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AWS Networking

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LIMITS!





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Agenda

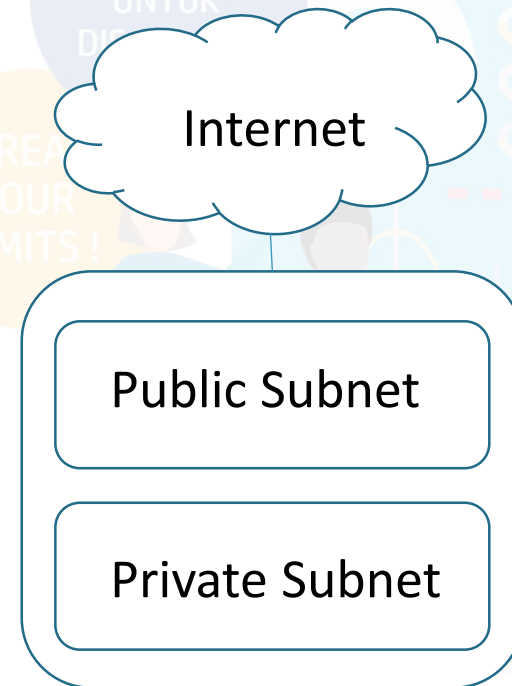
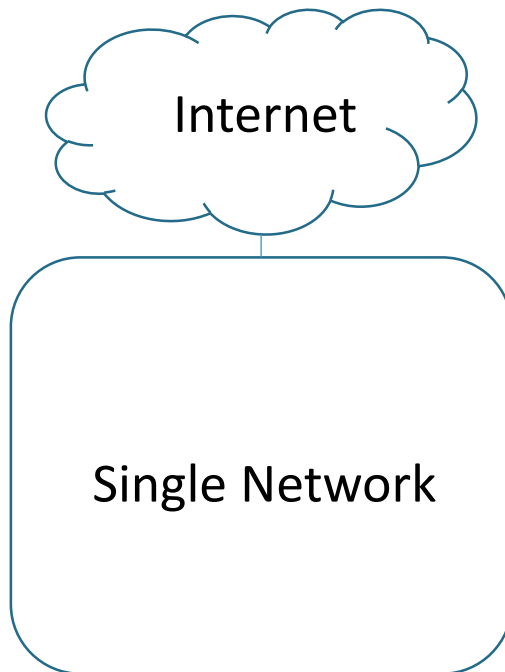
- Traditional network
- Amazon VPC
- Amazon VPC CIDR and Subnet
- Internet Gateway
- NAT Gateway
- Elastic IP





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How you implement your network ?





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How to set network in AWS ?



Amazon Virtual Private Cloud (VPC)

- Provision a **private, isolated virtual network** on the AWS cloud.
- Have complete control over your virtual networking environment.

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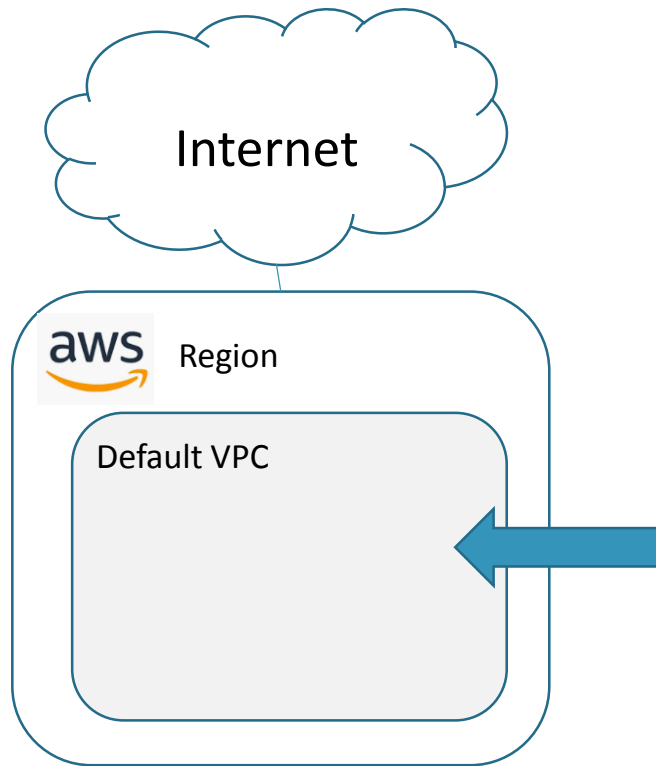
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Default VPC



I never create a VPC, but I can create EC2 and other services. How can it happen ?

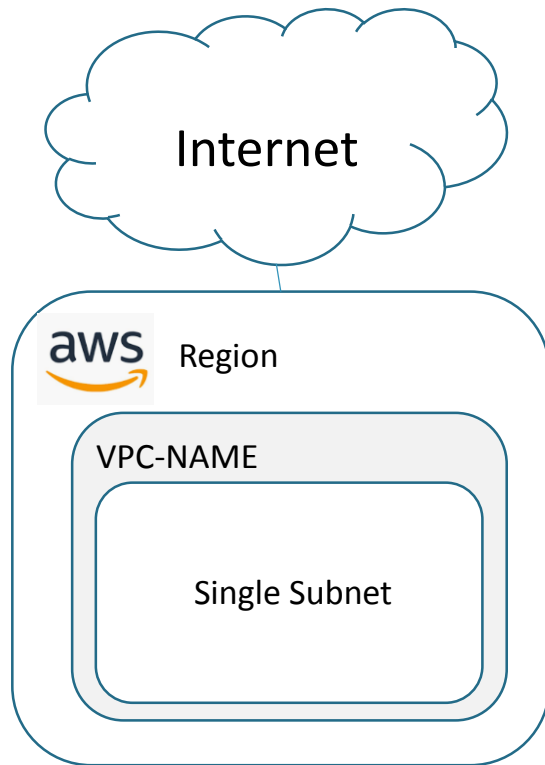
By default. AWS provide one default VPC per region with 172.31.0.0/16 as the CIDR

User can use this without need to create a new VPC.



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VPC



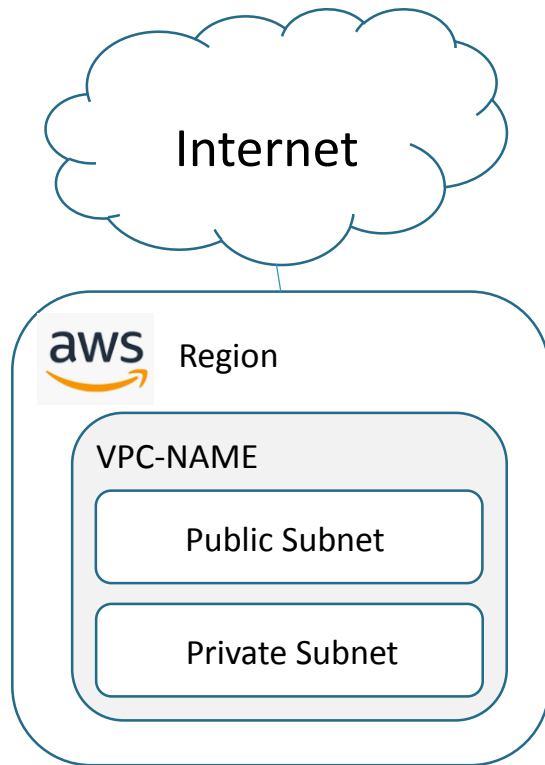
We can set VPC and subnet as what we usually do in our own network environment.

For example for a simple architecture, we can put everything into a single subnet



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VPC (cont.)



In a complex architecture, we will need to create multiple subnets. Its not limited only 2 subnets, we can have more.

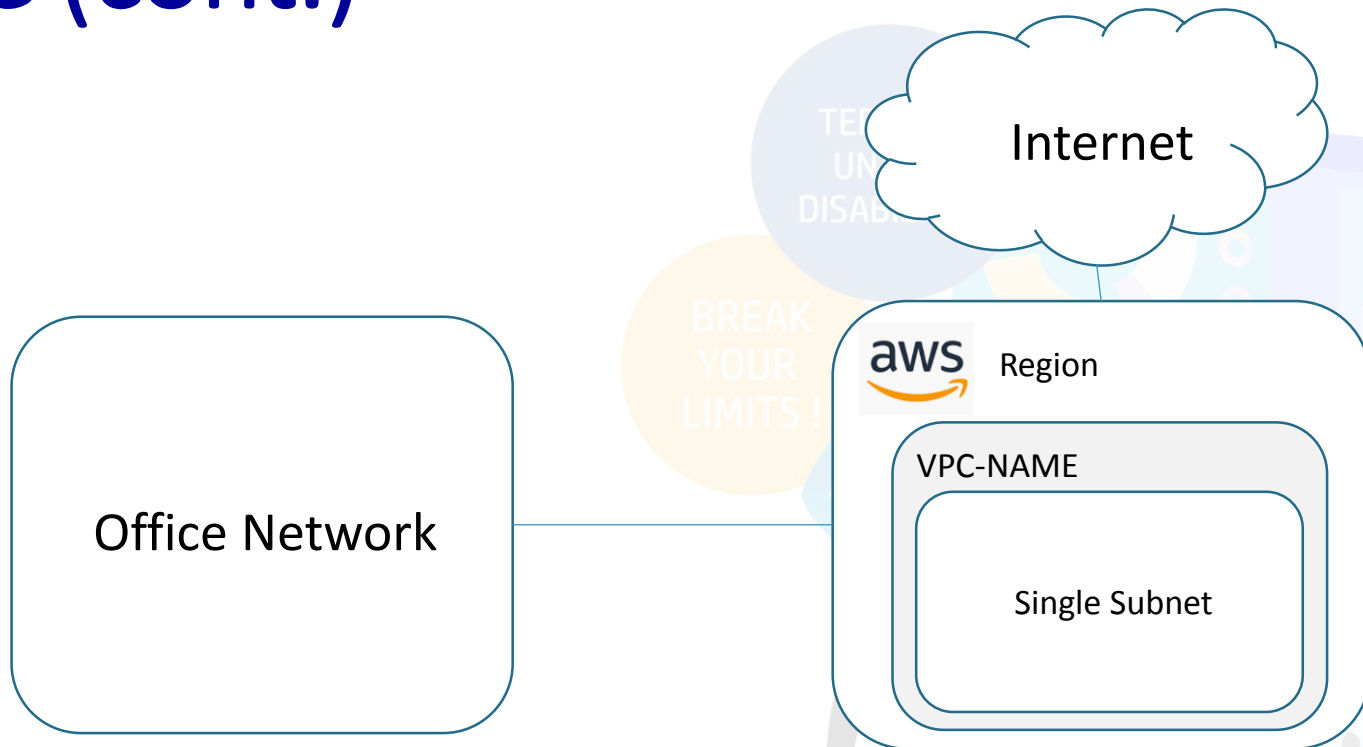
Remember, we need to create subnet's network to part of VPC CIDR Network

Each subnet must reside entirely within one Availability Zone and cannot span zones.



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VPC (cont.)

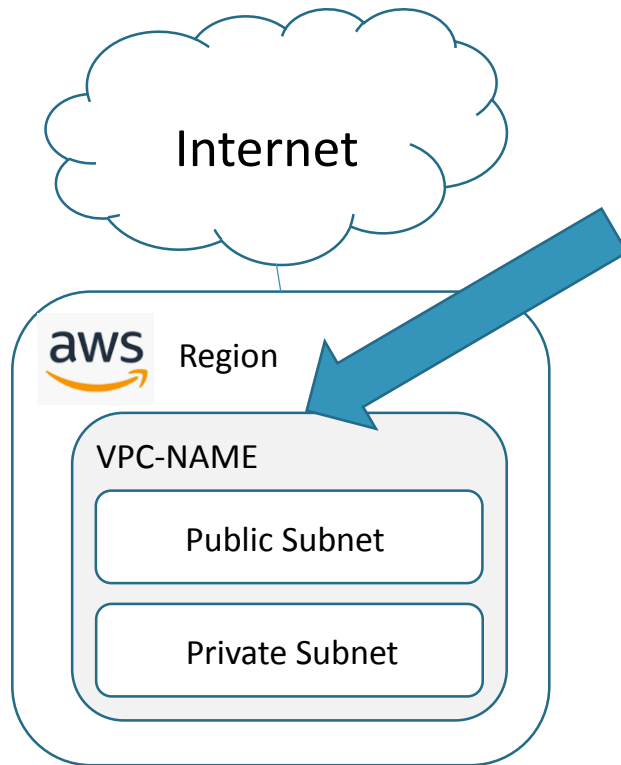


To assign VPC CIDR Network, we need to consider CIDR Network at our Office Network. They **CANNOT** use the same CIDR Network



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How to set the internet access for our VPC ?



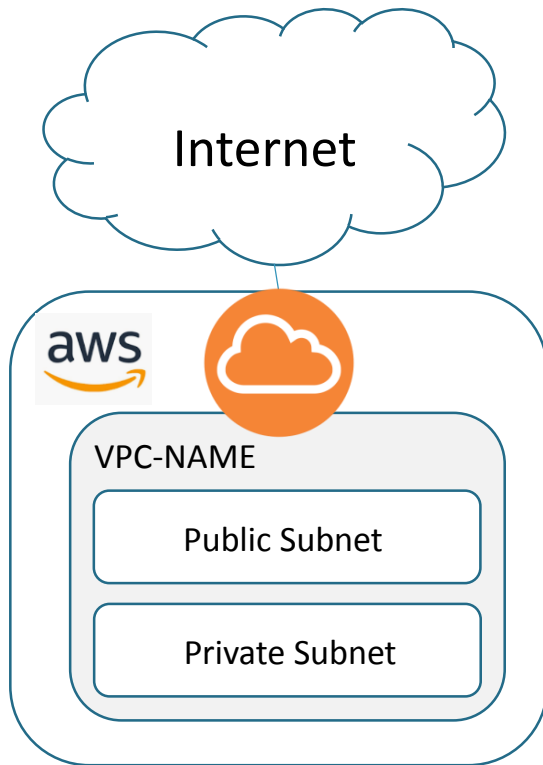
We must set **Internet Gateway** for VPC's network can access Internet resources (for example to get update from repository, or to install library)

Internet Gateway assign for each VPC.



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How to set the internet access for our VPC ?



Once we assign Internet Gateway into our VPC, we need to set Route

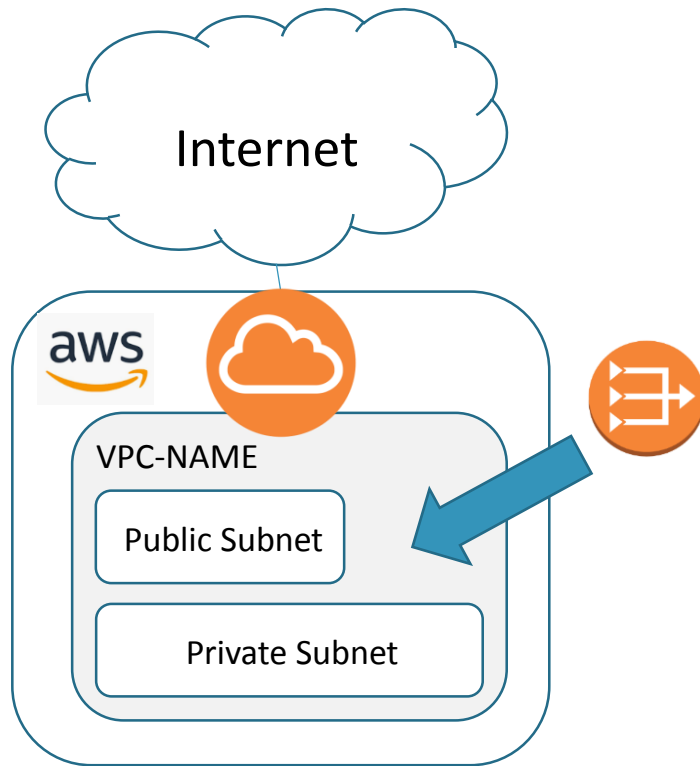
Base on this architecture design, we need to set default route (0.0.0.0/0) to Internet Gateway at **Public Subnet** routing table.

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How to set the internet access for our VPC ?



What about the Private Subnet ?
We are not going to set default route to Private subnet, because it will publish our subnet.

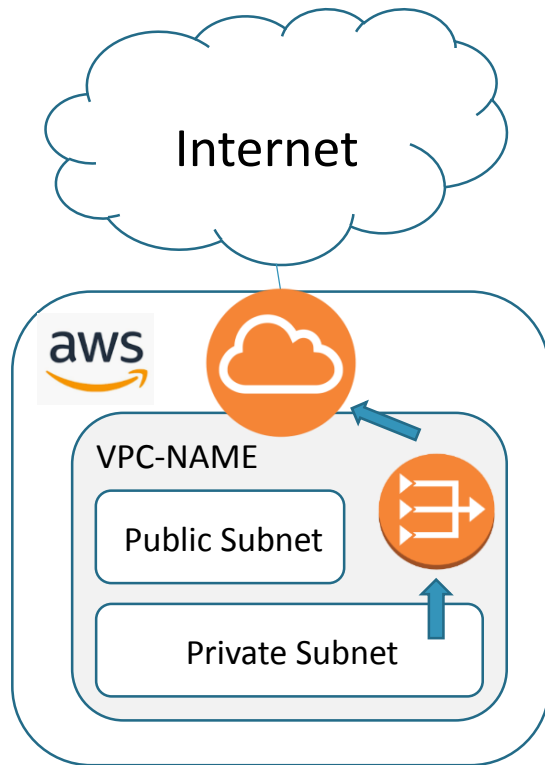
We need to apply NAT Gateway, to translate traffic from Private Subnet to Internet

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How to set the internet access for our VPC ?



From Private Subnet, we set the default route to NAT Gateway. Later NAT Gateway will translate the request and forward to Internet Gateway.

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Why EC2's IP Public keep changing

200.1.2.3 → 200.2.1.3



When we create EC2 Instance and put into Public Subnet, the Instance will automatically get an IP Public.

However if we restart the Instance the IP will change to a new IP Public.

This will cause problem in DNS translation.

How to solve it ?



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Elastic IP

▼ Images

AMIs

▼ Elastic Block Store

Volumes

Snapshots

Lifecycle Manager

▼ Network & Security

Security Groups New

Elastic IPs New

Placement Groups New

Key Pairs New

Network Interfaces

- Can be associated with an instance or a network interface
- Able to re-associate and direct traffic immediately
- Five allowed per AWS Region
- Can create Bring Your Own IP (BYOIP) addresses






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