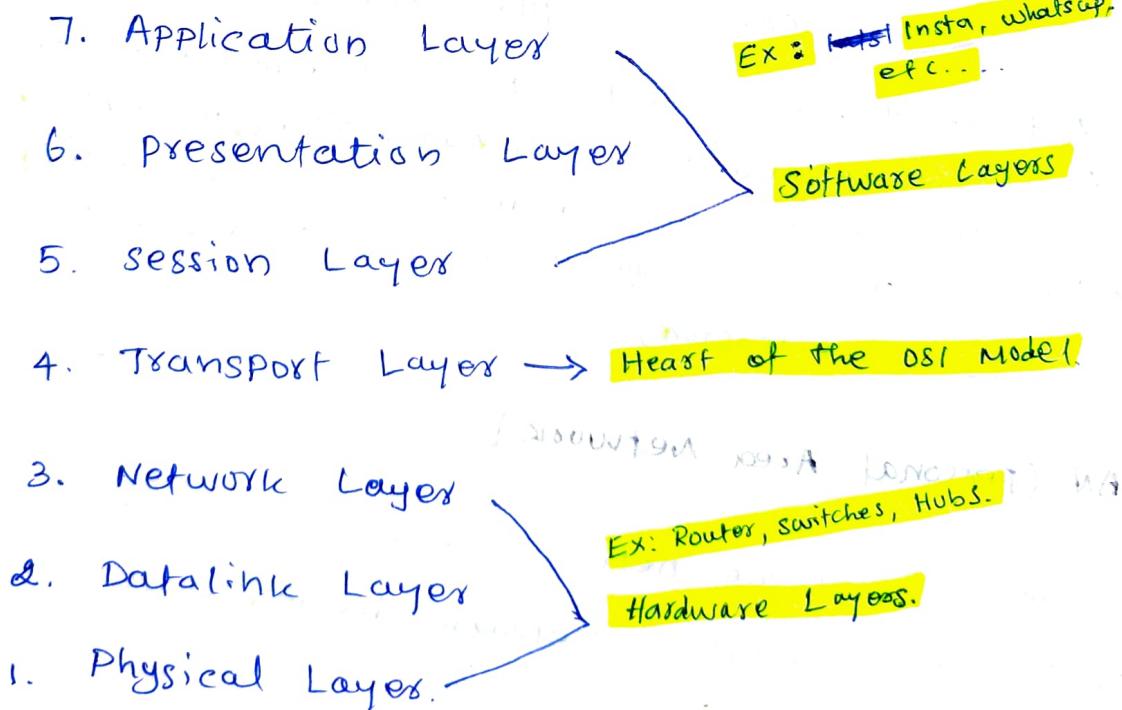
- * Personal area network (PAN) is a type of computer network used for communication between devices located in close proximity to an individual person.
- * PAN can be created using various technologies such as Bluetooth, WiFi Direct.

Layer of Network (OSI Layer)

- * OSI = Open system Interconnection it was developed by ISO - International standardization organization
- * It was developed in the early years 1984.
- * It provided the 1st frame work governing how the information should be sent across the network.
- * The main purpose is to troubleshoot.

Layer : Decomposing the bigger network into the smaller network

→ The Main purpose of OSI Layer (or) OSI Model is to facilitate communication between different systems or different computer.



Source / Sender

Destination / Receiver

7. Application Layer

Ex: what's up.
Sender : Me



7. Application Layer ↑

Receiver: Microdegree.

6. Presentation Layer



Encryption : converting the plain text
to cipher text or unreadable form (010101)
(101010)

5. Session Layer



* Authentication

6. Presentation Layer ↑

* Decryption takes place: converting
the cipher text or unreadable form to
the plain text.

5. Session Layer



Session establishment

4. Transport Layer



* Reliability. (How long it will run without error)
⇒ Data is Represented in the
form of (Segments / Packets /
Frames / Bytes)

4. Transport Layer ↑

3. Network Layer : Routers

⇒ Data is Represented in the
form of packets.

3. Network Layer ↑

2. Data link Layer : switches

⇒ Data is Represented in the
form of Frames { switches works
under datalink layer }

2. Data link Layer ↑

1. Physical Layer : Hubs



⇒ Data is Represented in
the form of Bytes.

1. Physical Layer ↑

7. Application Layer :-

- * This layer is closest to the end users.
- * The application layer is responsible for initiating the process.
- * Application Layer is responsible for providing an interface for the users to interact with networking services.
- * Ex: WhatsApp Application.

6. Presentation Layer:-

- * presentation layer defines a specific format for the data to be sent to the destination.
- ⇒ The major functions described at this layer are:
- a) Encryption - Decryption.
 - * Encryption is the process of conversion of the data into unreadable format.
 - * Decryption is process of converting the encrypted data into its original format.

b) encoding - decoding.

- * The presentation layer defines in which code the data should go on.

Ex: JPEG, GIF (graphics)
MIDI, MP3 (audio)
MPEG, MP4 (video)

5. Session Layer:-

It will check
correct user or
not.

will implement

- * In session Layer **Authentication** take place.
- * It deals with sessions or interactions between the source and destination. (It will check correct user or not)
- * It is responsible for establishing, **maintaining** and **terminating** the sessions.
- * Session layer organizes communications through **simplex**, **half-duplex** and **full-duplex**.

Types of communication :-

- * **Simplex communication** \Rightarrow one way communication where you can receive the data but can't send.
Ex: watching TV or radio.
- * **Half duplex** \Rightarrow Two way communication but not at same time.
Ex: Police officer (walky talky)
- * **Full duplex** \Rightarrow Two way communication where both users can send and receive at the same time.
Ex: Phone conversations.

4. Transport Layer:-

- * Transport layer will ensure the reliability of the data.
- * Two major protocols work at transport layer
are: **TCP** and **UDP**
- * The major functions described at this layer are:

It tracks how long infrastructure is functional without any interruption.

Identifying the services:-

* Transport layer will identify different services with the help of port numbers.

Ex:-

http : 80

Telnet : 23

SMTP : 25

* The range for port numbers is 0 - 65535

* The first 1024 ports (0-1023) have been reserved for widely-used services, and are recognized as well-known ports.

* Ports ranging from 1024 - 49151 are referred to as registered ports, and are allocated by the IANA upon request.

* Ports ranging from 49152 - 65535 cannot be registered, and are considered dynamic.

* A client initiating connection will randomly choose a port in this range as its source port.

Segmentation :-

* Segmentation is the process of dividing a data packet into smaller units for transmission over the networks.

* Segmentation is required when the data packet is larger than the maximum transmission unit.

1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8

Part

Sequencing and reassembling! -

• In this process, each segment is tagged with a sequence number.

* During the transmission of small segments, each segment may take a different path to the destination. This may cause the packets to be received in dis-order. To prevent this, each segment is tagged with a sequence number by the sender at the time of segmentation. This sequence number is used to re-assemble or re-arrange the segments back into its original form.

* When establishing a connection, a host will choose a 32-bit initial sequence number.

⇒ Sequencing numbers have three critical purposes:

1. The sequencing numbers are used to identify the data within the segments.

2. It allows the receiving host to reassemble the data in the correct order.

3. It allows receipt of data within a segment to be acknowledged.

Error correction :-

* The transport layer provides reliability using error correction. Error correction includes mechanisms for detecting corrupted segments and lost segments using Acknowledgement message from destination.

* Transport layer uses ACK message to confirm that all segments have been reached to destination.

Windowing flow control :-

* Transport layer also prevents data loss due to a fast sender and slow receiver by imposing some flow control techniques. It uses the method of windowing flow control which is accomplished by the receiver by sending message back to the sender informing the size of data it can receive.

Multiplexing and demultiplexing:-

* Multiplexing is a method or technique in which more than one signals are travelling on a single medium.

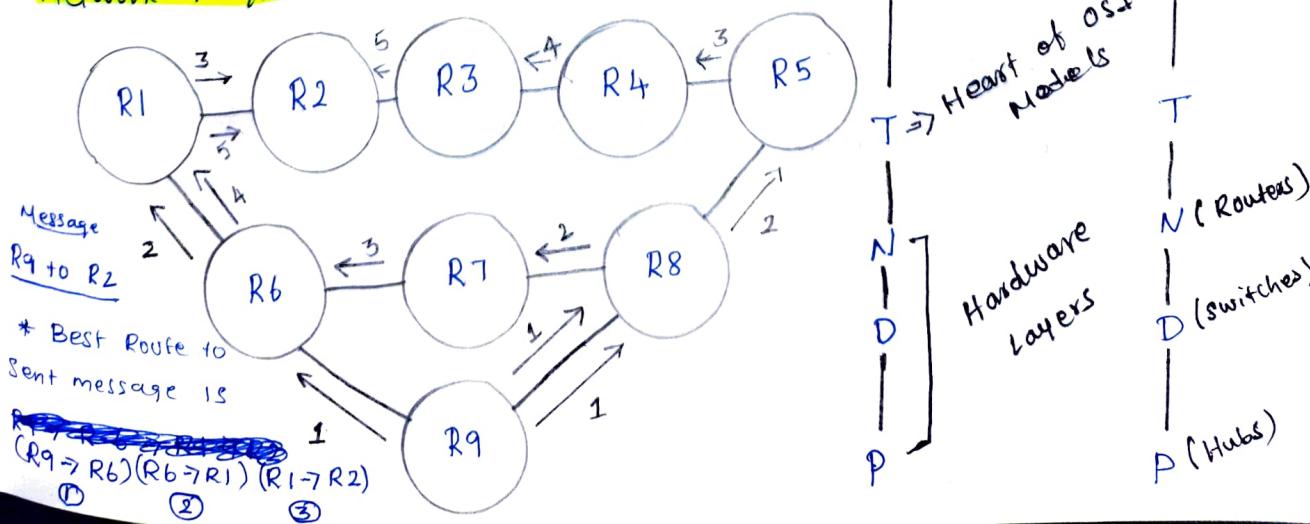
* Demultiplexing:- is the reverse of multiplexing in which a multiplexed signal is decomposed into individual signals.

3. Network Layer :- (Ex: Routers)

- * Network layer is responsible for forwarding the data to destination over multiple networks through the best path.
 - * Logical addressing (ip address) and determining best path (routing) are the main functions in the Network layer.
 - * network layer transmits the data using source and destination ip addresses.
 - * network device called Router works at this layer
 - * Data is represented in the form of packets.
- ⇒ The protocols works at network layer are :

- * IP (Internet Protocol)
- * Routing Protocols
- * EIGRP
- * OSPF

Network Layer :-



2. Data link Layer:-

- * Data will be in the form of frames.
- * Switches works under data link layer
- * Switches works based on mac address.

(MAC = Media access controller)

- * Data link layer is responsible for forwarding data between devices within a LAN.
- * Datalink Layer transmits the data using source and destination mac addresses.
- * It also provides error detection using CRC (CRC - cycle redundancy check).

(CRC - cycle redundancy check).

- * Network device called switch works at this Layer.

1. Physical Layers :-

- * The major function of Physical Layer is converting the data into signals based on the media we are using;

Copper cable : Electrical signals

Optical fibre : light signals

Wireless media : radio frequency waves.

Encapsulation and de-encapsulation :-

Sender (source)

Destination (Receiver)

* whenever we send the data from one device to another in a network. The data is encapsulated at the sender's side, while it is a de-encapsulated at the receiver's end.

* **Encapsulation** is the process in which some extra information is added to the data to add some features to it. **Sender Side**

* **De-encapsulation** is the reverse process of encapsulation. the encapsulated information is removed from the received data to obtain the original data. This process takes place at the receiver's end. **Receiver side**

* The extra information which is going to be added to the data are called headers.

* The combination of data and Layer 4 headers in transport layer is known as segment.

* The combination of segment and Layer 3 headers in network layer is known as packet.

* The combination of packet and Layer 2 header in datalink layer is known as frame. (MAC Address)

Application Layer protocol :-

What is protocol :-

This are the set of rules to enable the communication between ^{two} different networks.

what is port numbers:

port number are the unique identifiers.

HTTP :- (Not Secure)

- * HTTP is an application layer protocol which is used to access webpages.

Ex: Facebook / Insta.

- * This port number of http is 80

Https :- (Secure)

- * Hypertext transfer protocol secure (https) is the secure version of http.

- * HTTPS will encrypt the data in order to increase the security.

- * This is particularly important when users transmit sensitive data, such as logging into a bank account.

- * Port number of https is 443

ftp (File transfer protocol)

- * The file transfer protocol (FTP) is a standard communication protocol used for the transfer of files from a client on a computer network.
- * Port number of ftp is 20, 21

telnet :- Ex : We can access from anywhere (US → India)

- * Telnet is an application protocol that allows a user to communicate with a remote device.
- * A user can access a command-line interface of another remote device with the help of telnet protocol.
- * Port number of telnet is 23.
- * Telnet is not encrypted (Third person can access this telnet)

SSH :- (secure shell)

- * It is encrypted.
- * It is used to connect the devices remotely.
- * Port number of SSH is 22

smtp (simple mail transfer protocol)

- * SMTP is a application Layer protocol for email delivery and transmission.
 - * Port number of SMTP is 25.
- ⇒ Ex: Sending Mail (It will check where to where it is delivering.)

DNS: (Domain name system)



- * We humans are familiar with names.
- * But servers are familiar with numbers.

* DNS protocol converts domain name into IP address.

Every device connected to the Internet has its own IP address, web browsers interact with the destination based on these IP addresses, not based on domain names.

* DNS translates domain names into IP addresses, so browsers can forward data to destinations based on IP. port number of DNS is 53.

DHCP (Dynamic Host Configuration Protocol)

* DHCP is an application layer protocol that automatically provides and assigns IP addresses and other related configurations such as the ~~logging into~~ subnet mask and default gateway to client devices.

* Port number of DHCP is 67 (server), 68 (client)

(DORA Process)

D - Discover

O - Offer

R - Request

A - Acknowledgment

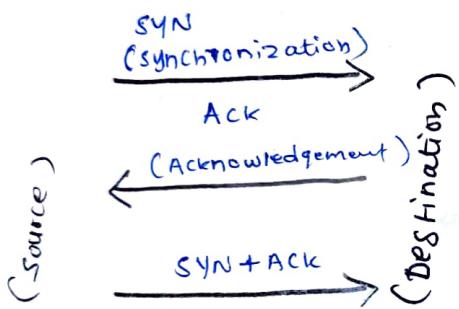
Transport Layer protocol :-

- * The transport layer is represented by two protocols : TCP and UDP.
- * Both TCP and UDP will identify the services with the help of port numbers.

TCP
(Transmission control
protocol)

1. connection oriented

2. 3 way Handshake :-



3. It is slow process

4. TCP provides error - checking

5. TCP provides flow control.

6. TCP is a reliable protocol.

UDP
(User Datagram
protocol)

1. connection Less.

2. No 3 way Handshake.

3. It is Fast.

4. unreliable communication

5. error checking.

6. UDP is faster than TCP.

TCP (Transmission control protocol)

* TCP is a connection oriented transport protocol, which means the connection will be established between source and destination before sending the data. This process of establishing connection is known as three way handshake.

* TCP is a reliable protocol. That is, the receiver always sends either positive or negative acknowledgement messages about the data packet to the sender, so that the sender always receive an indication about whether the data packet is reached the destination or it needs to resend again.

- * Slower data transportation.
- * TCP provides flow control.
- * TCP provides error-checking.
- * TCP also ensures the acknowledgement.

UDP (User datagram protocol) :-

- * UDP is a connectionless protocol.
- * Unreliable communication. (Ex: whatsup message)
- * UDP provides error-checking.
- * UDP is faster than TCP
- * This type of protocol is used when reliability and security are less important than speed and ~~safe~~ size. (Ex: zoom meeting)

Operating system :- (Hardware / Software)

* Linux, windows, Mac OS. 64-bit OS and 32 bit OS.

what are the different types of operating system :-

⇒ Batch operating System

⇒ Time-sharing operating System

⇒ Distributed operating system

⇒ Real-Time operating System

⇒ Networking operating system.

windows: GUI --- windows XP, Vista, 7, 8, 10 (OS) (Folders)

Linux: Terminal / commands --- Ubuntu, Fedora, Debian, centos (Directory)

Linux → Ubuntu operating System)

Open → Terminal.

↓
pwd (Home page ex: Balaji)

↓
ls (It will go to Desktop / Download / Picture / video)

↓
cd (open Download Folder)

↓

- ls

↓
mkdir (create Folder)

↓

ls

↓

cd

↓

pwd

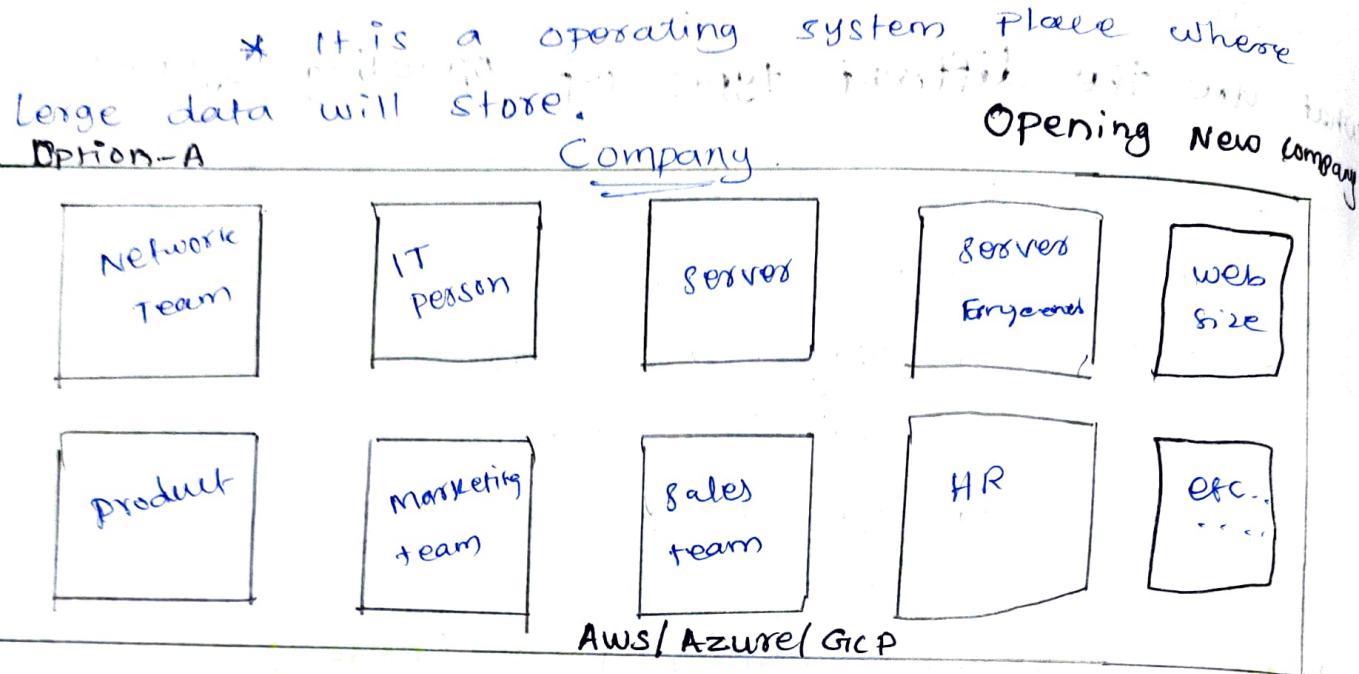
↓

Touch (file creation)

ctrl + z
cat & (create text message)

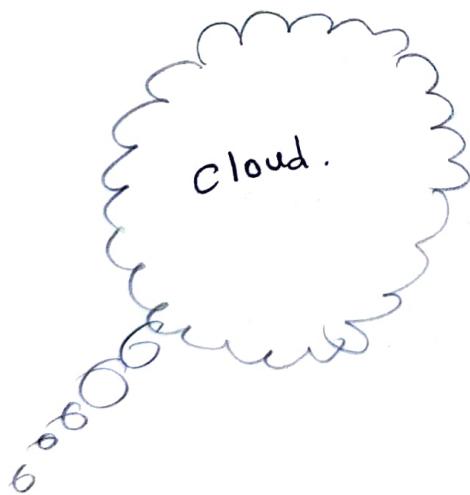
Ex : Aws cloud :-

what is Server :-



Option -B

* In cloud we need only Internet.



⇒ Internet is important.

what is cloud computing:-

- * cloud computing is the on-demand availability of computer system resources, especially data storage and computer power, without direct active management by the user.
- * cloud computing is the delivery of computing service -B including servers, storage, databases, networking, software, analytics, and intelligence - over the Internet ("the cloud") to offer faster innovation, flexible resources, and economies of scale.
- * Internet is very very important in cloud.

why Aws certification?

- * Validate Expertise (what is good in Aws & what is bad in Aws)
- * Advance your career (Advance your career)
- * Join the community, networking Opportunities

Expectation from an Aws Associate Architect

- As you people opted for Aws Associate Architect certification. So you will be learning:-
- ① Designing and deploying scalable, highly available, resilient, cost effective and fault tolerant systems on Aws cloud.
 - ② migration of an existing on-premises application to Aws (Database).

- ③ Ingress and egress of data to and from Aws (VPN & Encryption).
- ④ Selecting the suitable Aws service based on data, compute, databases, security requirements (select appropriate service)
- ⑤ Identifying appropriate use of Aws architectural best practices (need to learn about the best practice explained by the amazon employees)
- ⑥ Estimating Aws costs and identifying cost control mechanisms.

After 2006

- * Go to Aws and logging:-
- * Pay how much your using.
- * Storage / Database/ Everything is available on Aws.
- ⇒ Create Account :- in Aws
- ⇒ Pay monthly Monthly ~~by~~ how much your using. in Aws.
- ⇒ No need to pay rent / cleaning / in data centers (Aws only will take care)
- ⇒ If you want to close the company just close Aws Account.
- ⇒ No need to pay Electricity Bills & no need to buy Table / chairs / servers / All nothing is required.

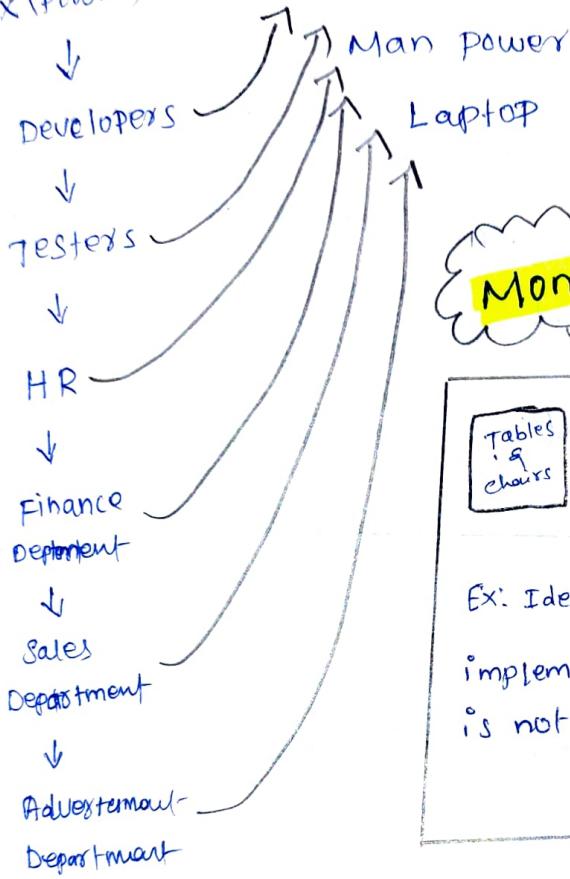
AWS Live - Day 01 (Introduction)

what is cloud (Launched on 2006)

- * X person working in USA
- * He(X) person plan to start zomato at (2002)

Before - 2006

X (person) → zomato → 2002



search → Users

Company

System Admin Room.

Service

Database server

DHCP server

DNS server

Ex: Idea is good but
implemented time
is not good. (2002)

LOSS

⇒ He planned to start a company, he came and asked
Advance to my dad.

Advance to my dad. Total = Rs. 1,80,000,00/-
⇒ Advance (80L) / loan (1c)

⇒ Network Engineer / switches / cables / electric city / A/c /

Tables / chairs / security lock / Internet / UPS

⇒ He started company. at 2002 (capital

most important expenditure

⇒ In India we have 2 Data centres :-

1. Mumbai
2. Hyderabad

what is the life before cloud? -

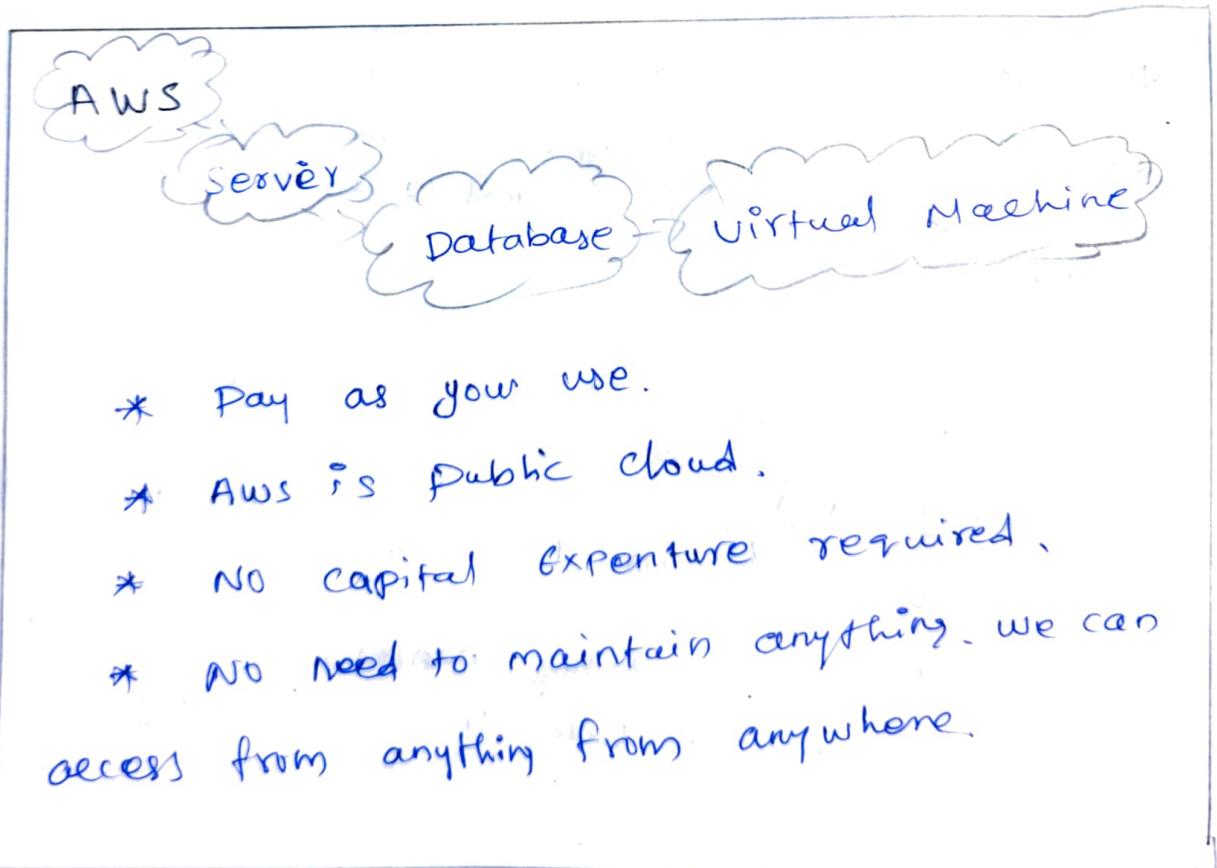
Ex: Before cloud we used to purchase servers and we used to keep these servers in a room and there are more maintenance.

Ex: Laptop, servers, hardware items-

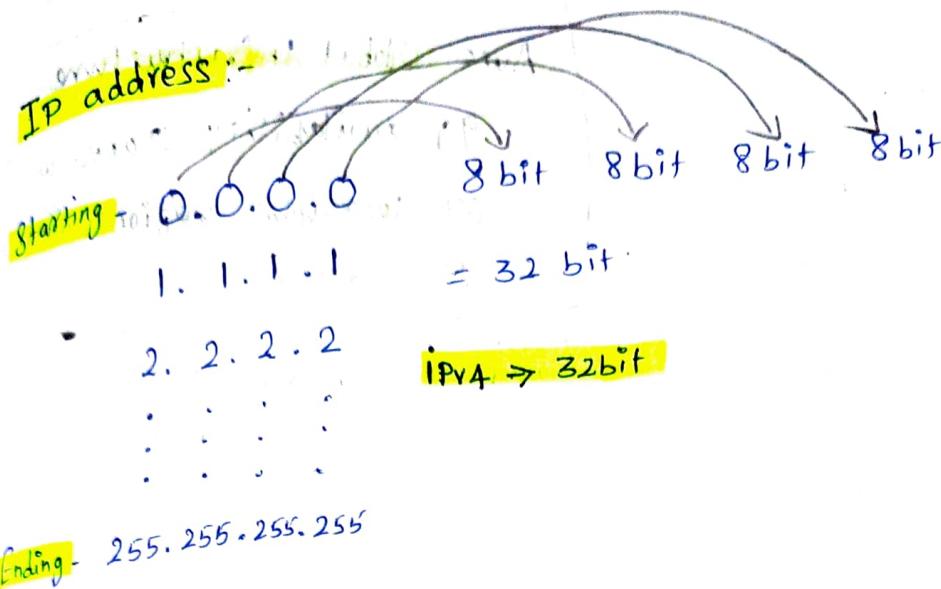
After cloud :-

* No need to maintain anything.
we just use what we want and we pay ~~for~~ ^{monthly} what we ~~use~~ use in cloud.

Ex: Create AWS Account:-



29th was about about our presentation
beginning of the month.



* Class A = 0 - 127

* Class B = 128 - 191

* Class C = 192 - 223

* Class D = 224 - 239 (Reserved IP) Ex: Rocket launch / Indian Army / others.

* Class E = 240 - 255

Example :

$$A = \boxed{10} \cdot 0.0.0.0 / 8 \quad [2^{24}] =$$

$$B = \boxed{10.8} \cdot 0.0.0 / 16 \quad [2^{16}] =$$

$$C = \boxed{10.0.0.0} / 24$$

Broadband - IPv4
Mobile wifi - IPv6

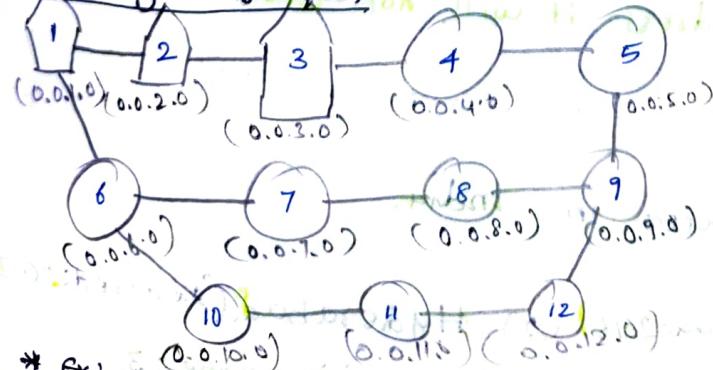
How to create Private Account :-
If you want more knowledge CCNA

(private network)
My phone

Ex: All can use network within organisation.

Ex: Railway stations & others are public networks

Working Employees:



* Ex: My phone, private network.

* Ex: ACT / TDS, public network.

Servers Room:

$$10.0.0.0 / 16 \rightarrow \boxed{10.0.10.0 / 24}$$

$$2^{16} = 65K$$

calc:-

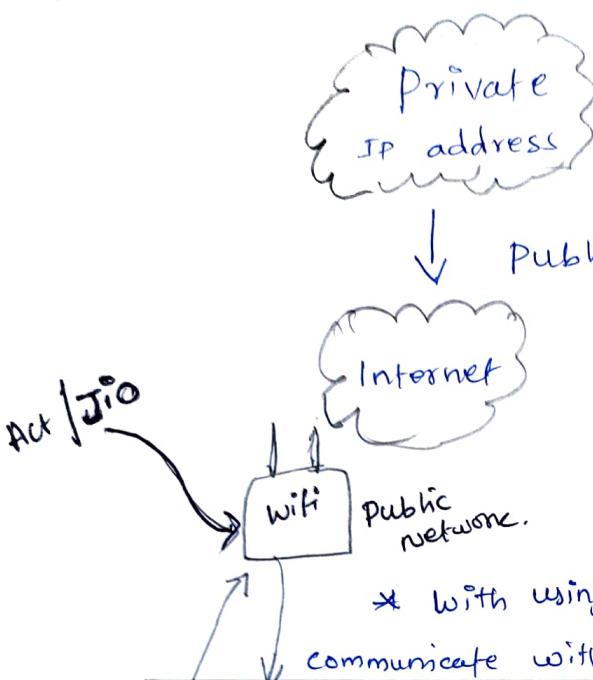
~~$$\boxed{10.0.2.0 / 24}$$~~

$$2^8 =$$

Dividing net work IP Address.

What is private network :-

- * It is within the organisation and it is local network.



Aws Global Infrastructure

99 availability zones with
31 geographic regions, around
the world.

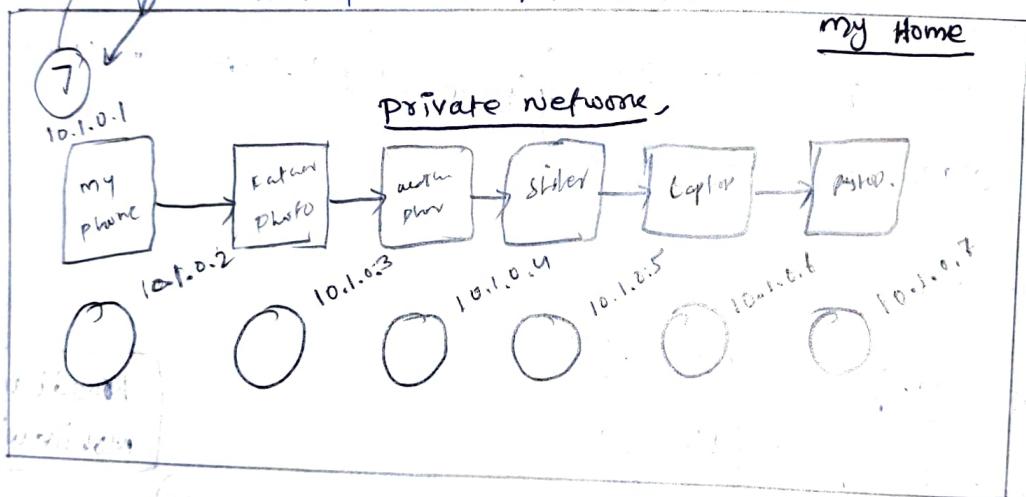
(without public address we
can't connect Internet)



Internet

Public
network.

* With using public address only we can
communicate with Internet.



* Public IP address it will change

Ex: 0.0.1.0 after sometime 0.0.2.0

* Private IP address it will not change

Ex: 0.0.1.0 after sometime 0.0.1.0.

We have 2 Data centers in India.

(1) Mumbai (Launched: 2016) (2) Hyderabad (Launched: 2022)

Availability zones: 3
Local zones: 2

Availability zone: 3

* What is region :-

⇒ Regions are

like geographical region where

Datacentre is located.

Example : In our India there are 2 Locations

(1) One is Mumbai one is in Hyderabad.

What is availability zone:-

⇒ Availabilities are nothing but our

Region.

⇒ Example : In Mumbai we have 3 availability zones just because

In use different availability zone

Something happens to one of the availability zones we can use.

one more availability zone we can use.

Example : Anything happen in one availability zone we

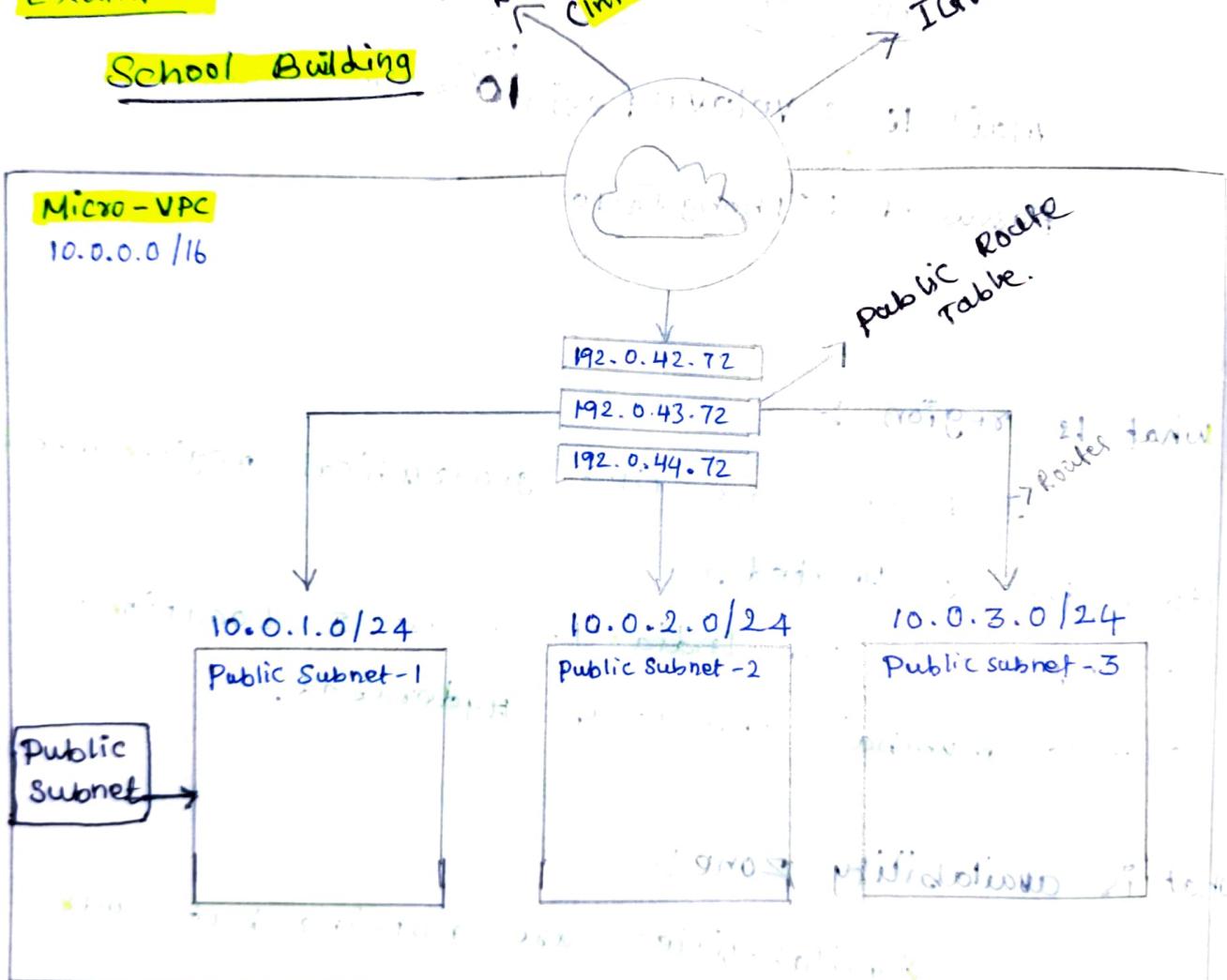
can use Another availability zone.

AWS Live - Day 03 (VPC, Public Subnets, Igw, route table) Day-08

Example: (School Building)

- ⇒ VPC - private network (virtual private network)
 - ↓ class Room (A/B/C)
- ⇒ Public subnets - Dividing network.
- ⇒ IGW (Internet Gateway). - [Entry Gate]
- ⇒ Route table = Notice Board. (Directions)

Example:



⇒ Created VPC = School building

⇒ Created Public subnet = Public Subnet. (Class Room A/B/C)

⇒ Created IGW = Entry Gate.

⇒ Created Route Table = Notice Board.

How to Create VPC in AWS :-

Step-1

Open Aws



Select region (Ex: singapore) ✓



Open (VPC Management Console) ✓



Your VPCs New



Create VPC ✓



Choose Region (Region)

Choose VPC settings (VPC Settings)



Select (VPC only) ✓

* name tag : micro-VPC ✓

* IPv4 CIDR block :-

⇒ IPv4 CIDR Manual input (Select)

⇒ IPv4 CIDR 10.0.0.0/16 (Select)

10.0.0.0/16 ✓

* IPv6 CIDR block :-

⇒ NO IPv6 CIDR block (Select)

* Tendency :-

Default ✓



Create VPC ✓

VPC created ✓

How to Create Public Subnets & Private Subnets

Step-2

Select (Subnets)



Create Subnet ✓



VPC



VPC ID



Select (micro-VPC) ✓



Subnet settings



Subnet 1 of 1

If you want to
create more subnets
click [Add new Subnet]

Example:-

- * Public Subnet
- * Private Subnet



Subnet name



micro-private1-Subnet | PS-2 | PS-3

micro-Public1-Subnet | PS-2 | PS-3 ✓



Availability Zone



Asia Pacific (singapore) | ap-southeast-1a | ap-southeast-1b | ap-southeast-1c



IPv4 CIDR block



10.0.1.0/24 // 10.0.2.0/24 // 10.0.3.0/24

Create Subnet

① Subnet created

How to Create Internet Gateways :- Step-3

Select (Internet gateways)



Create Internet gateway ✓



Internet gateway settings ✓



Name tag



IGW-micro ✓



Tags - Optional.



Value - Optional (IGW-micro) ✓



Create Internet gateway

- Internet gateway created. ✓

How to attach to a VPC :-

Actions ▲ ✓



Attach to VPC ✓



Available VPCs



micro-VPC ✓

Attach internet gateway

= Attached VPC ✓

How to create Route Table : Step-4

- 1) Public Subnet
- 2) Private Subnet

Create route table ✓



Route table settings



Name optional [micro-Public-RT] ✓

[PVT-RT-micro]



VPC [Micro-VPC] ✓



Create route table [Route table created] ✓



Two things we need to remember :-

① Subnet Associations

② Routes



Step-1

Subnet Associations

Select Route tables ✓



Select [micro-Public-RT] ✓ what we created.



Subnet associations ✓



Edit subnet associations ✓



Available subnets

(Public or private)

Select all subnets

Save associations ✓

Step-2

Select (Routes) ✓
↓

Routes

Edit routes ✓
↓

Add route
↓

0.0.0.0/0 ✓
↓

Q Internet Gateway (IGW-micro) ✓
↓

Save changes ✓

Continue....

ECP

EC2

Public IP Address: Dynamics IP

Private IP Address: Statics IP

EC2

EC2



Launch Instance (Server)

Vm



Name and tag



Name [demo-server] ✓



Quick Start

Selecting [Amazon Linux] OS ✓



Instance type



Key pair [Login] ✓



Create new Key pair



Key pair name [Kumar-demo] ✓



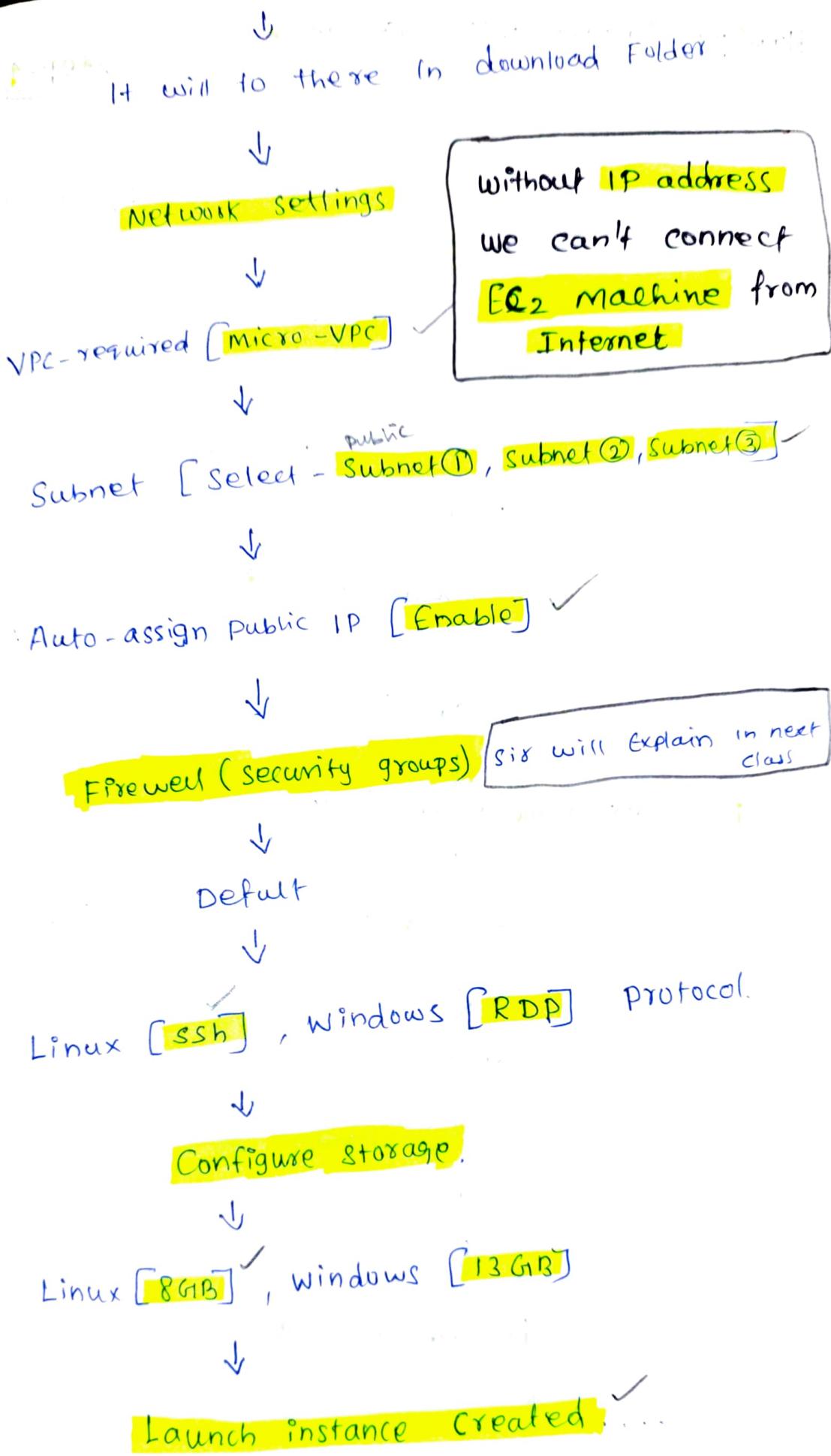
Key pair type [RSA] ✓



Private Key File Format [.Pem] ✓

Create Key pair

Instance is nothing
but Server



Continue.....

How to Connect EC2 Machine:-

Step-1

Connect

Launch an instance ↓

Download file and **SSH client** ↓

Extract zip ↓

Extracted Example [copy] ssh:- ↓

Open [Command prompt] In Laptop. ↓

COPY [Downloaded Password] [C:\Users\kumar\Downloads]



cd [change directory]

[Downloaded password] Paste [Enter]



COPY [SSH] and Paste. [Enter]

(22)



yes



Sudo su.



Reached destination

How to connect EC2 Machine:

Step-2

Download Application



Name : Moba Xterm (version 22.2 - personal editor)



Open Application ✓



Session



SSH ✓



Remote host



copy [Public IP Address] paste! ✓



Specific Username



Go to Instances [Connect]



EC2 Instance Connect



COPY [ec2-user] Paste. ✓



Advanced SSH settings ✓

use private key ✓
↓ ex: demo Kumar
select download password.

↓ open (OK) ✓

↓ accept ✓

↓ Sudo Su ✓ Reached destination

[ec2-user@ip-10-0-2-126 ~]\$

\$ (user)



(root)



Sudo su



pwd

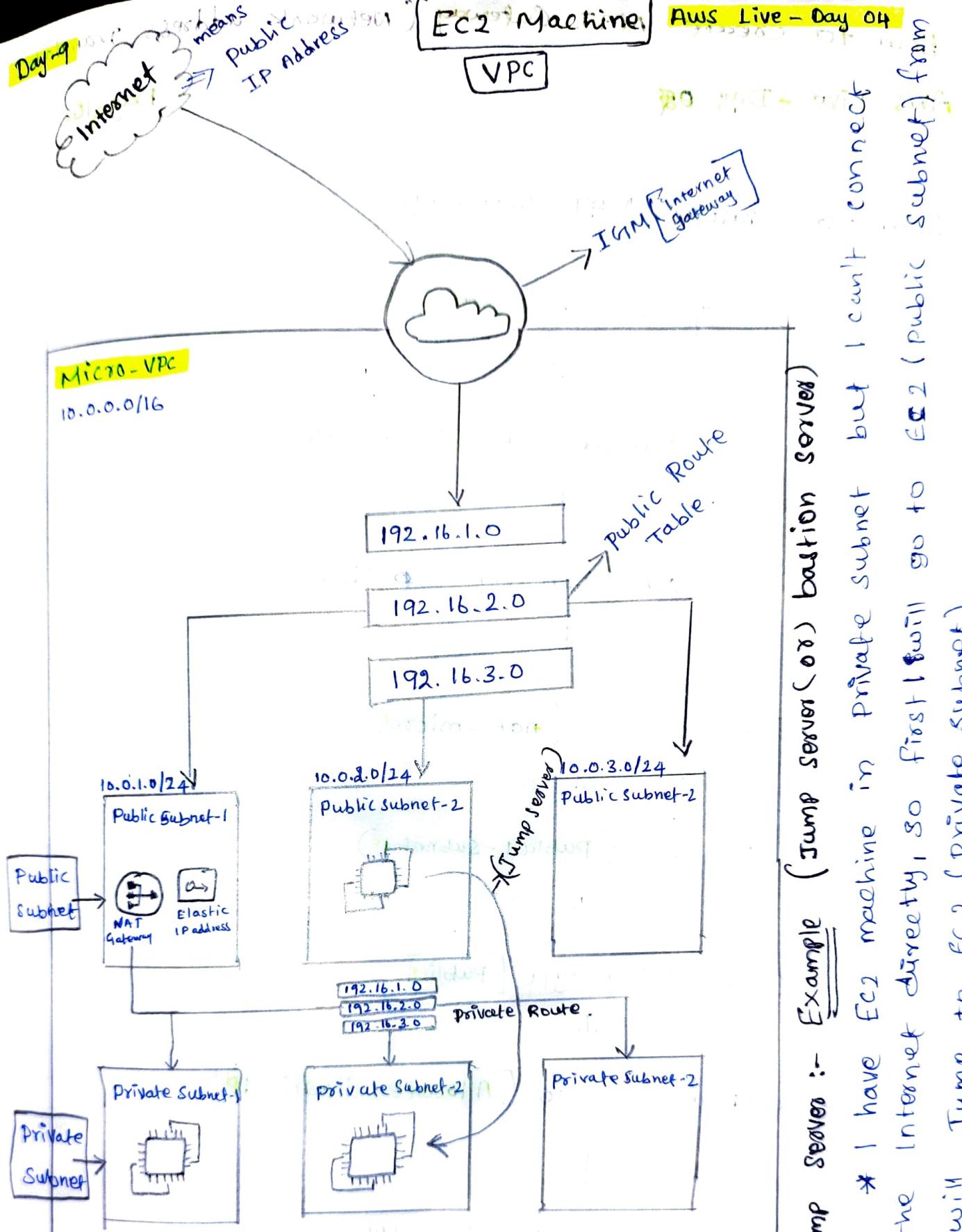


cd / (change directory)



ls (List) it will show what is there in
Folder.

Linux Folder structure saved like tree like
structure (/) is a Parent directory.



Private Subnet : Only Incoming / No outgoing.

NAT Gateway : Network Address Translator

Elastic IP : Static Public IP Address.

what is jump server :- Example (Jump server (or) bastion servers)

* I have EC2 machine in private subnet but I can't connect through the Internet directly, so first I will go to EC2 (public subnet) from there I will jump to EC2 (private subnet).

AWS Live - Day 08

Day - 10

How to create NAT gateway:-

Go to (NAT gateway)



Create NAT Gateway



NAT gateway settings



Name - optional (nat-micro)



Subnet (Public1-Subnet1)



Connectivity Type [Public]



Elastic IP allocation to [Allocate Elastic IP]



Create NAT gateway

NAT gateway created ✓

~~Next~~ 8 step

Go to
(Route Tables)



Select (Routes) or click.



Edit routes



Search Q 0.0.0.0/0 Select



Search Q NAT Gateway → (selected)



Save changes

Connect.....

MobaXterm [log in checking] CMD

Open MobaXterm



Session



SSH



Remote host



Take Public IP address from [Connect to Instance]



Copy [Public IP address]



Paste [Remote host] ex: 3.26.238.116



Specify username [ec2-user]



use private key [Download Password]



OK [Accept]

[ec2-user @ ip-192-0-1-209 ~] \$
(User) (IP Address) (Path)
common users [Sudo Su]



~~cd~~

ping 8.8.8.8 [google IP Address]



ping www.google.com



ctrl + c [stop]



clear

ctrl + z

How to create webpage :- (website)

linux-OS

yum update -y ✓



yum install httpd (completed)
yes (y)



cd /



ls



cd var/ ✓



ls



cd www/ ✓



pwd



ls



html/ ✓



Continue....

pwd



ls



touch index.html ✓



ls



Vim index.html ✓



Type (i) ✓



This is my website. ✓



esc



Save & Exit (:wq) ✓



cat index.html ✓



Systemctl status httpd ✓

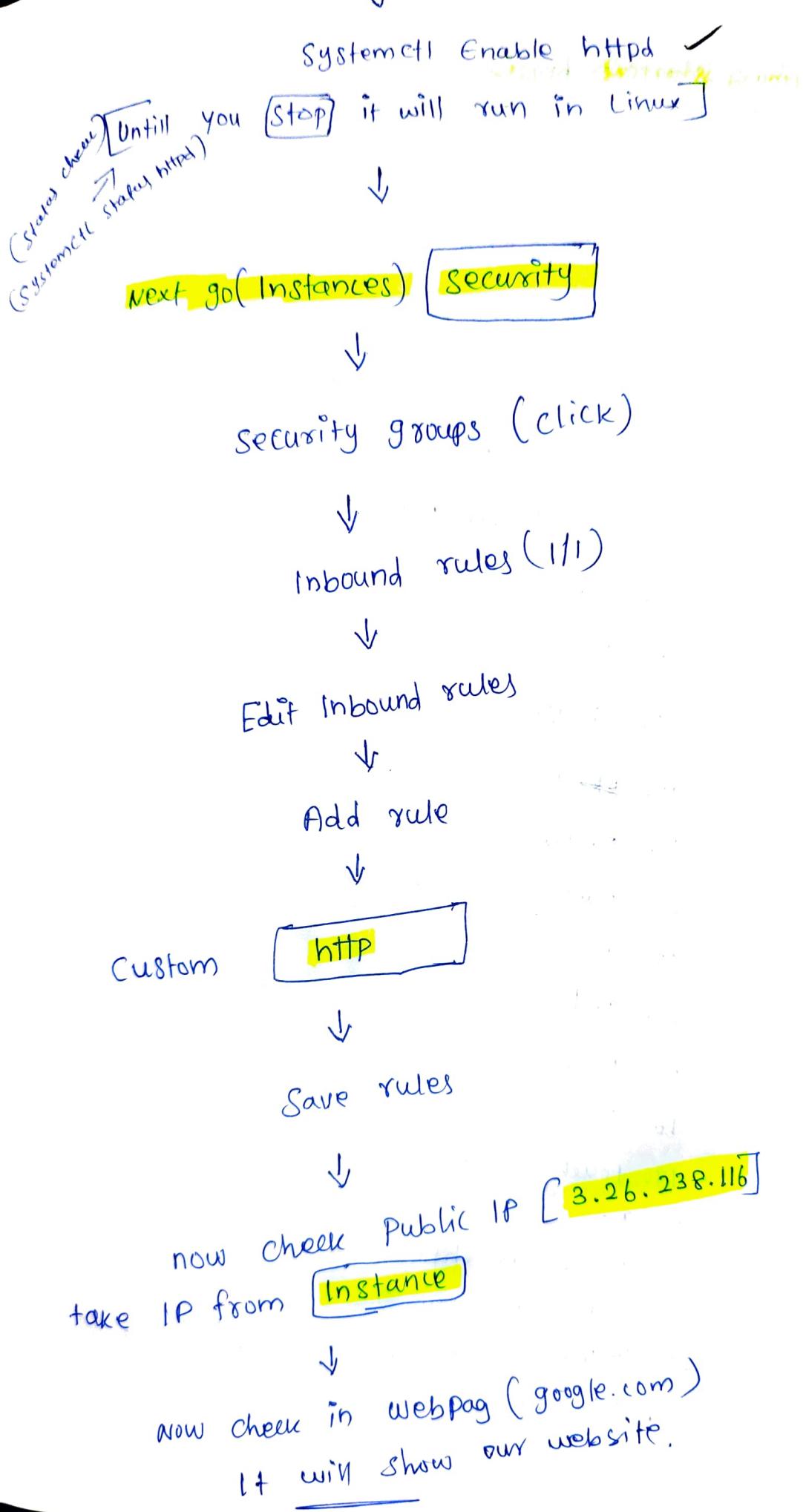


inactive (bo)



How to activate (systemctl start httpd) ✓





linux shortcut keys:-

1. cd
2. ping 8.8.8.8
3. ping www.google.com
4. clear
5. yum update -y
6. yum install httpd
7. cd /
8. ls
9. cd var
10. ~~ls~~ ls
11. cd www
12. pwd
13. ls
14. cd html/
15. pwd
16. ls
17. touch index.html
18. ls
19. vim index.html
20. cat index.html
21. systemctl (status/start/enable) httpd
22. history

How to create VPC (Step by Step)

- ⇒ Create VPC
- ⇒ Create Subnets
- ⇒ Create Internet gateway [IGW]
- ⇒ Attach to VPC
- ⇒ Create Route Tables [Public and private]
[IGW] (NAT)
Routes Subnet associations
- ⇒ Create NAT gateway
* Elastic IP allocation ID

How to create EC2 Machine :- EC2 ①

- ⇒ Create EC2 Machine.

How to create private → EC2 ② machine :-

- ⇒ Create EC2 Machine.
- ⇒ private subnet (Disable)
- ⇒ **Lunch**

How to Login. to Public network to Private Network :-

⇒ private IP Address & key pair

How to give content : Vim ^{file, name} → Key pair (copy & paste) → WQ!

→ ls → cat (content) → copy **SSH** → Exit.

Instance ID : Point ③. Run the command, if necessary, to ensure your key is not publicly viewable.

COPY & PASTE

How to Delete VPC & EC2 Machine :-

First step - \Rightarrow VPC peering (Delete related route table entries)

- Step 1 = Instance [EC2 Machine] \rightarrow Delete.

Step 2 = NAT gateways \rightarrow delete

Step 3 = Route table (Remove Routes)

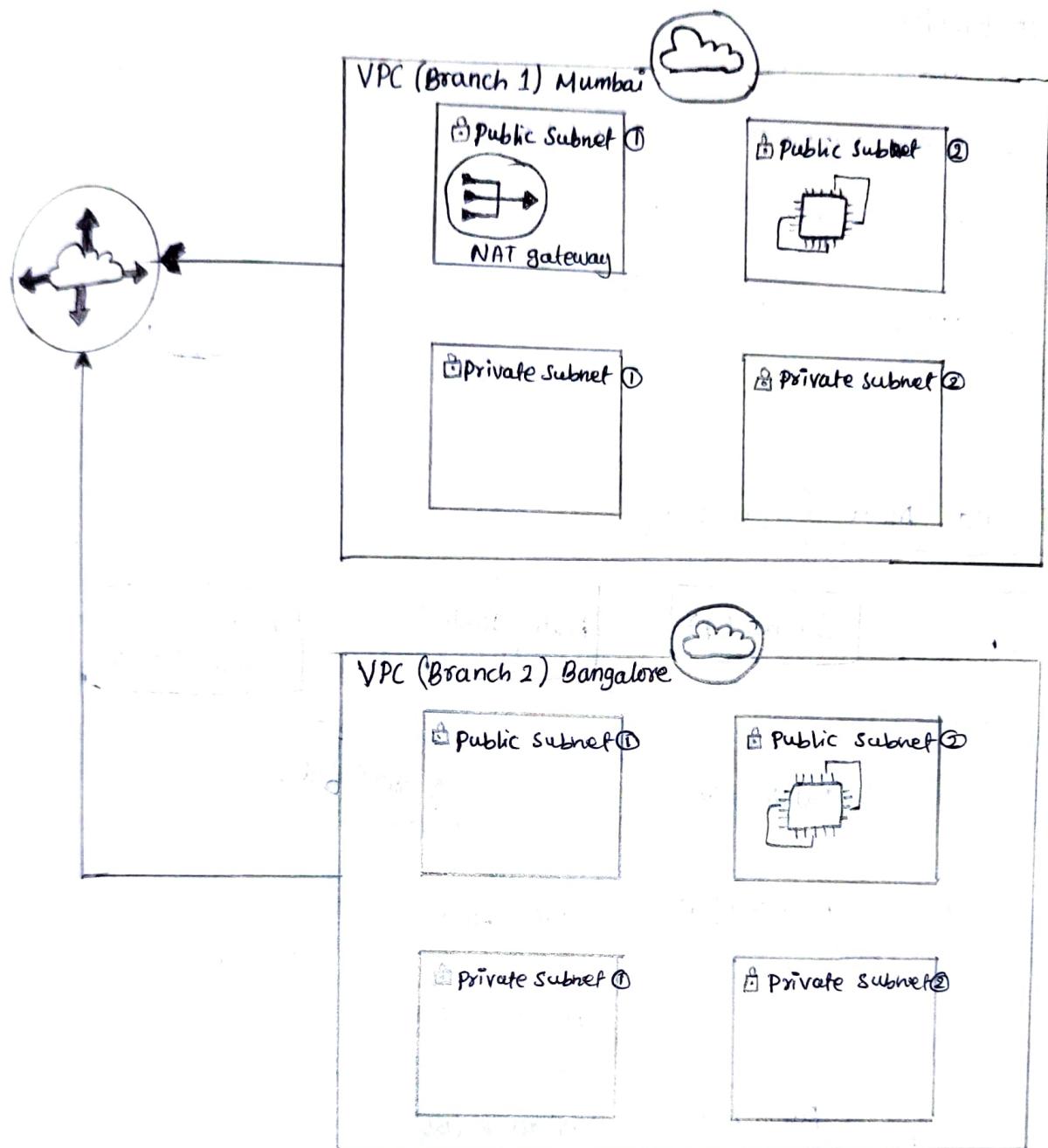
Step 4 = Internet gateway \rightarrow delete.

Step 5 = VPC \rightarrow Delete.

Step 6 = Elastic IPs (Release Elastic IP addresses)

Aws Live - Day 06 (VPC Peering)

Day - 11



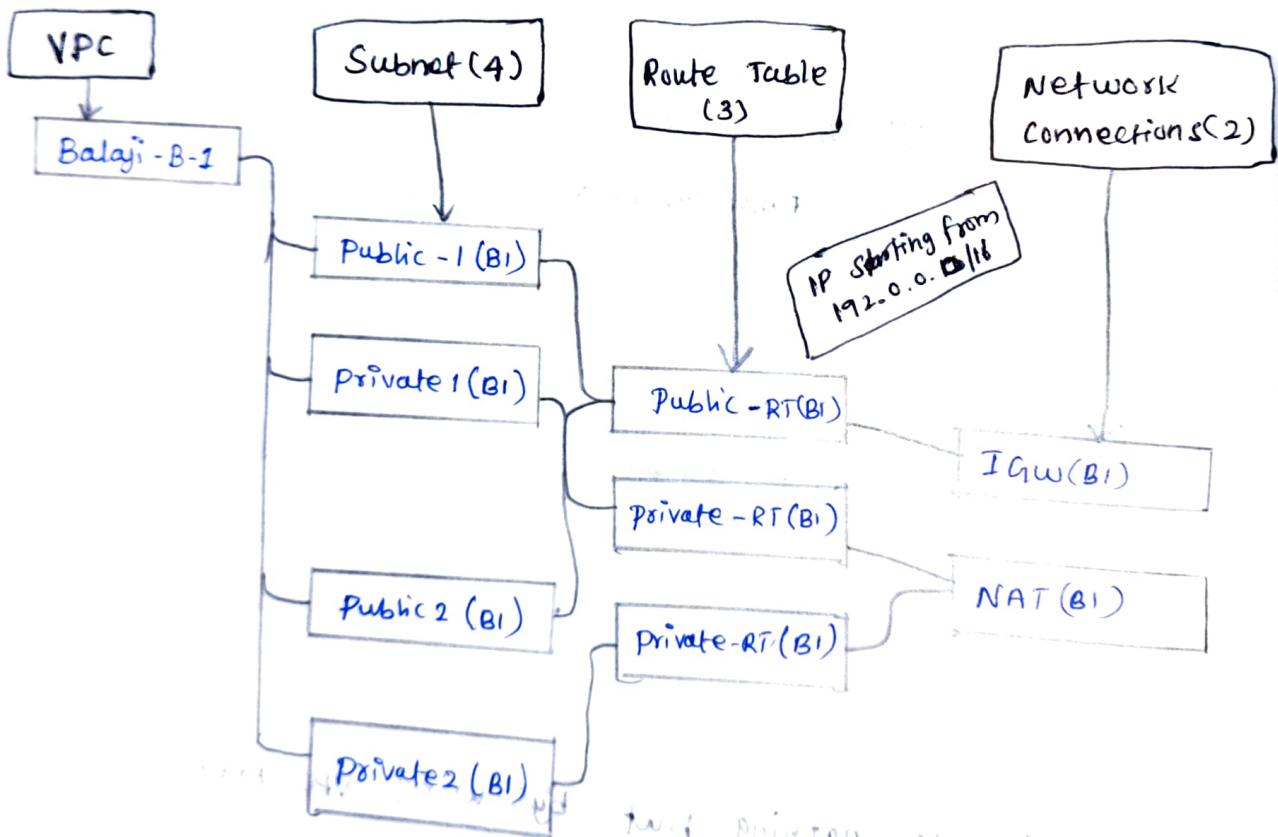
⇒ VPC peering is nothing but while using VPC peering we will communicate each other.

⇒ we will communicate between two private network.

VPC and more :- Easy way of creating VPC

- * unset Auto-generation
- * NAT gateways (\$) In 1 AZ
- * VPC endpoints None
- * IPv4 CIDR block 192/0.0.0/1
- * Customize subnets CIDR blocks IP address 10.0.1.0/24

VPC and more (Branch-1)



Branch-2

Some as above.

↑
IP starting from 10.0.0.0/16

Next :-

1) EC2 (Mumbai) Branch-1

⇒ Branch-1 (created) [Key Pair ①]

2) EC2 (Bangalore) Branch-2

⇒ Branch-2 (created) [Key Pair ②]

⇒ How to create folders in [Linux] mkdir



ls



cd sydney /



clear [root@ip-10-0-1-89 sydney]#

How to Ping (Bangalore) to (Mumbai) :- (EC2 Machine)

Branch ① Security Group (Instance)
Branch ② Enable All ICMP - IPV4

0.0.0.0/0

Edit inbound rules

Create VPC Peering

Peering Connection settings : Name: Branch 1 to Branch 2
(Mumbai) (Bangalore)
VPC ID (Request) : B1-VPC (my Account), Region : B2 (VPC 10)
(Another Acc) created
⇒ Accept Request (B1 to B2)

⇒ Then go to Route Tables :- Branch 1 & Branch 2
(192.0.0.0/16) (10.0.0.0/16)

* Go to VPC (B1) = Routes (Edit routes → B2 - 10.0.0.0/16 → VPC Peering
All Route Tables (Pub1/Pvt1/Pvt2) Save changes

* Go to VPC (B2) = Routes (Edit routes → B1 - 192.0.0.0/16 → VPC Peering
connection
All Route Table (Pub1/Pvt1/Pvt2) Save changes

What is Server: A server is a specialized computer connected to a network which provides, or "serves up" resources or services.

What is EC2 : Elastic compute cloud.

EC2 - a web service that provides secure, resizable compute capacity in the cloud.

What is computer: Computer is an fast calculating electronic drive which performs (Input, process, output and storage) operations. It consist of hardware and software.

what is Instance type: Instance types comprise varying combinations of CPU, memory, storage and networking capacity and give you the flexibility to choose the appropriate mix of resources for your application.

Memory \Rightarrow RAM \Rightarrow Random access memory

storage \Rightarrow ROM \Rightarrow Read only memory.

Instance type Family:-

General Purpose: General Purpose Instance provide a balance of compute, memory, and network resources.

* M7g * M6e * M6g * M6i * M6a * M6s

* M5n * M5zn * M5a * M4 * A1 * T4g * T3

* T3a * T2i

\Rightarrow Based on your company requirement you can select

What is Instance Type (Interview)

* Instance type is option to select.

CPU and Ram what my company requirement.

* Based on company requirement

we are selecting.

Fast Performance

= memory optimized.

More Performance

= compute optimized.

Normal Purpose

= general purpose.

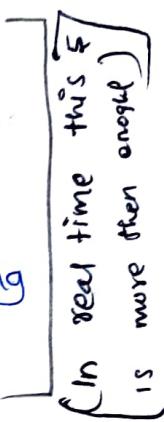
Graphic card

= accelerated computing

More Storage (and)

{ = storage optimized.

fast performance.



* There is stock available in official website
we will be going and selecting based on our company requirement.

What is Storage:-

Example:-

* Holds data, instructions, and information

for future use.

* Storage medium is physical material used for storage

⇒ Also called **secondary storage**.

Example: In us Laptop (e) Drive.

What is key pair (login) :-

- * with out key pair we can't login EC2 machine (private EC2 machine)
- * If public means we can.

How to enable public subnets: (Public) / private subnets
(Enable) (Disable)

Go to VPC



Select (public subnets)



Go to (Actions)



Edit subnet settings



Auto-assign IP settings



Enable auto-assign public IPv4 address.



Save.

What is Firewall (Security groups)

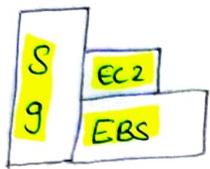
⇒ Firewall is nothing but Security group

In our AWS.

⇒ All EC2 machine have ① security group

Configure storage :-

⇒ EBS = Elastic Block store.



How to create website:-

yum install httpd

↓

yes (y)

↓

cd /

↓

ls

↓

cd var/

↓

ls

↓

cd www

↓

pwd

↓

ls

↓

cd html/

↓

↓

LS

↓

vim index.html

↓

(i) Insert

↓

website name

↓

esc

↓

systemctl start httpd

↓

systemctl enable httpd

↓

go to security group
and enable [http]

↓

DONE. (public IP)

Q. How to create Elastic IPs :-

Go to ' Allocate Elastic IP address'



Select Region (Ex: Mumbai)



Or Amazon's pool of IPv4 address



Allocate

How to allocate IP address:-

Go to Actions



Associate Elastic IP address



Instance [EC2 Instance] Ex: Balaji-ec2



~~Automatically~~ - Automatically private IP will come. (select)



Associate

How to take Instances level backup (OS)

- * How to take particular movement backup.
- * It name called **[AMI]**
- * One photo ^{(copy) Image} of ec2 machine It called **[AMI]**

How do you take backup of EC2 machine:-

Example : I do take Image of EC2 machine by using AMI.

How to take backup manually by using AMI :-

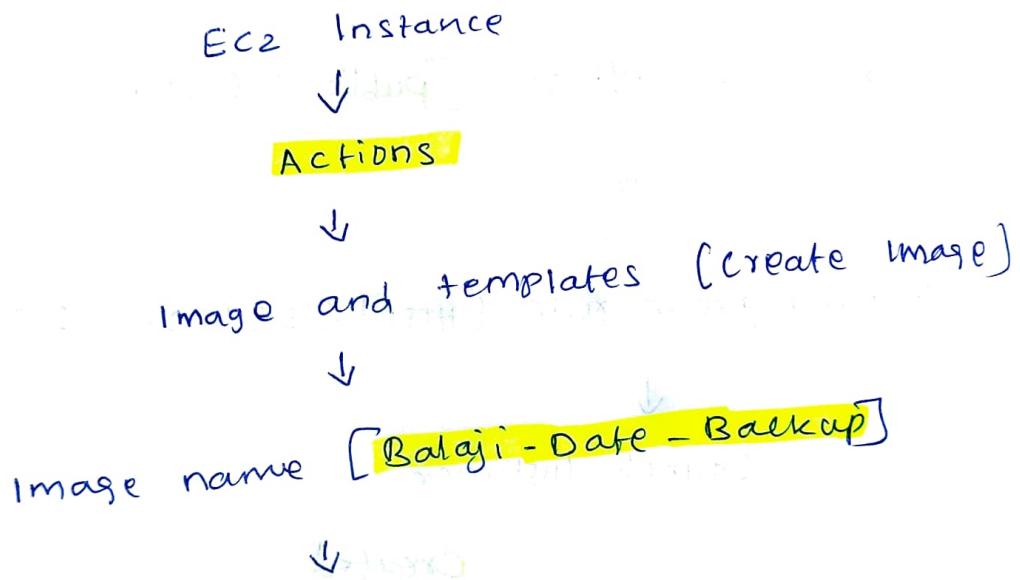


Image description - optional.
↓
[Balaji - Date - Backup] your choice.

↓
NO reboot Enable [your choice]
↓
Create Image.

How to take Backup and recovery:-

Option-1

Go to AMIs



Launch Instance from AMI



Name



Create Key pair



Network settings [Public → Enable]



Security group rule [HTTP] CIDR Block [0.0.0.0/0]



Launch Instance.

Created

⇒ Go to Elastic IPs



Action



Associate (Backup) name.



[Private IP] select



Associate.

Option -2

Go to EC2 (Instance)



Launch Instance



Name [Backup] ✓



My AMIs. [or owned by me]



AMI [Balaji-Date-Backup]



Create Key pair [if you don't have]



network settings [Public → Enable]



Security group rule. [HTTP] CIDR block [0.0.0.0/0]



Launch Instance

Created

⇒ Go to Elastic IPs ⇒ Associate [Backup] ✓

⇒ [Private IP] select ✓

⇒ Associate.

* If you don't want to change IP address means there is name called Elastic IP address I will be attaching to the jump host so that Elastic IP address will not change [After that you can login at any time by using the Public IP address]

Aws Live - Day 08 (Aws backup, AMI)

How to take Aws Backup :-

① Plan :-

- 1) When I need to take backup?
⇒ (Daily, monthly, weekly)
- 2) When I need to Delete backup?
⇒ Company requirement (7 days, 1 month)
- 3) Where to store backup?
- 4) What I need to backup.

Rules

Aws Backup (Demo) (yesterday Backup)

Manual Backup

Go to EC2 (Instance)



AMIs



Launch Instance from AMI



Balaji (Aws Backup)
Name [yesterday Backup]



AMI from catalog (selected automatically)



Key pair (if you want you can download)

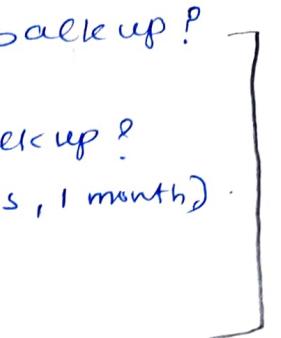


Net work settings = (VPC → Public subnet → Enable)



Security group [enable **HTTP**]

Launch Instance



AMIs will create on backup



that is **Snapshots** copy of image.

How to Delete manual Backup :-

Instance



AMIs [Actions]



Deregister AMI

→ Backup deleted . . .

Next Step:-

Go to **Snapshots**



Actions [Delete Snapshot]



Delete

Continue . . .

Aws Backup (Service) :-

Backup Vaults = Vault means suitcase (your Backups will save in the suitcase [Vault])

How to Create backup Vault:-

Vault Name : Balaji - ec2 - backup



Encryption Key : (default) aws/backup



Create backup Vault.

Backup Vault created ✓

Next Step : Plan

How to Create Backup plan :-

Create backup plan



Backup Plan Options [or Build a new plan]



Backup Plan name : aws - backup - balaji - ec2 [plan]

Backup rules configuration :-



Backup Rules name : aws - backup - balaji - ec2 [rules]



Backup Vault : Balaji - ec2 - backup (where to save)

→ Save (✓) ↓

Backup frequency : Every 12 hours, Daily, weekly, monthly, custom

Backup window [Backup **Time**]

↓
Transition to cold storage: [Never]

↓
Retention period [as per company requirement] [When I need to delete]
(Daily, weekly, monthly, yearly)

↓
copy to destination [choose a Region] Ex: **Mumbai**

Create plan.

Plan created.

Next Step:-

Assign resources

[What I need to take backup]

Resource assignment name: **aws-backup-balaji-ec2** - resources

IAM role : Default role.

↓ → Continue next sheet/page

1. Define resource selection:-

Include all resource types

} Based on requirement

Include specific resource types

2. Select specific resource types:- → Don't go with this at

Resource Type

EC2

Instance IDs

cost.
use

create, Tag,

1. Define resource selection:-

- Include all resource types ✓
- Include specific resource types.

Go to EC2 [Instance]



Tags [manage Tags]



Q Name
Backup X

Q true - Please - take - it

4. Refine Selection using tags - optional

Key

Q Backup

Condition for value

Equals ▾

Value .

Q true - Please - take - it

Assign resources, Continue

After, make these conditions

EC2 Cost - Models :-

2 day's plan for Singapore.

On demand

Example: 1

→ I will not buy House because 2 day's



2 year plan for Singapore.

Reserved

Example - 2

* I am asking discount to the

Hotel manager

This is not acceptable

* manager is asking how you will pay (monthly or six monthly or yearly)

→ manager given quotation

Full Amount - 70% { He has to decide.

half Amount - 55%

monthly " - 40%

In Real Time

Reserved Instance

EC2

3 yrs

AWS

Full up rent

Partially up rent

No up rent

Discount

AWS Live - Day 09 (IAM, user, MFA, Permissions, groups)

How to Delete Aws Backup?

Instance



EC2 Backup



Delete



Backup Vault



Select my Backup [Recovery point]



Action [Delete] Continue



Backup Plan



Delete [Plan] & Delete [rules]



Backup Vault [Delete Backup Vault]



AMF also deleted [automatically]

Done --



① Root user :-



Administrator (Boss of Aws console)

② IAM user :-

Account ID

User ID
Password

If you have
any doubt you
can reach Root
user

AWS
Balaji

Devops Engg

Limited
Permission

Ex:- EC2
VPC

According to the company
requirement they will give
Permission to work

AWS Console :-

Aws Account

Root user

1. How to create user. ✓
2. How to create group ✓

Balaji

Dhanu

Admin

Roja

Raman

Devops

IAM Management Console:

[Identity and Access Management (IAM)]

OPTION - 1

How to create IAM user :-

Go to User



Add users



Specify user details [User details]



User name [Balaji]



AWS Management console.



Are you providing console access to a person.

I want to create an IAM user.



Console password.

Autogenerated password.

custom password. (Balaji@123)

users must create a new password at next sign-in
(recommended)

I am not giving any permission
Next

Add user to group copy permissions Attach Policies directly



Next (create user)



User created successfully

How to create IAM User :-

OPTION - 2

Balaji ^{Admin} user creating
Dhanu user.

Go to User



Add User



Specify user details [User details]



User name [Dhanu]



AWS management console



I want to create an IAM user



Console password

custom password [Dhanu@123]



User must create a new password



Next



Add user to group. [Create User]



User created successfully

⇒ When you login in AWS console that time

You can change your password. use old password.

Next...

Aws Management Console:- EC2 Machine

How to sign in as IAM user :-

- ⇒ Account ID
- ⇒ IAM user name
- ⇒ Password
- ⇒ Sign In

How to give permission to Balaji (Admin) (or) Particular User

Go to IAM Management console.

↓
users (Balaji)

↓
Add Permission

↓
or Attach Policies directly

↓
permissions Policies

↓
(Administrative Access)

↓
Next (Add Permission)

How to create Group in IAM

Dhanu She is creating new group

group Name [Admin]

Go to IAM Management console.

User groups (create group)

User group name [Admin]

Add users to the group [1. Dhanu]

Attach permissions Policies [Admin]

Create group

Open (Admin group)

Add users [Balaji]

(Dhanu given admin access to Balaji)
or
Suresh / Ramya

* If you remove user permission to Balaji

after that also he can access the Admin access.

* Because he is added in the user group.

he is part of the group members now.

MFA = Multi Factor Authentication :-

Download App :-

1. Microsoft Authenticator

2. Google Authenticator.

⇒ After Download go to User **MFA** Enable

⇒ After Enable It will generate OTP. (when you

log in your user It will come OTP)

How to enable MFA:-

Go to users



Balaji (IAM) Select



Console Access (MFA)



Security credentials



Multi-factor authentications (MFA)



Assign MFA device.



Drive name [Balaji or user name])



Select MFA device.



- 1) Authenticator APP
- 2) Security key
- 3) Hardware TOTP

If you want mobile, OTP (you can't select)



Select the Authenticator APP



Next



Set up device



Set up your authenticator APP



Take screen no (lets say QR code) screenshot and use



MFA code 1

1st OTP



MFA code 2

2nd OTP



Add MFA

Next...

Next

Next

After Enable MFA [I am logging In to Aws console]

Aws management console



my account



Aws management console



How to change (Account ID (12 digits) or account alias)



Go to IAM Dashboard



Account Alias



Edit (save changes)

Sign in as IAM user :-

Account ID



Balaji



Balaji @123



Sign In

Account ID
change

multi-factor Authentication



MFA code

Resent OTP



Submit

What ever the situation don't
use ID & password at any cost

2nd Person login

Example: Dhanu

Go to users (Dhanu)



Enable(MFA) Directly



Device Name : Dhanu



set up your authenticator APP



Show QR code



MFA code 1

MFA code 2

⇒ Add MFA

sign out to sign in ! -

IAM users



Account ID / Dhanu / Dhanu@123



sign in



multi-factor authentication



MFA code

Resent OTP

It will change in every 30 seconds

OTP



Submit

AWS Live - Day 10 [Firewall / security groups / NACL].

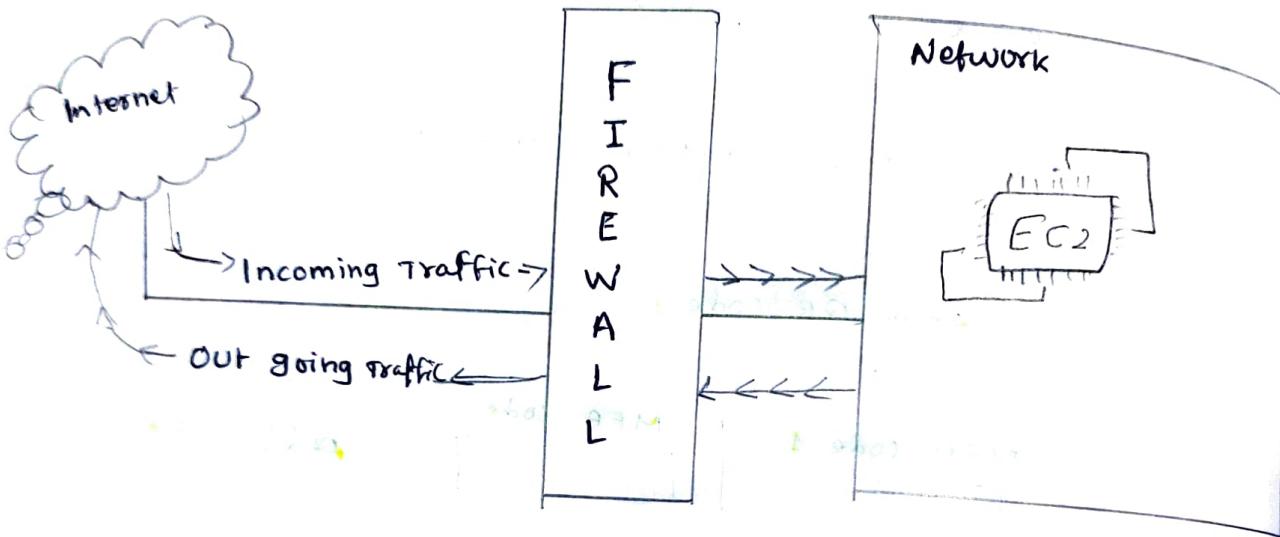
Day-10

Firewall :-

Security groups = EC2 group (Resource Level)

NACL = (Subnet Level) firewall.

Example :- Firewall



⇒ Port Number **22** is **SSH**

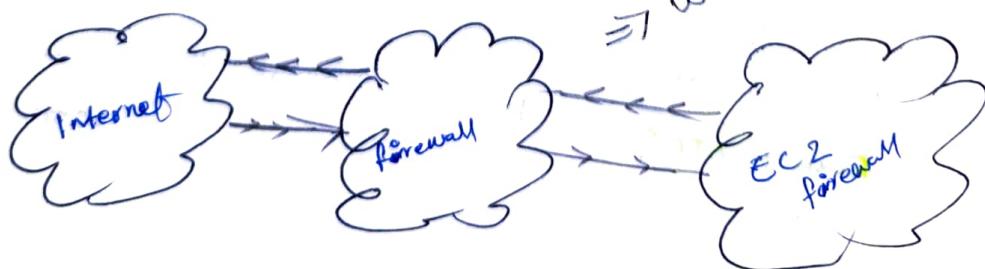
⇒ What is Firewall means:-

* It protects my network.

⇒ Security group also called ~~firewall~~ Firewall up to EC2 Level.

⇒

NACL = network access control list.



* If not allow means it will not connect

* Once you allow all the security group then

only connect

How to Enable security group and How to Connect EC2 machine.

* Create EC2 machine



then go to (Network & security)



Security Groups



Create security group



Security group (name)



Description [→]



VPC [I need to Select VPC - which group I need to enable]



Inbound rules [Incoming]

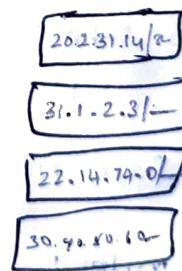


I need to enable SSH Port No. 22

You can enable how many permissions if you want.



Create security group.



} IP address of Employees,

Example: 4 members are working in the EC2 machine.

Give the respective IP Address and secure your EC2

machine... Example: [32.10.22.72/32]

⇒ If you give [0.0.0.0/0] anyone can access the EC2 machine.

How to create NACL

NACL = Subnet Level
SG = Resource level

Go to EC2 (Instance)



security [Network ACLs]



Create network ACL



[Name :]



[VPC: which VPC you want to create (select VPC)]



Create network ACL → Done.

How to Attach subnets:- (Public)

Select [ACL]



Go to subnet associations [Select public subnet]



Save changes

Edit Inbound rules:-

Edit Inbound rules



Add new rule

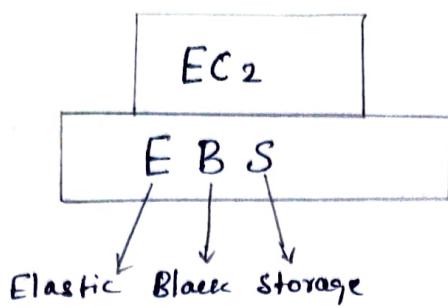


Rule no.	Type	Source
1	SSH(22)	0.0.0.0/0

↓
Save changes.

AWS Live - Day 11 (EBS - Elastic Block Storage)

Day - 16



8 bits = 1 byte
1024 bytes = 1 kb
1024 kb = 1 MB
1024 MB = 1 GB

- ⇒ First I'm creating EC2 instance giving 8GB
- ⇒ If that storage full means How can I increase my volume
- ⇒ How to attach more storage to EC2 machine. (8GB + 2GB)

- * First I'm creating VPC ✓
- * Next I'm creating EC2 (machine) ✓
- ⇒ Next connecting with [MobaXterm] app
- ⇒ It's working ✓

sudo su → cd → ~~██████████~~ (List blade) → LSblk

How to Increase Storage Volumes:

Option - 1

Step - 1

Go to Volumes

↓
Actions (modify volume)

↓
Volume details

↓ Ex: 10 GB
size [change as per your company requirement)

⇒ Once you increased, you can't decreased

↓

Modify

Option-2

Step-2

How to create Volume :-

Go to EC2 - Volumes



Create Volume



Volume settings



Size (GiB) Ex: 2 GiB

(Based on your company requirement).

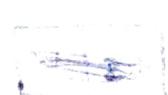


Availability zone [Is very important]

Ex: Singapore your EC2 machine is there means you have to increase your 'Volume' there Only.



Select create



How to Attach Volume:-

Select what you created volumes



Actions [Attach Volume]



Select [Instance] Ex: Balaji-project



Attach

In [MobaXterm] App \Rightarrow Linux

Connect your EC2 Instance



lsblk [check storage]



cd /



ls



cd dev/



ls



cd



touch 1, 2, 3, 4, 5



ls



sudo mkfs -t ext4 /dev/xvdf



mkdir Balaji



ls



mount /dev/xvdf Balaji



ls

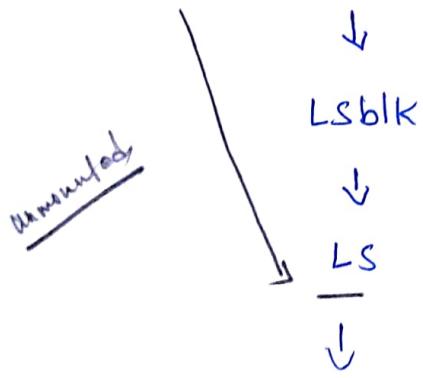
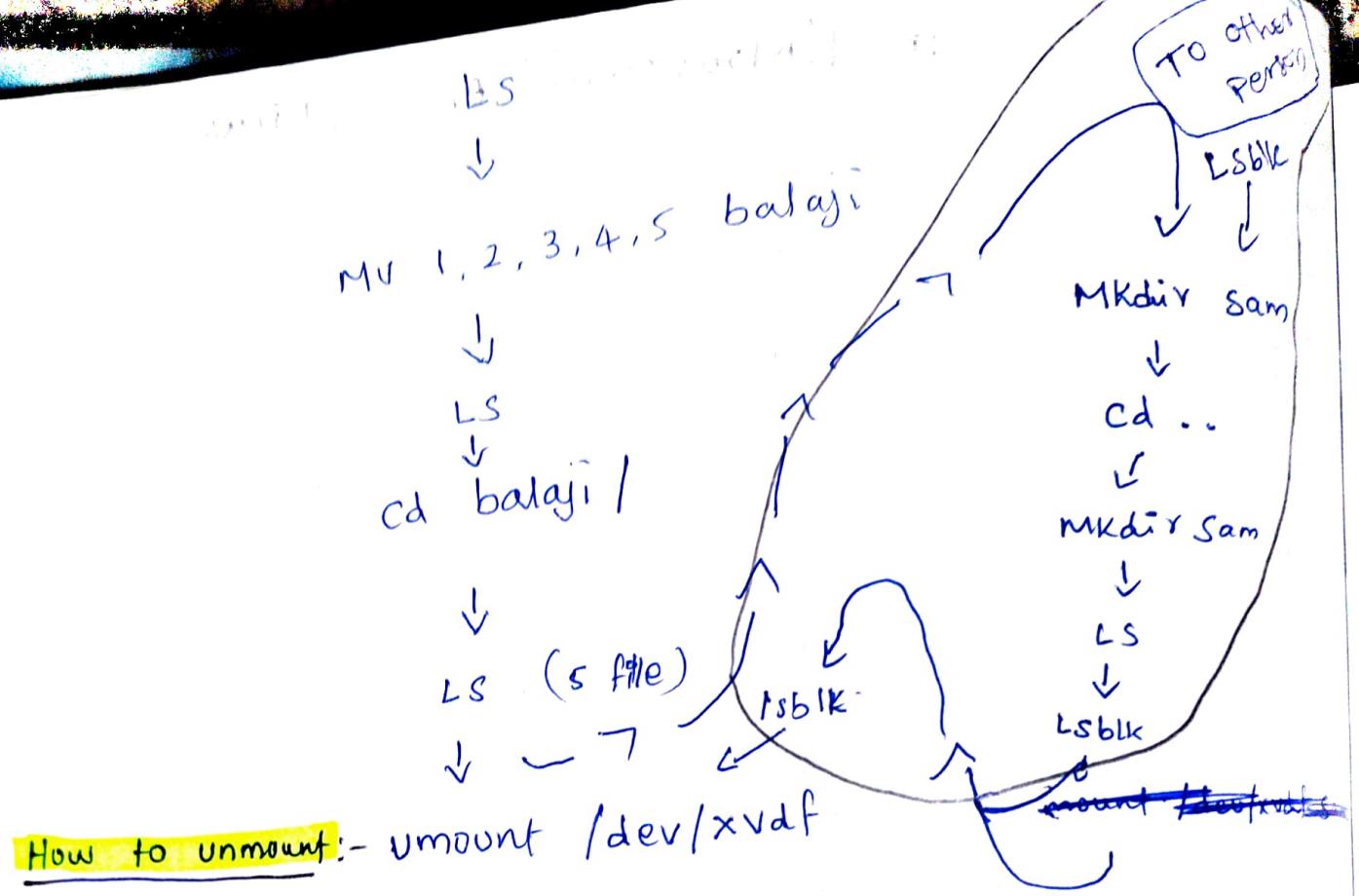


lsblk

How to mount \Rightarrow

mounted

Continue... . . .



mount /dev/xvdf Sam
 ↓
 lsblk

How to Unattach Extra Volume :- what I created

Go to Volume



Select (Extra Volume)



Actions [Detach Volume]



Detach. (After that it will go to available mode)

How to take Backup :-

Go to Volume



Select (Extra Volume)



Actions



Create Snapshot



Description [Name of the backup —]



Create Snapshot

After that you can delete your volume :-

How to Delete Extra Volume :-

Go to Volume → Select (Extra Volume) → Actions

Delete Volume



Delete.

then:-

How to take Backup of Extra Volume:-

Go to Snapshot



Actions



Create Volume from Snapshot.



Select [Volume Type] ✓



Size (GiB) 2 GiB → If you want Increase the size.



Availability Zone ✓



Create Volume. ✓

* After wards you can ~~Attahc~~ Attach your Volume,

as per your Company requirement.

* If you want Increase the size of volume. Ex: 1 GiB → 2 GiB
more.

⇒ If you're Taking Backup means, It will save other

⇒ EC2 Machine = AMI

⇒ Volume means = Snapshot.

How to take EC2 Machine Backup!

Go to EC2 (Instance)



Select (Instance)



Actions → Image and templates → Create image.



Image Name. [→]

Image description [↓]
[Screenshot of AWS CloudFormation template showing 'Image Name' and 'Image Description' fields.]

No reboot

[Enable]

If you want you can take volume's backup.

(or) as per your company requirement.



Create Image.

How to delete Backup [EC2 & volumes] AMIs & volumes.

* Go to AMIs → Deregister AMI

* Go to Snapshot → Delete Snapshot.

AWS Live - Day 12 (S3 intro, Cloud Trail, AWS CLI) Day-17

⇒ whatever you're doing in AWS we can check

In Cloud Trail.

⇒ Cloud Trail is monitoring theory in AWS.

What level of monitoring:-

* User's level actions in AWS console

* Cloud Watch is a monitoring service for

AWS resources and applications.

* Cloud Trail is a web service that records

API activity in your AWS account.

AWS API activity in your AWS account.

Why Cloud Trail:-

S3 - Simple Storage Service.

⇒ If you want older than 90 days we will

Create S3 ⇒ Simple Storage Service and we are

Saving all documents in S3 Buckets.

① S3 - Simple Storage Service:-

② Object Storage.



③ It's a serverless storage.

⇒ EFS - Elastic File Storage

What is the difference between Server / serverless :-

Server: A computer that stores information that a number of computers can share.

A server is a specialized computer connected to a network which provides, or "servers up", resources or services.

Serverless: Whatever the objects we are using in S3 Bucket we are paying that much only. (we are not mentioning any data or size)
Ex: credit card, monthly bills.

Storage: Where will save the data that is called storage.

Ex: In our laptop Folders (C), (D).

⇒ When we are using S3 Bucket no need to mention

EC2 / VPC / subnet and etc....

⇒ S3 Bucket is (Global service)

⇒ No need to mention (AB) & unlimited service.

How to create S3 (Bucket) :-

Go to **S3** → Buckets



Create Bucket



Bucket name [- - -]

Bucket name must be globally unique and must not contain spaces or uppercase letters

Ex: Aws-Balaji0096.



AWS Region [Select region as per your company requirement]



Object ownership

• ACLs disabled (recommended)

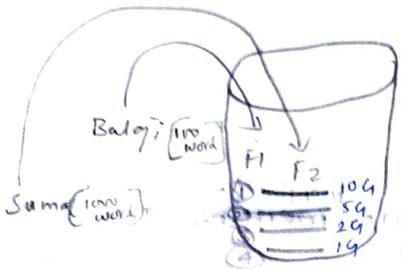
• ACLs enabled



Block Public Access settings for this bucket

as per your company requirement

Block all public access



Bucket Versioning

Disable Enable

what's versioning:-

* when we are enable versioning that time it recovers the document.

Add Tag [xx,yy]

↓

Default encryption

SSE - Server side Encryption

Amazon S3 managed key (SSE-S3)

AWS Key management service key (SSE-KMS)

Bucket Key (Encryption at rest)

Disable Enable

↓

Create bucket. ✓

How to create trails :-

Go to cloud trail ✓



Dashboard



Create trail ✓



Trail name [Ex: Balaji] ✓



or Use existing S3 bucket

o Create new S3 bucket (if you want create new bucket)



Trail log bucket name select your → choose.



Log File SSE-KMS encryption enabled

Enable

New ✓

your choice.

Existing



Additional settings

Log file validation

Enabled. ✓



Next



management events

Read

Write



Next

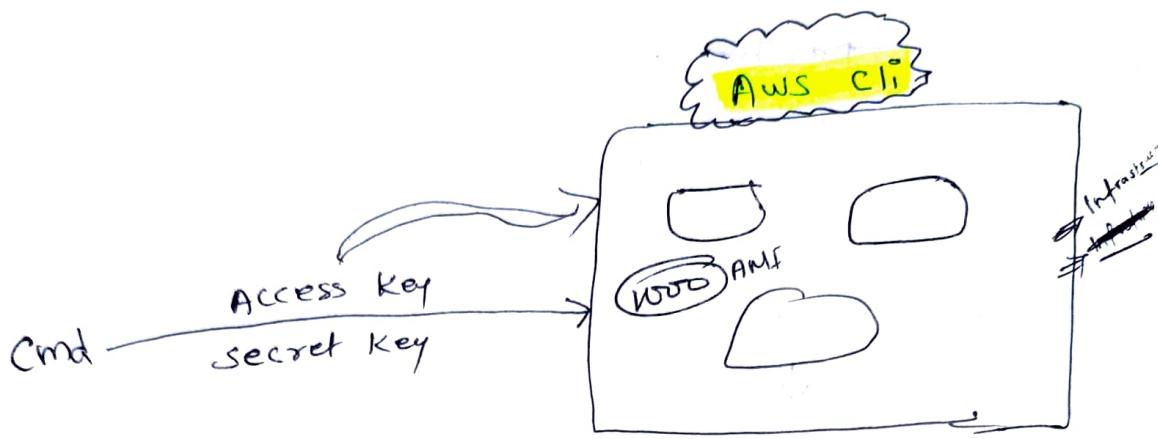


Multi-region trail Yes



Create trail ✓

AWS CLI [CLI - Command Line Interface]
GUI - Graphical User Interface.



⇒ Installing or Updating the latest version of the AWS CLI

* Download which one you want.

⇒ then install as usual.

⇒ AMI [Interview]

AMI Common's are available in Internet as per our requirement we are copy pasting. #

AWS Live - Day 13 (Aws cli, Hosting websites in S3, SSM, roles)

Day - 18

How to Delete [S3] Buckets :-

Step-1

Go to [S3] Buckets



Select [Buckets]



Go to Empty



Permanently delete.



Empty

Step-2

Go to cloud trail



Select [Trails]



Delete.

Step-3

Go to [S3] Buckets



Select [Buckets]



Delete



Copy [Name] Paste



Delete bucket

⇒ Install aws cli ✓

How to create access key and secret key:-

Go to Thangavel (user)

↓
security credentials ✓

↓
It will go to IAM user - Account

↓
my security credentials (root user)

↓
Access key (Create access key) ✓

↓
Continue to Create access key

↓
 I understand . . .

↓
Create access key ✓

created . . .

COPY your Access key and secret key in your
Note Pad . . .

(08)

Download . csv file.

Done ✓

Command Prompt - aws configure

Go to command Line



aws cli (download) aws --version



aws configure ✓



Aws Access Key ID [give Access Key] ✓

{Take
from
note pad.



Aws secret Access Key [give Access Key]



Region name - [] ✓



Default output format [None] ⇒ Best option.



Now go and check you Local Laptop (c) folder.



create one **S3** Bucket



aws s3 ls (it will show the folder)



aws ec2 describe-instances [it will show the instance]



aws help [It will show all the commands based on your requirement you can select]



Done...

How to host website in S3 Bucket:-

Go to [S3]
↓

Create S3 Bucket



click [S3 Bucket] what I created.



I'm creating Index.html in my local system.

Steps:-

Create Text Document File



Name []



website name [Hi this is my website]



Save as



File name [Index.html]

Save as type [All Files]



Save.



Go to S3 Bucket



Upload → Add files → select file [Index.html]



Open



Upload.



If I want to make my Bucket available
be in public



Step 1 → ① Go to permissions



Block public access [Edit]



Block all public access



Save changes [confirm]



Step 2 → ② Go to properties



static website hosting



Edit

Disable

Enable



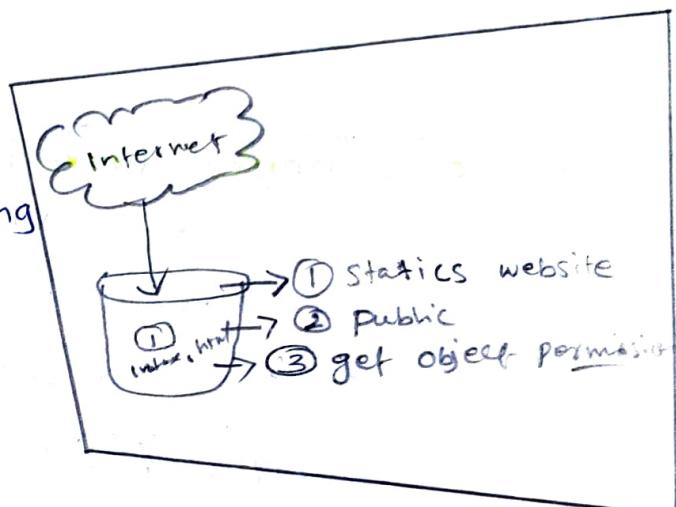
Index document [index.html]



Error document [index.html]



Save changes.



Step 3 → ③ Go to properties



Bucket website endpoint [URL]

Step 4 → ④ Go to permissions



Bucket Policy [Go to google and search]

Bucket Policy website
Hosting in S3

what we taken
from google

Edit (Paste)

you need to change bucket name.

copy from google.

→ save changes ⇒ now copy URL in google our website will come.

Interview Questions :-

How do you login in to private EC2 machine:-

⇒ there are two ways. ① Jump server ② SSM.

One: While Using Jump server.

Second: I will be going for a jump server (or) I will be creating a role with permission called [SSM], then I will attach it to the role to EC2 instance. then I will connect from [SSM].

How to connect from [SSM] to Private Network.

- ⇒ Create VPC ✓
- ⇒ Create EC2 (private) ✓
- ⇒ Go to Instance [EC2]

⇒ IAM Role



Select your private EC2



Connect



Session manager



1. SSM Agent Install [Yes] It is already installed in AWS
2. Create IAM Role.
3. Attach Role to EC2 instance.

How to create a role:-

Go to IAM. ✓



Roles [Create role] ✓



Trusted entity type [AWS service] ✓



Use case [EC2] ✓



Permissions policies [Ex: AmazonEC2RoleforSSM] select as per your requirements ✓



Next [Role details]



Role name [] ✓



create role ✓

we can connect
private EC2 machine
while using console from
SSM - Simple Systems
Manager

Role created

How to attach Role to EC2 Instance:-

Go to EC2 instance.

SNS

Simple Notification
service.



select [EC2 instance] ✓



security [Modify IAM role] ✓



IAM role [Select] what we created. ✓



Update IAM role ✓

Reboot your

EC2 instance

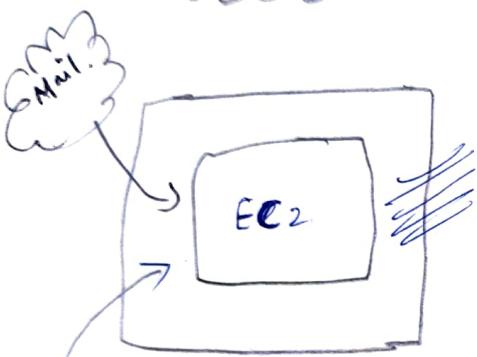
once

[connect]

AWS Live - Day 14 (SNS, Cloud Watch)

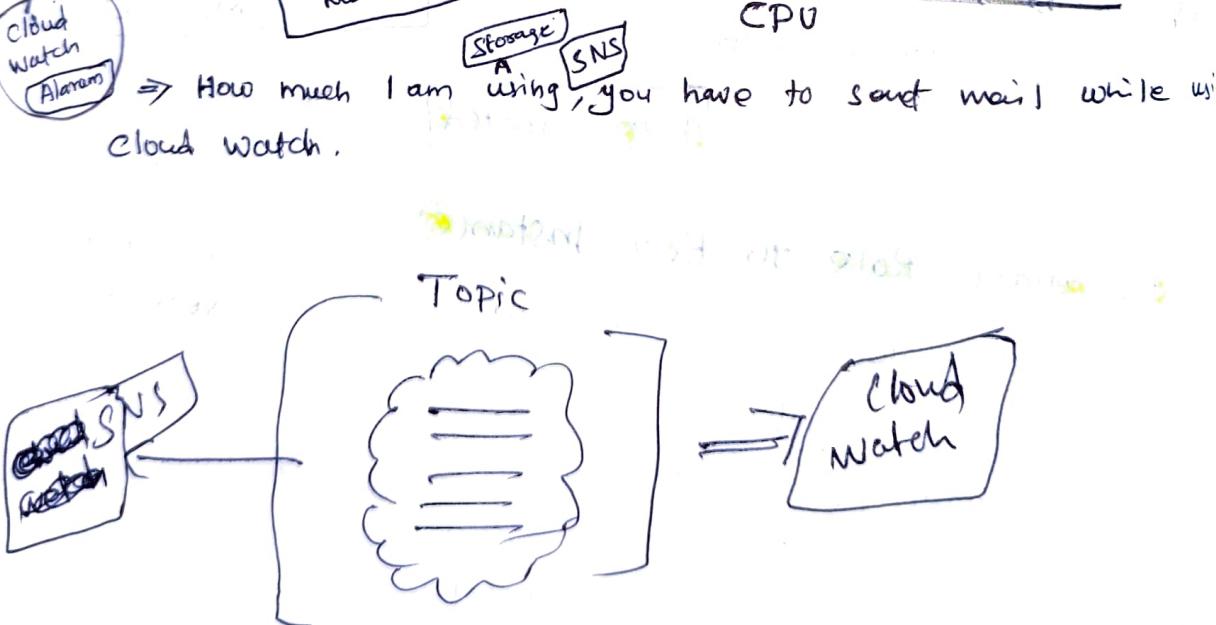
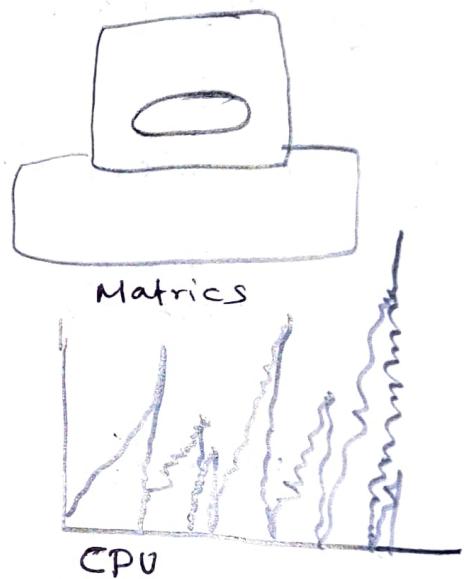
⇒ SNS - Simple Notification Service.

- ① Cloud Trail → AWS Console level monitor.
- ② Cloud Watch → Resource level monitoring.
Ex: EC2 instance



- * When we are hosting website that time EC2 will get slow.
 - * Alarm website that time when EC2 machine is getting full you can send one notification to my mail.
- Low - 20%
Medium - 60%
Critical - 75%
Risk - 95%

Cloud Watch Alarm → How much I am using, you have to send mail while using Cloud Watch.



How to Create SNS Topics:-

Go to SNS

↓ select region

Step-① → Topics [create topic]

↓

Type [Standard]

↓

Name []

↓

Display name []

↓

create topic

Step-2

How to delete sns Topic

Go to Topic

↓

Select []

↓

Delete Me.

Step-② → How to create subscription.

Select Topic (click)

↓

Create Subscription.

↓

Details [Topic ARN Select Topic]

↓

Protocol

Email

↓

Endpoint

xx,yy
mail ID

↓

Create Subscription.

Create Subscription
based on your requirement
Mail Ex: YOUR_xx,yy

↑
Step-①

How to Delete Subscription

Select FD

↓

Delete.

Continue

How to confirm Pending Confirmation :-

Go to your Mail



notification



Confirm subscription.

⇒ Confirmed...

Red Alert Green (No issue)

How to set alarm :-

△ O ⊕

⇒ VPC created

⇒ EC2 (Public)



Go to Cloud Watch.



In alarm



Create alarm [Select Metric]



Browse [Metrics] → EC2 Instance.



COPY EC2 Instance ID



Step 1

All > EC2 > Per-Instance Metrics



Select [CPUutilization] → Select Metrics

Q EC2 Instance ID

Metric Name
CPUutilization
InstanceId
EC2
Instance name
xx
Statistic
Average
Period
1 Minute

Conditions

threshold type

- ① Static
- ② Greater

than
90%

Next..

Notification

Step 2

- ① In alarm
- ② Select an existing SNS topic
- ③ Email.

Next..

Continue..