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AWS Cloud Computing

Topics:

1. Regain Access of EC2 Instance for Lost Private Key
2. What is Elastic Network Interface?
3. Multiple IP Address to EC2 Instance
4. AMI for Multiple EBS
5. Difference Between Snapshot and AMI
6. VPC with Multiple Public and Private Subnets
7. VPC Peering
8. Elastic File System

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Practice LAB

Troubleshooting an Issue

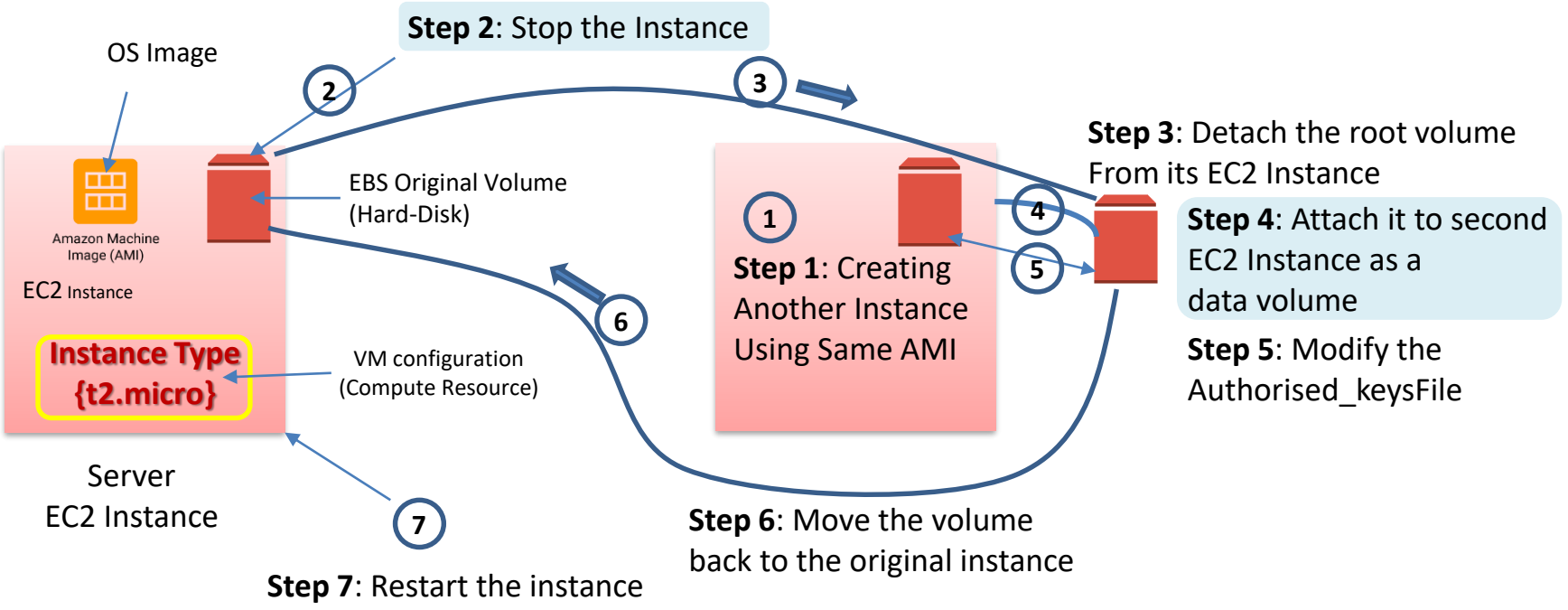
I've lost my SSH private key and am locked out of my Amazon Elastic Compute Cloud (Amazon EC2) Linux instance. How can I recover access?

A Hint →

1. Creating Another Instance Using Same AMI
2. You must stop the instance,
3. detach its root volume and
4. attach it to another instance as a data volume,
5. modify the authorized_keys file
6. move the volume back to the original instance, and
7. restart the instance.

Troubleshooting an Issue

Recovering Access over EC2 Instance, in case SSH Private Key is lost



What to Remember?

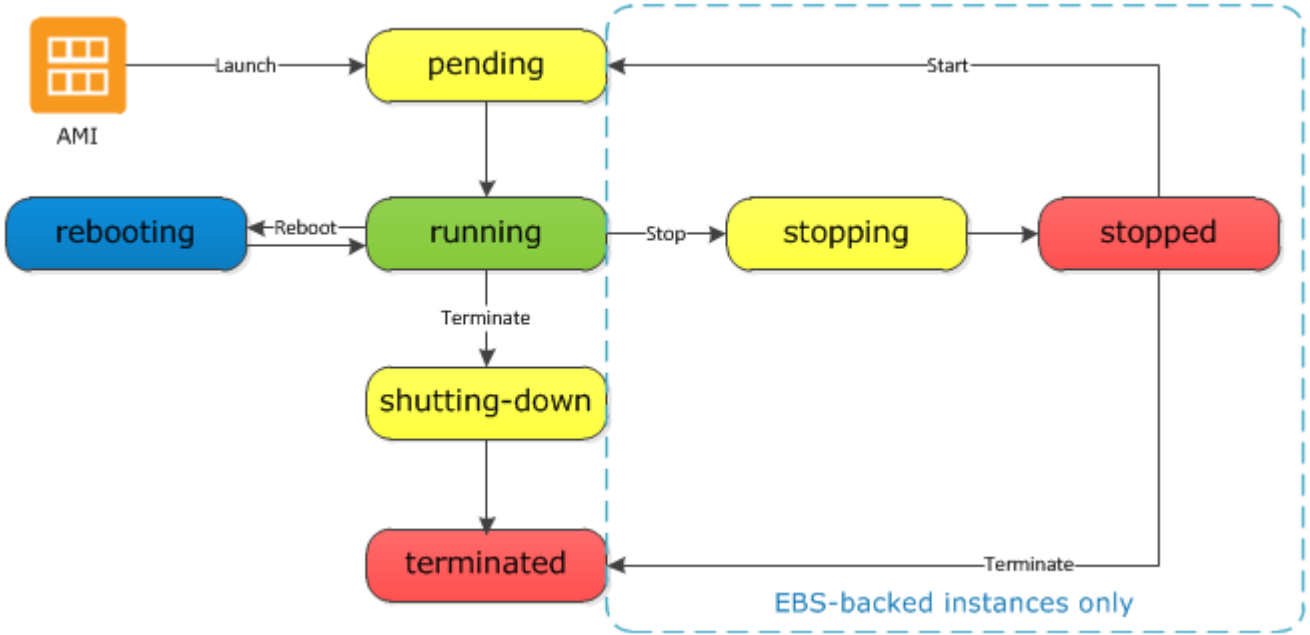
Note down details related to the original EC2 Instance

- Instance ID: i-0fa8c8266814b799d
- AMI ID: amzn2-ami-hvm-2.0.20190313-x86_64-gp2 (ami-0de53d8999e8dcf80)
- Availability Zone: us-east-1a
- EBS Volume ID: vol-0d66782a7b997abae
- EC2 Instance Root Device Name (eg. /dev/sda1 or /dev/xvda): /dev/xvda

Take backup of EBS Volume: eg EFS, S3 etc.
Create another Instance using same AMI which is used to launch original Instance.

Instance Lifecycle

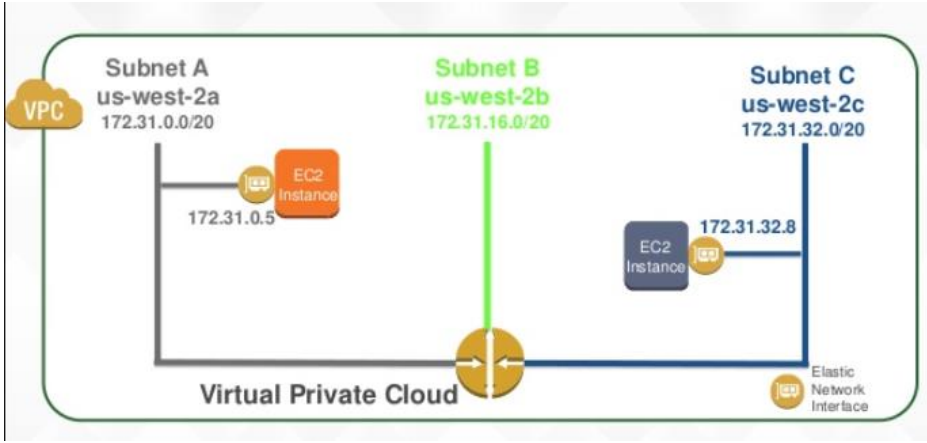
Transitions between instance states



Network Interface

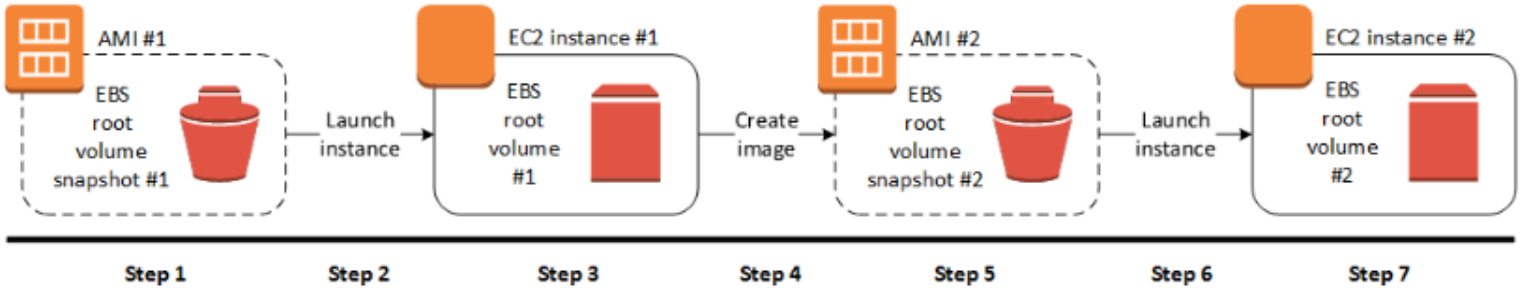
1. ENI is a logical networking component in VPC.
2. You can create and configure network interfaces in your account and attach them to instances in your VPC.
3. Limitations of ENI: ***IP Addresses Per Network Interface Per Instance Type***

Instance Type	Maximum Network Interfaces	IPv4 Addresses per Interface	IPv6 Addresses per Interface
a1.medium	2	4	4
a1.large	3	10	10
a1.xlarge	4	15	15
a1.2xlarge	4	15	15
a1.4xlarge	8	30	30
c1.medium	2	6	IPv6 not supported
c1.xlarge	4	15	IPv6 not supported
c3.large	3	10	10
c3.xlarge	4	15	15
c3.2xlarge	4	15	15
c3.4xlarge	8	30	30
c3.8xlarge	8	30	30
c4.large	3	10	10
c4.xlarge	4	15	15
c4.2xlarge	4	15	15
c4.4xlarge	8	30	30
c4.8xlarge	8	30	30
c5.large	3	10	10



https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/using-eni.html#eni-basics

Creating an AMI that is based on multiple or single EBS-backed EC2 instance?



You can create an AMI using the AWS Management Console. The diagram summarizes the process for creating an AMI from a running EC2 instance. Start with an existing AMI, launch an instance, customize it, create a new AMI from it, and finally launch an instance of your new AMI. The steps in the following diagram match the steps in the procedure below. If you already have a running Windows instance, you can go directly to step 4.

Qus: What would happen when you create an AMI of one instance with multiple EBS Volumes.?

EBS Discussion

What happens to data when an EC2 instance terminates?

Can I stripe multiple EBS volumes together to get better performance?

Are snapshots versioned? Can I read an older snapshot to do a point-in-time recovery?

Difference between AMI and Snapshot

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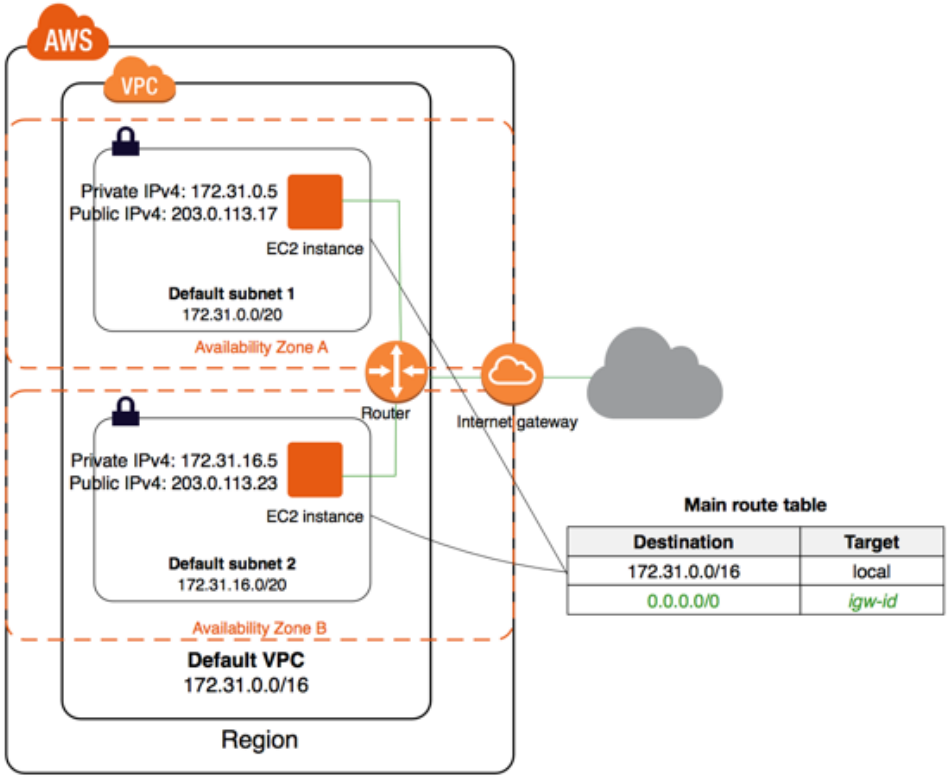
Virtual Private Cloud - VPC

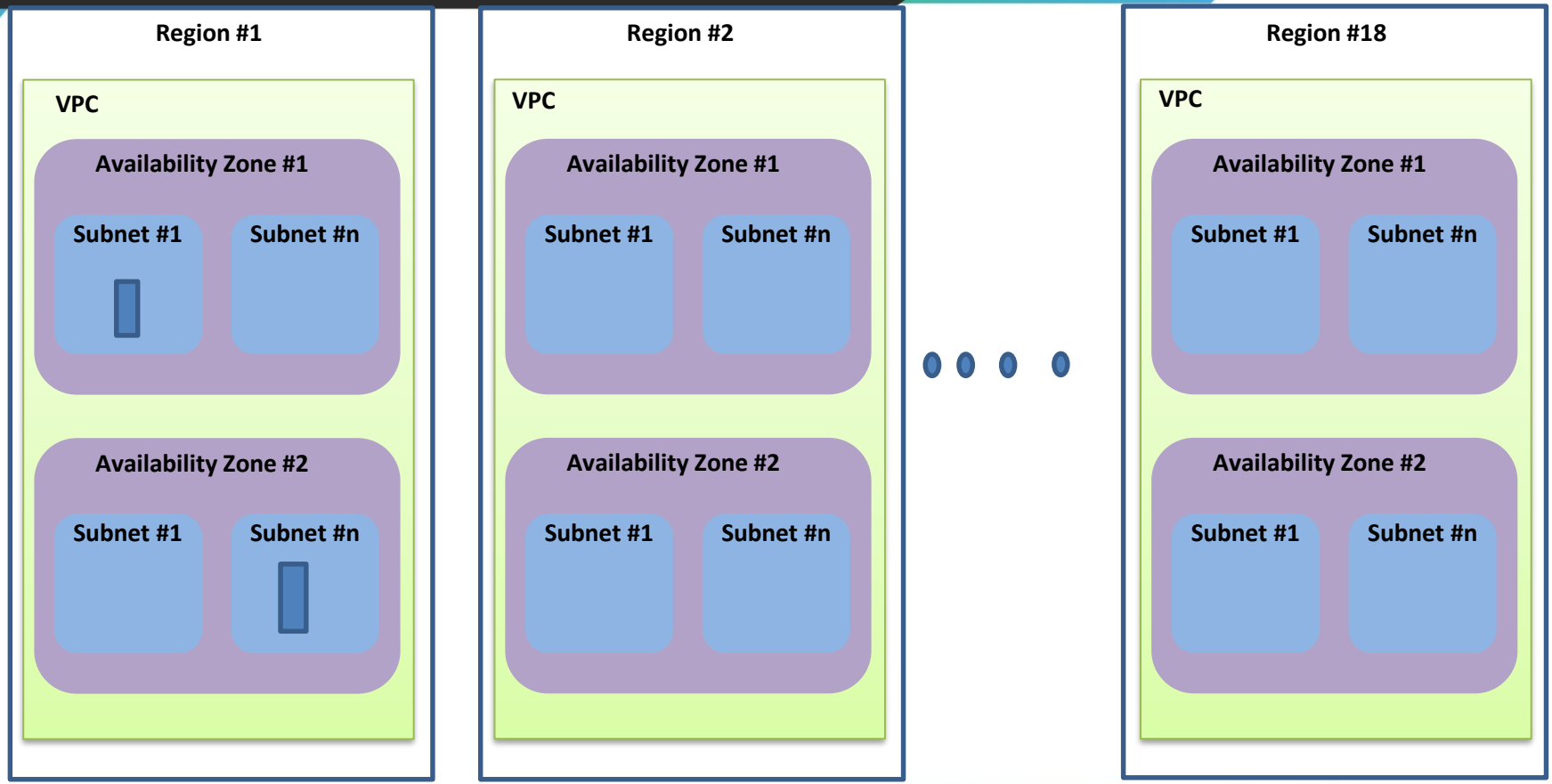
Virtual Private Cloud



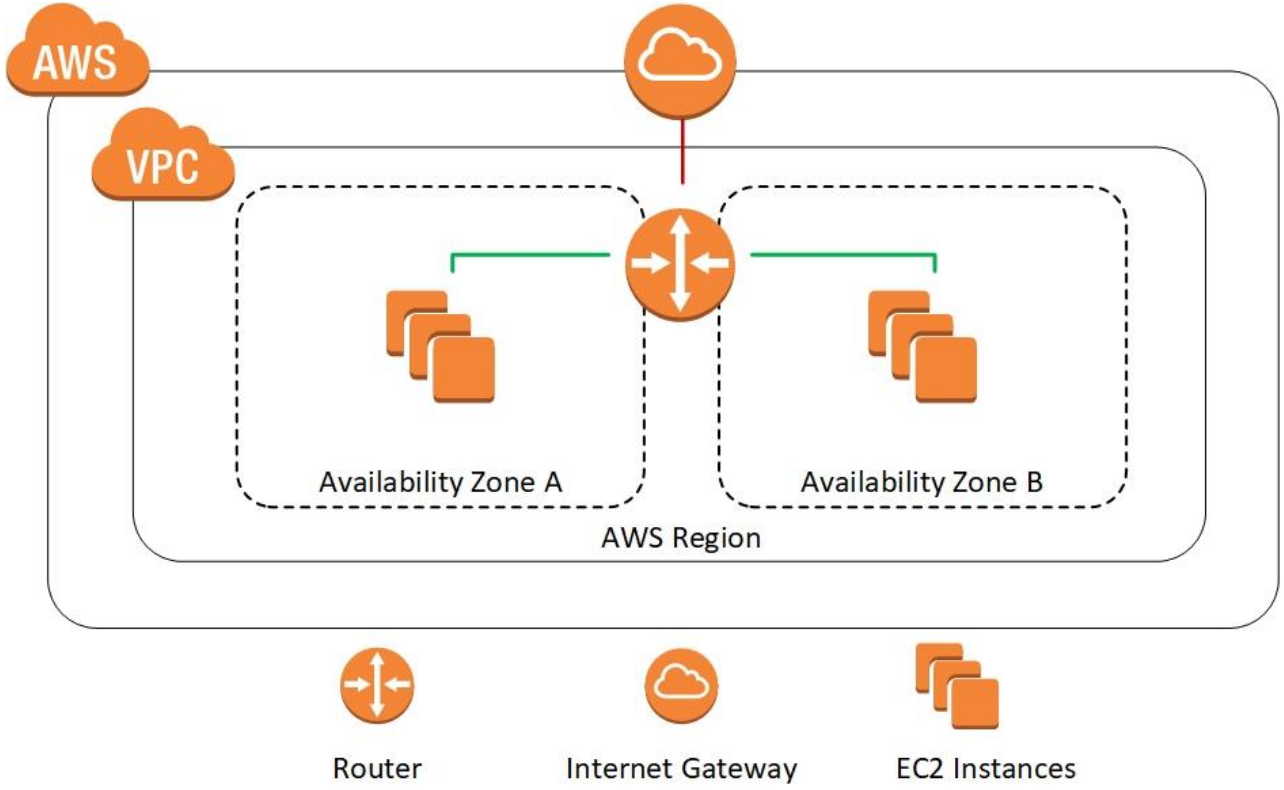
VPC is a logically isolated network

Amazon Virtual Private Cloud (Amazon VPC) enables you to launch AWS resources into a virtual network that you've defined. This virtual network closely resembles a traditional network that you'd operate in your own data center, with the benefits of using the scalable infrastructure of AWS.

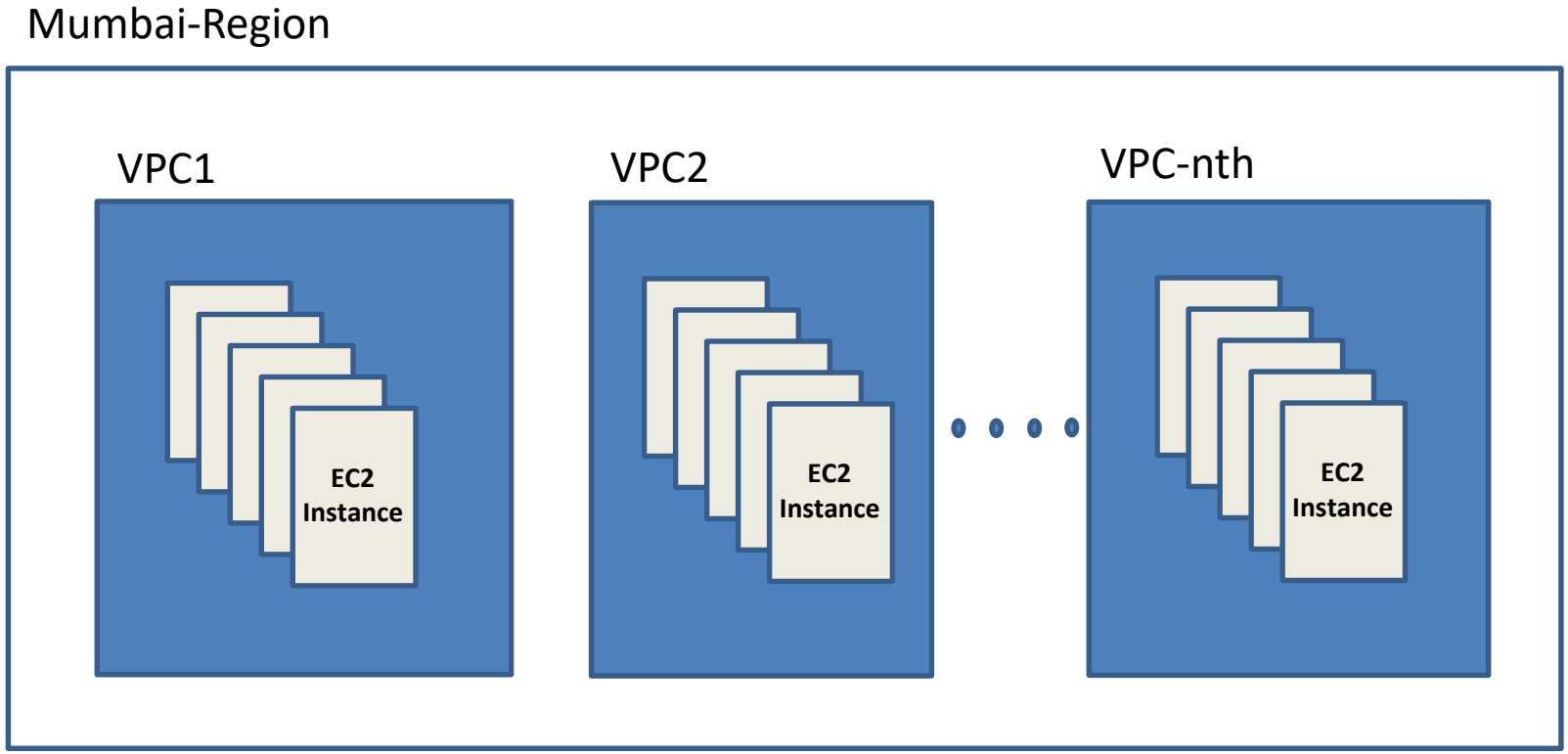
AWS Account has multiple Regions



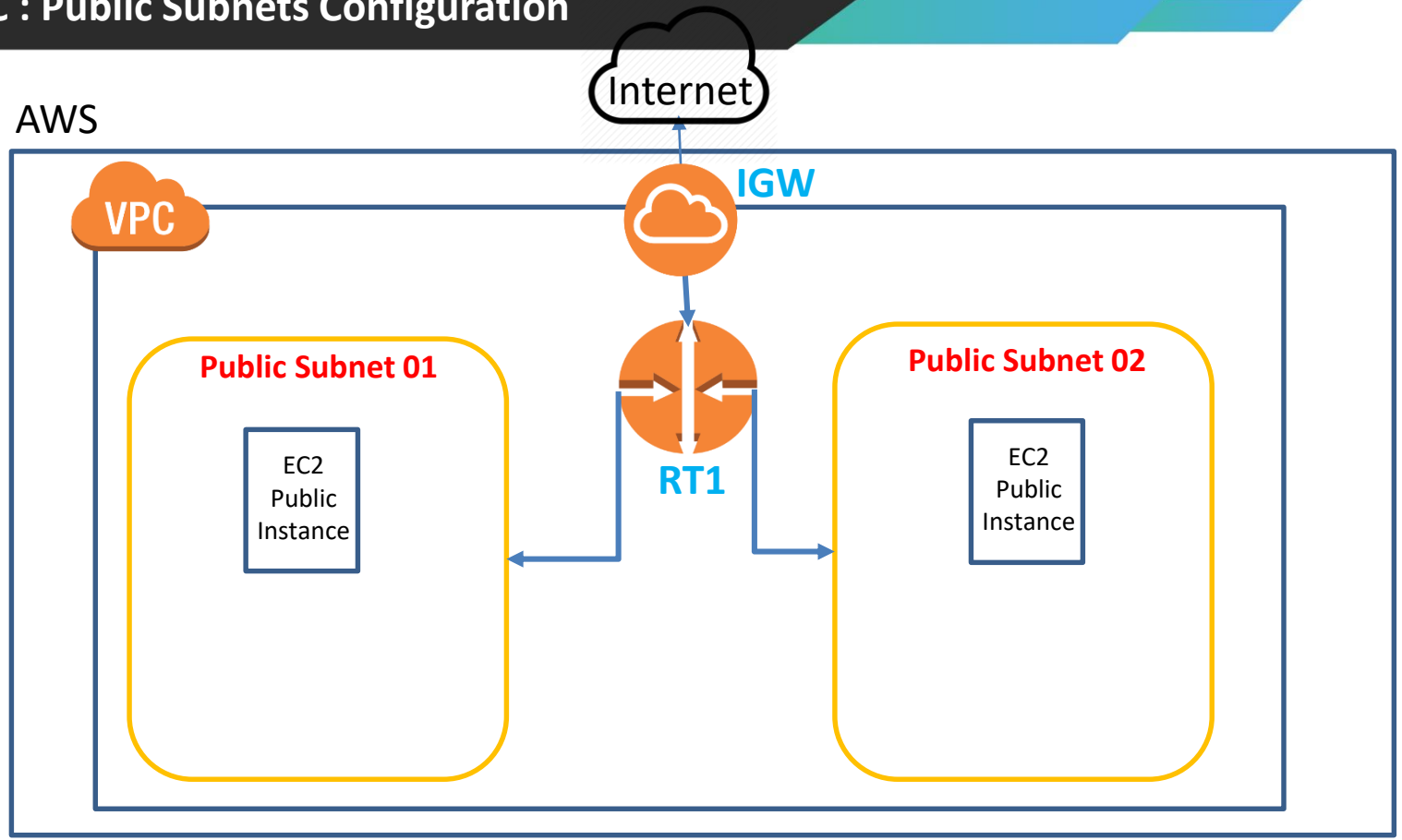
Understanding AWS VPC



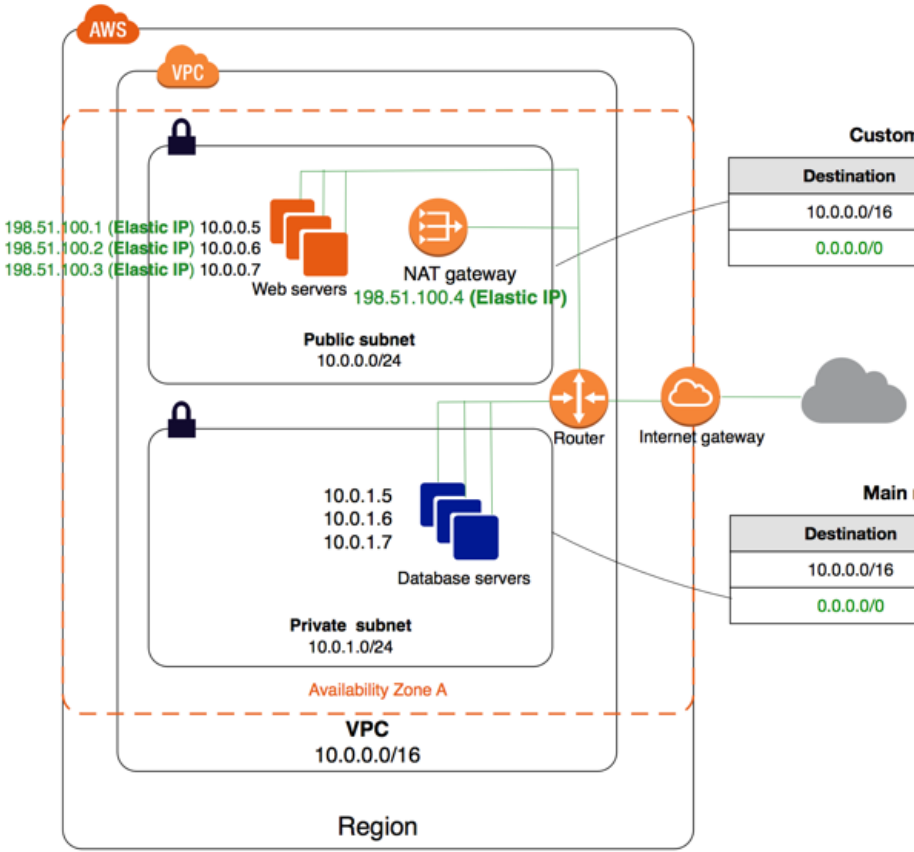
One Region can have multiple VPCs



VPC : Public Subnets Configuration



NAT Gateway

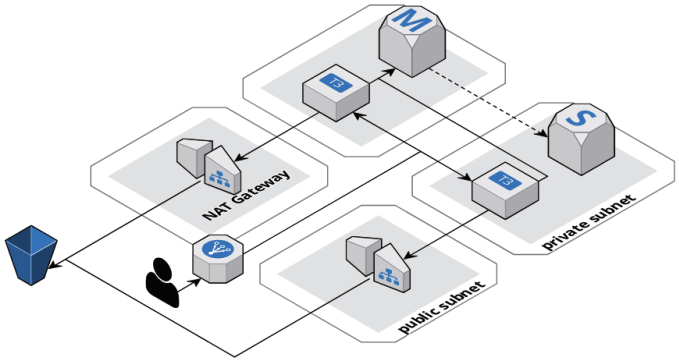


Custom route table

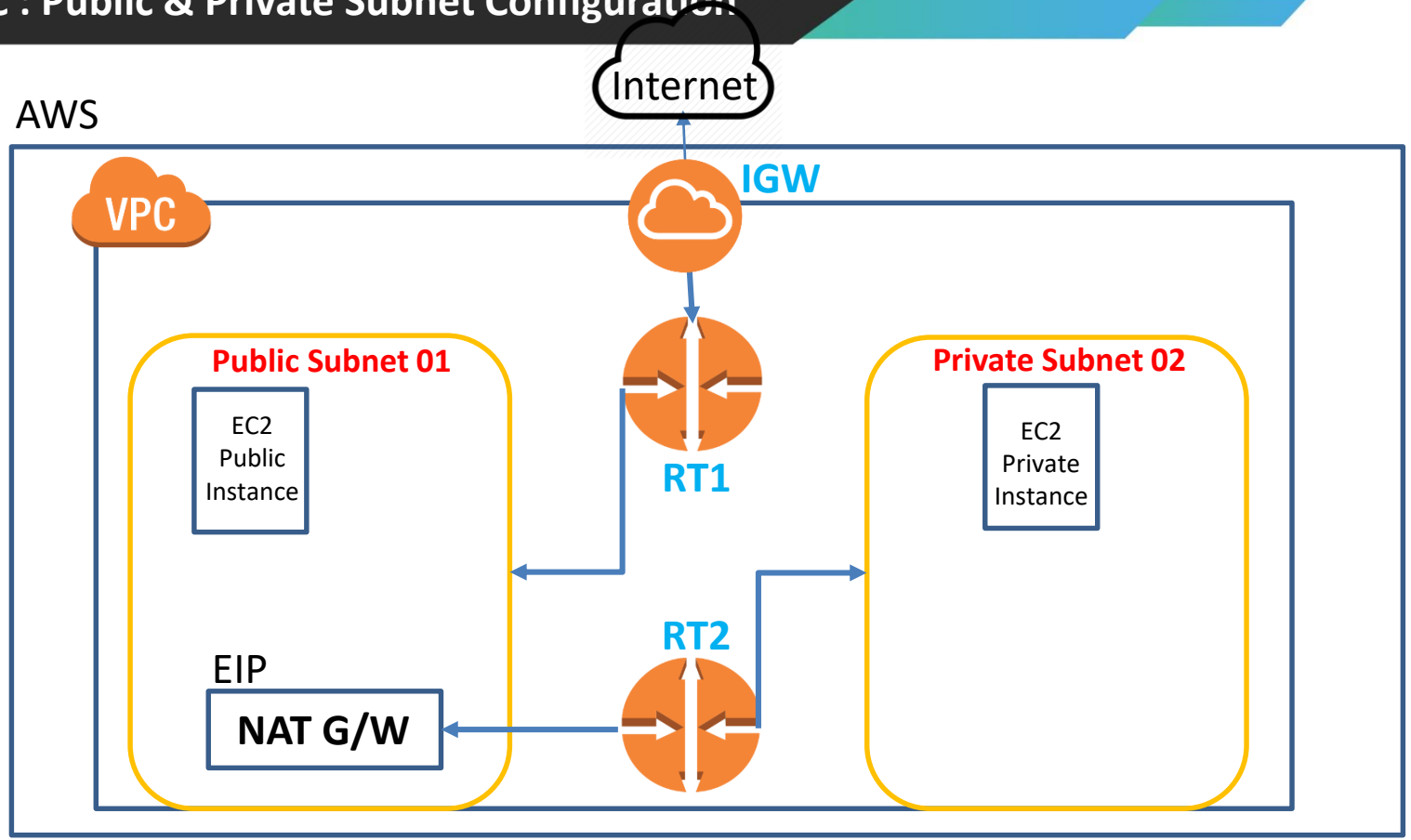
Destination	Target
10.0.0.0/16	local
0.0.0.0/0	*igw-id*

Main route table

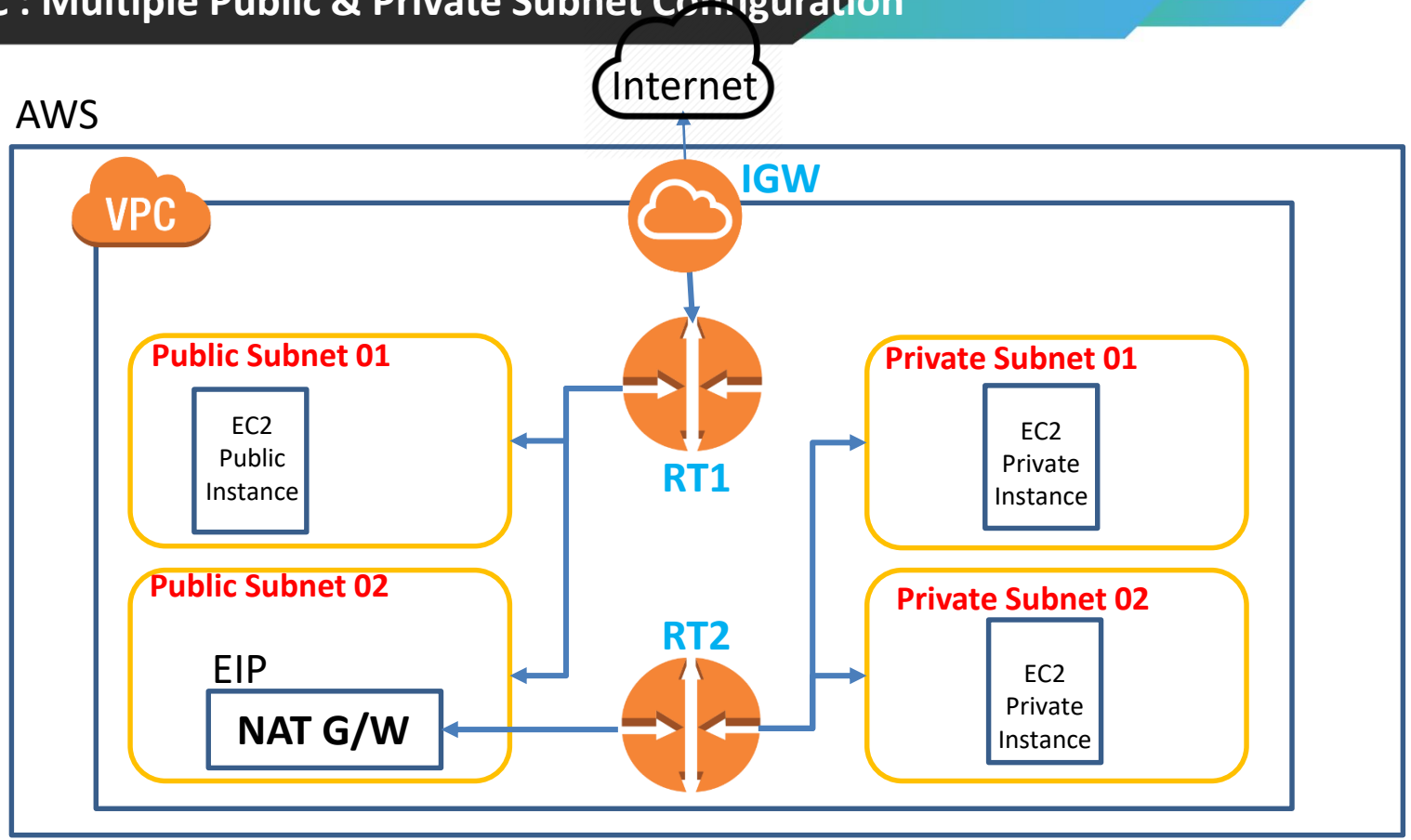
Destination	Target
10.0.0.0/16	local
0.0.0.0/0	*nat-gateway-id*



VPC : Public & Private Subnet Configuration

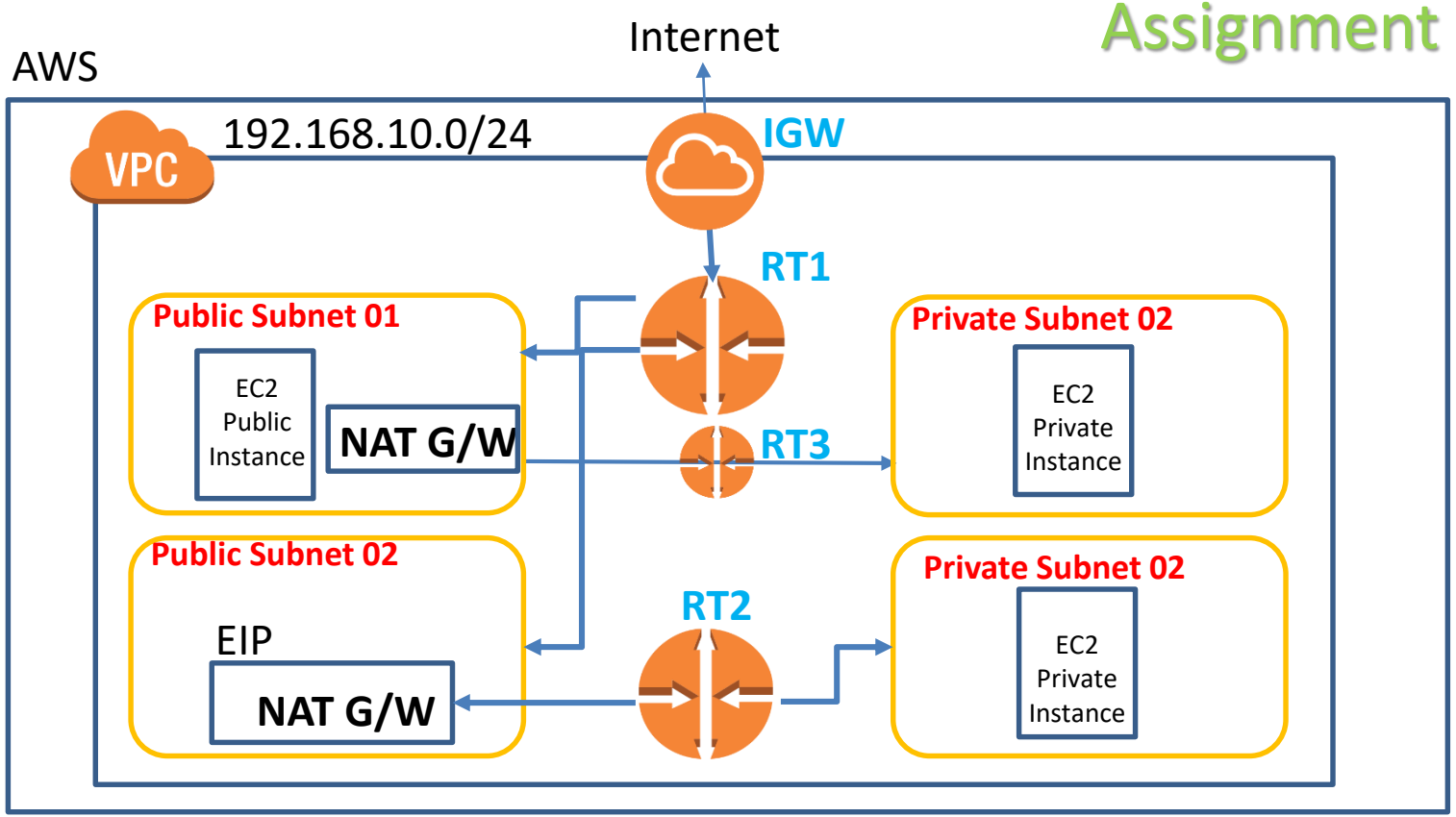


VPC : Multiple Public & Private Subnet Configuration

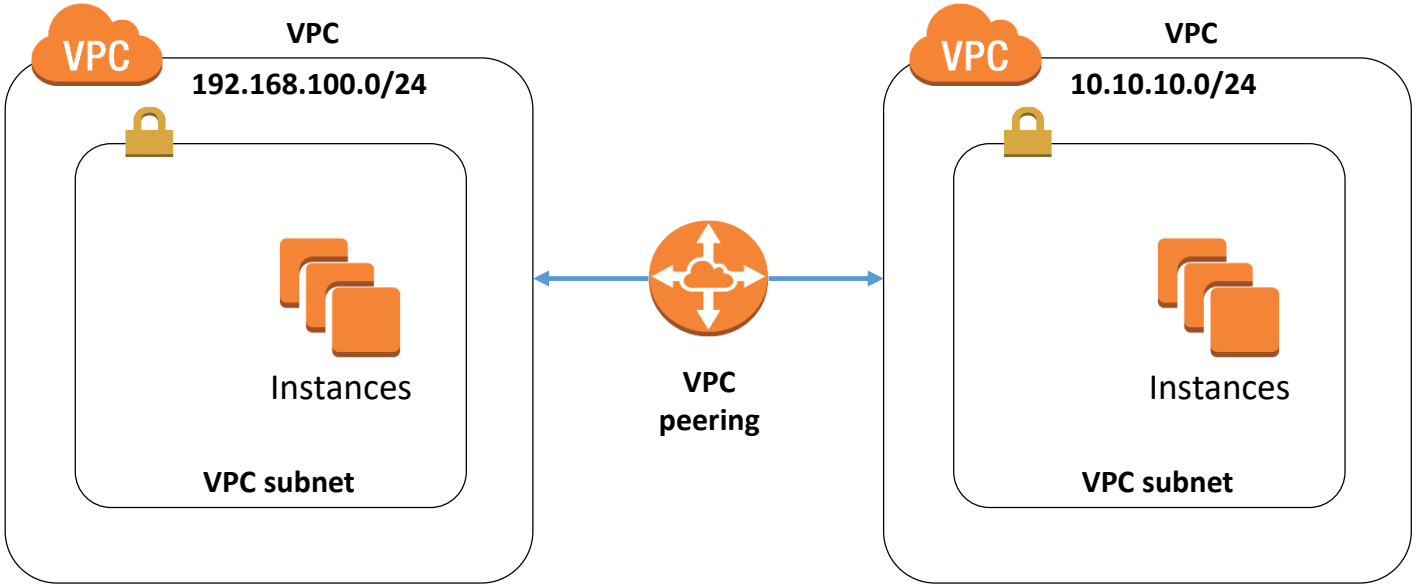


VPC : Public & Private Subnet Configuration

Assignment

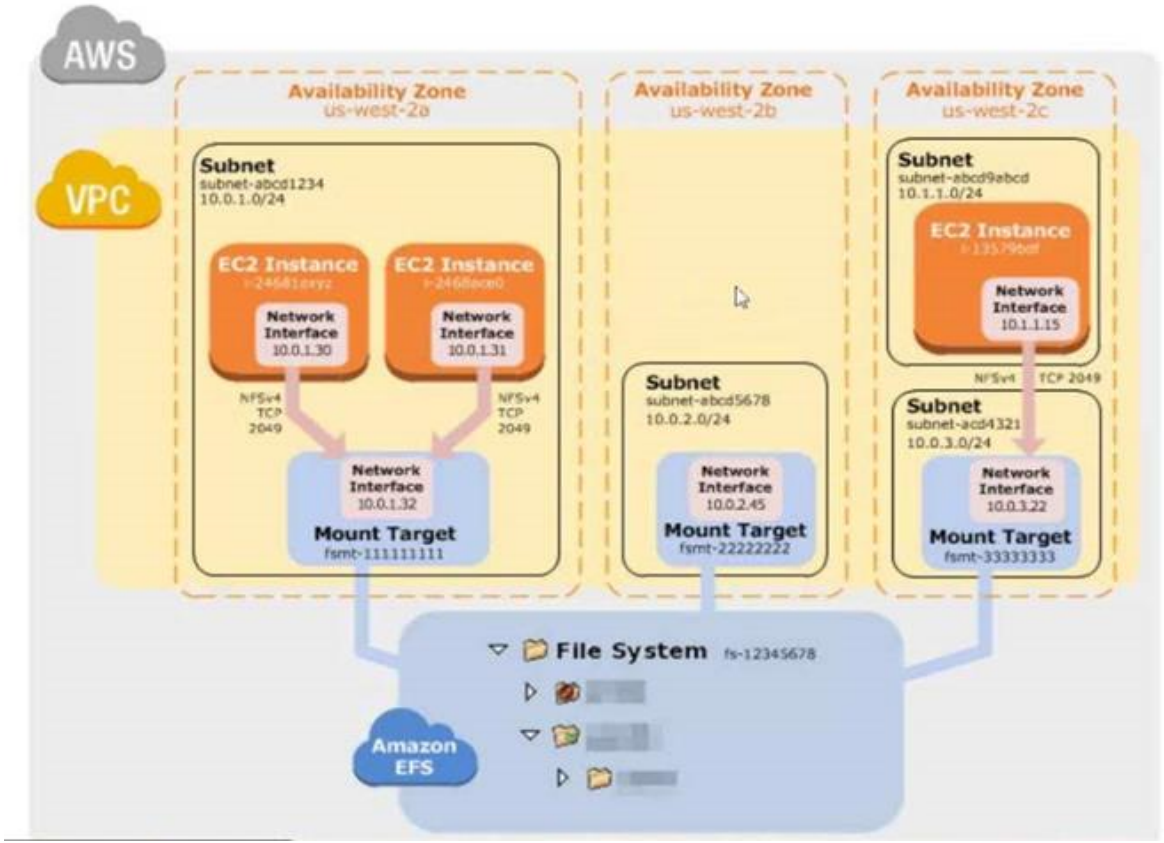


VPC Peering

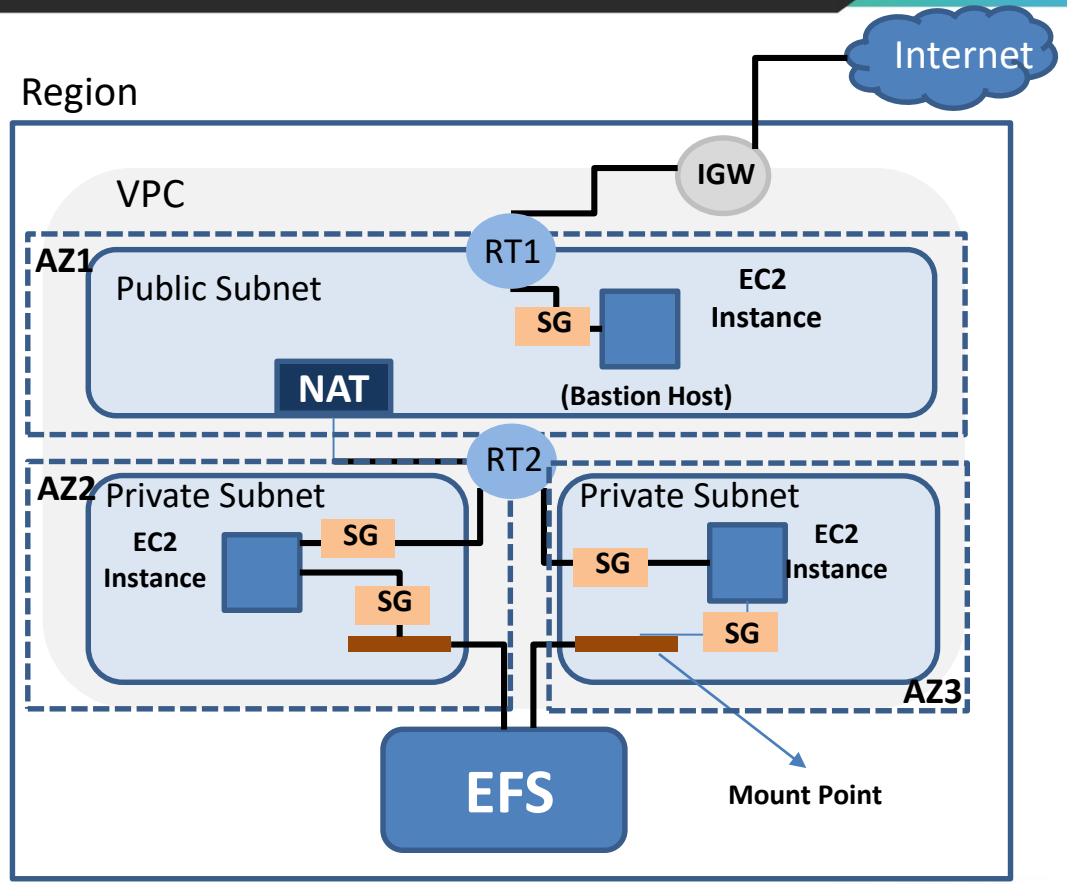


A VPC peering connection is a networking connection between two VPCs that enables you to route traffic between them

Elastic File System



Elastic File System – LAB Scenario

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THANK YOU
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