

* [Networking in Cloud] -

Tradition topology

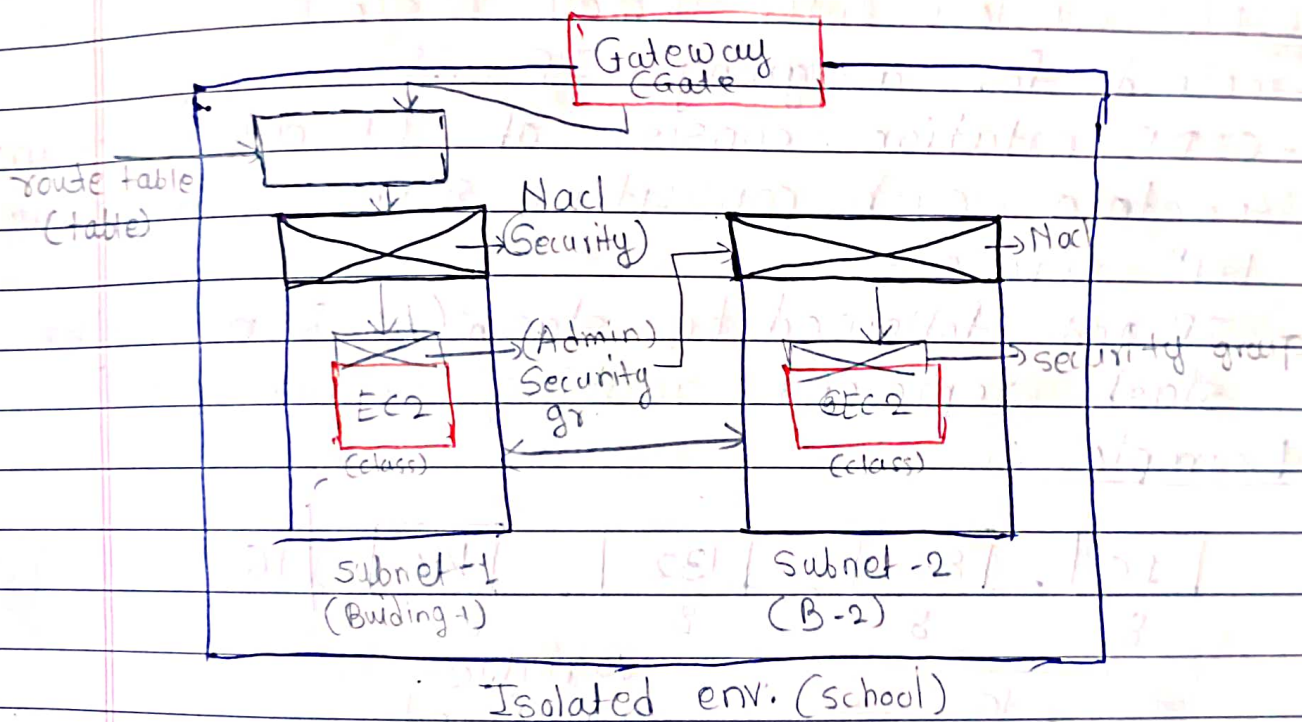
Data center
Router
Switches (subnet)
Firewall
Server & OS
Modem

AWS service

VPC
Route table
subnets
Security gr & NACL
EC2
Internet gateway

* VPC - Virtual private cloud.

- allows you to run instances in isolated env.



- allow to launch resources in logically isolated n/w
- Gives control over virtual networking resources
 - Selecting IP range
 - Creating subnet.
 - Configuring route table & n/w gateways.
- replaces need for your own data center.
- more secure, reliable, cost-effective & easy to use than traditional data center.

• IP addressing in VPC :

[see ahead]

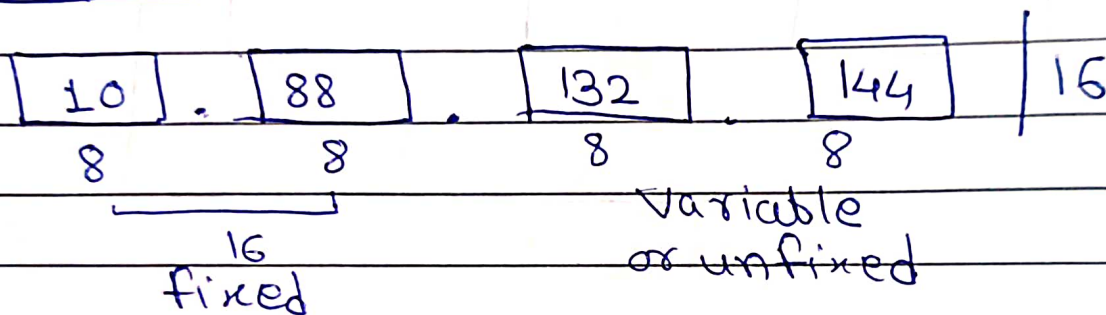
CIDR - classless Inter Domain Range (Routing)

- method for assigning IP add.

- CIDR notation consist of IP add. contain 4 octets, each consisting 8 bits giving value betⁿ 0 to 255.

- IP add. followed by slash (/) & no. after slash represent routing or n/w prefix.

Examples :



16^2
1st 16 bits from n/w part & remaining 16 from host part

Components :

① Internet gateway : Each VPC have only one IGW

- attached to VPC
- acting like separation from isolated env. (VPC) with outside (internet)
- allows communication from VPC to internet.
- enable resources in public subnet to connect internet

Public subnet :

- associated with route table, has route to Internet gateway
 - will have route as 0.0.0.0/0 & target as IGW-xxx.
- Public IP add. : must have IPv4 or Elastic IP add.

② NAT Gateway : (N/w address translation)

- attached to private subnet.
- provide n/w add. transl, so that private subnet can reach out to internet
- instance in private subnet to connect outside VPC

* [IP]

• IP - unique address used to identify devices on the network.

- Each device on n/w has unique IP add.
- Identifies host & n/w.
- used for locatⁿ addressing.
- Can be public or private.
- Can be assigned in static & dynamic way.

- Public IP:

It can be accessed over the internet. It is help to connect outside network.
- assigned by router.

- Private IP:

It can be accessed inside the network.
- assigned by internet service provider

• Diffⁿ betⁿ IPv4 & IPv6 :

- | <u>IPv4</u> | <u>IPv6</u> |
|--|---|
| ① 32-bit - add. size | - 128 bit |
| ② add. es must be reused & masked | - unique add. |
| ③ Numeric dot-decimal notat ⁿ | - Alphanumeric hexadecimal notat ⁿ . |

• Static & Dynamic IPs :

Static - IP add. that does not change.

- provided by ISPs & remain fixed
- created manually.

Dynamic - is IP add. that can change over n/w.

- assigned by n/w & change over time