

AWS Storage & Networking(VPC)

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Agenda

- Introduction To Different Storage System
 - ▢ Object Storage
 - ▢ Block Storage

- AWS Networking
 - Security Group
 - ▢ NACL
 - ▢ NAT Gateway
 - VPC

Block Storage

- ✓ Virtual Hard Drive in Cloud. EBS is Block Storage.
- ✓ Block Storage: Each Volume act as separate hard drive.
- ✓ Breaking files into blocks to store it on disk using a filesystem.
- ✓ Data stored as block. Data structure formate.
- ✓ Use Indexing for retrieving data.
- ✓ Create new volumes and attached to Virtual Machine.
- ✓ No Other information attach like metadata, Unique ID.
- ✓ We can easily attached or detached volume.
- ✓ Block Storage allow to change volume sizes, including changing the size and storage type.
- ✓ Once attached, you can create a file system on top of these volumes, run a database, or use them in any other way you would use block storage.



Amazon **EBS**

Object Storage

- ✓ Whole Data stored as Object.
- ✓ These objects could be an image file, logs, HTML files or logs.
- ✓ They are unstructured because there is no specific schema or format they need to follow.
- ✓ Object can be 1kb or 1Gb
- ✓ Object storage services charge only for the storage space you use (some also charge per HTTP request, and for transfer bandwidth).
- ✓ Object attached with metadata, Unique ID.
- ✓ Can not attach as drive.

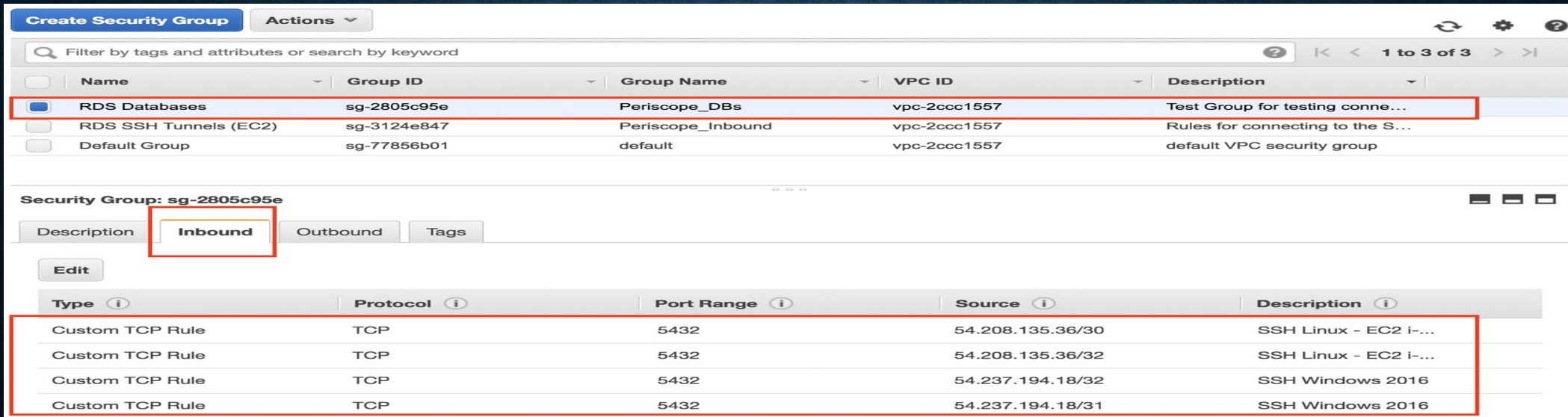


Networking

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1) Security Groups

- ✓ Security groups allows to control traffic based on port, protocol and source/destination.
- ✓ Security groups use to restrict and filter out inbound and outbound traffic using firewall rules.
- ✓ Each rules can allow traffic based on perticular protocol such as TCP or UDP.
- ✓ Security groups are associate with instances when they launched. Every Instance must have atleast one security group.
- ✓ Security Groups are applied at the instance level.
- ✓ We can specify allow rules, but not deny rules.



Create Security Group Actions

Filter by tags and attributes or search by keyword

Name	Group ID	Group Name	VPC ID	Description
<input checked="" type="checkbox"/> RDS Databases	sg-2805c95e	Periscope_DBs	vpc-2ccc1557	Test Group for testing conne...
<input type="checkbox"/> RDS SSH Tunnels (EC2)	sg-3124e847	Periscope_Inbound	vpc-2ccc1557	Rules for connecting to the S...
<input type="checkbox"/> Default Group	sg-77856b01	default	vpc-2ccc1557	default VPC security group

Security Group: sg-2805c95e

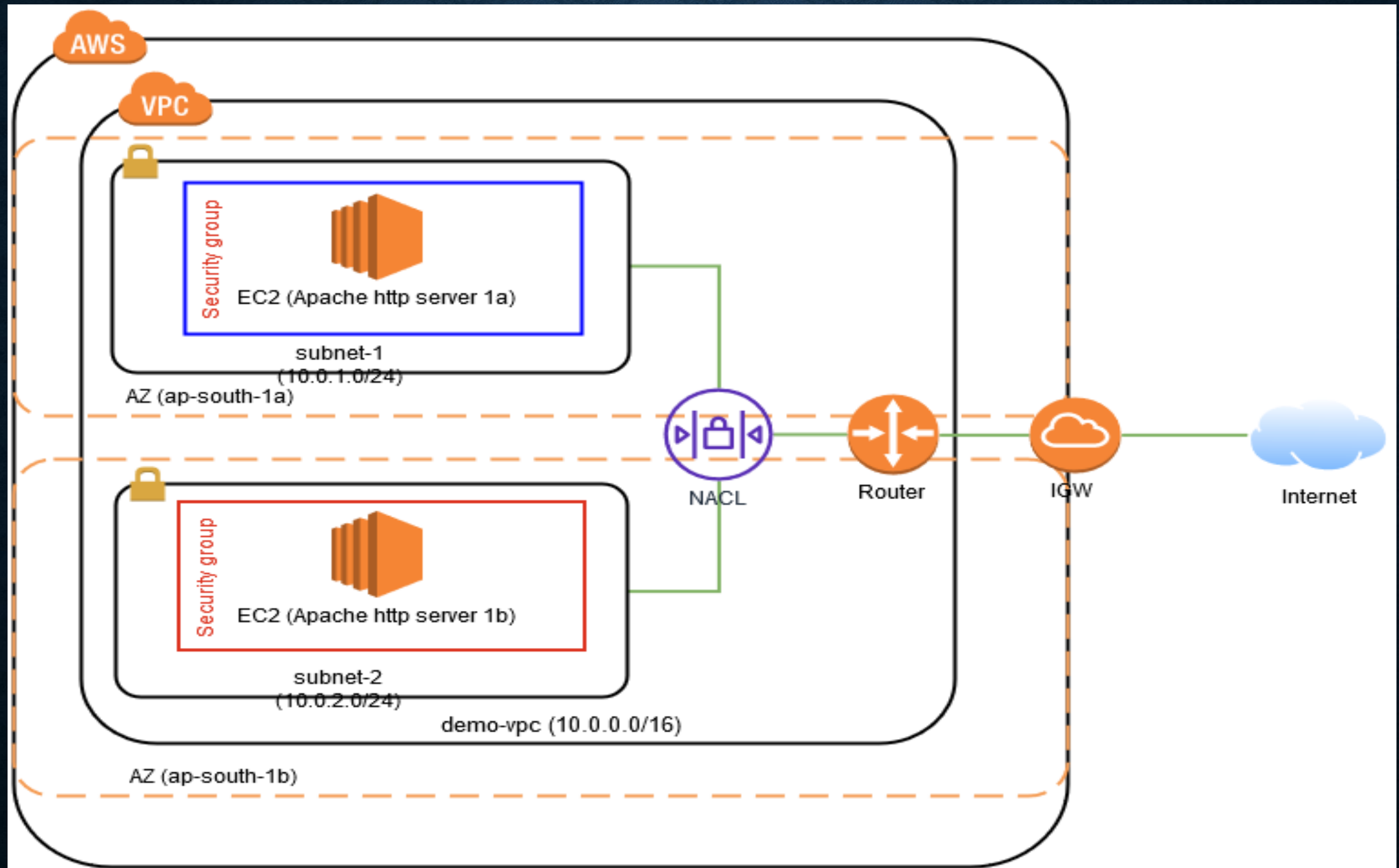
Description **Inbound** Outbound Tags

Edit

Type	Protocol	Port Range	Source	Description
Custom TCP Rule	TCP	5432	54.208.135.36/30	SSH Linux - EC2 i-...
Custom TCP Rule	TCP	5432	54.208.135.36/32	SSH Linux - EC2 i-...
Custom TCP Rule	TCP	5432	54.237.194.18/32	SSH Windows 2016
Custom TCP Rule	TCP	5432	54.237.194.18/31	SSH Windows 2016

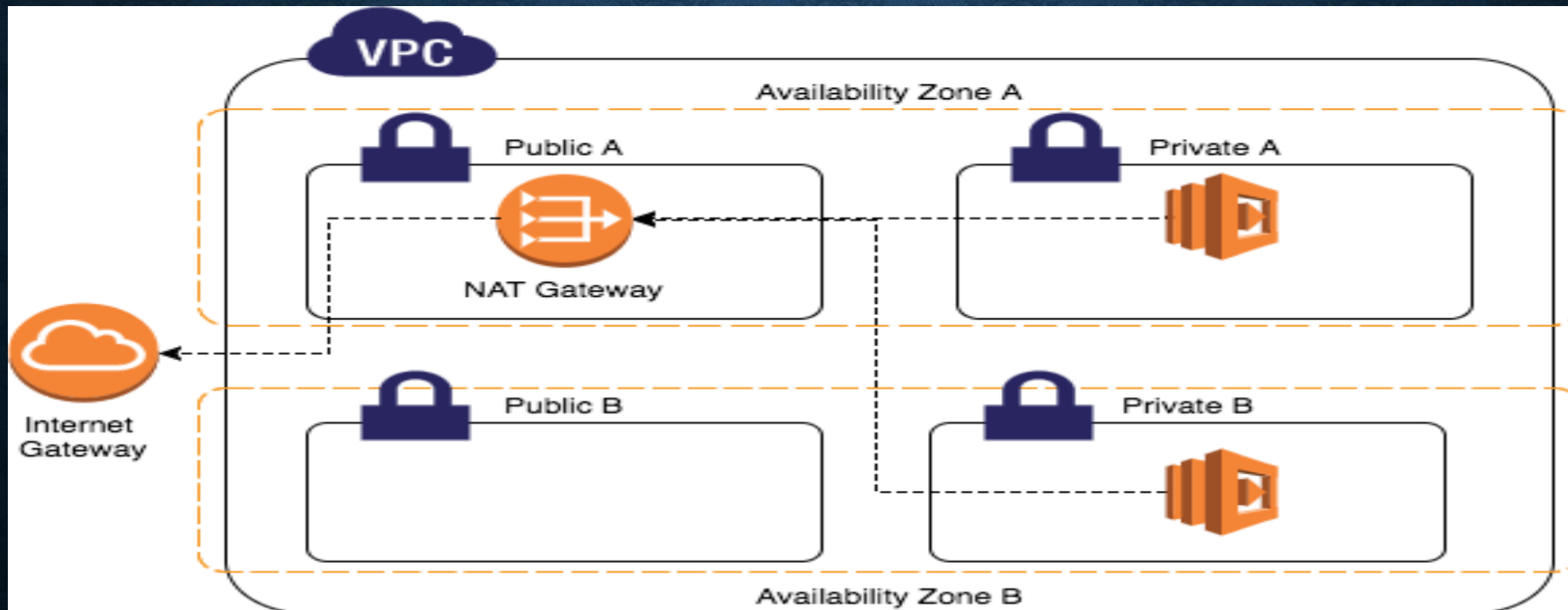
2) Network Access Control Lists

- ✓ NACL stands for Network Access Control Lists.
- ✓ It is a security layer for your VPC that controls the traffic in and out of one or more subnets.
- ✓ It is an optional layer for your VPC.
- ✓ You can set up a Network ACL similar to the security group that adds an additional layer of security to your VPC.
- ✓ Act as second layer of defence.
- ✓ Support allow rules and deny rules.



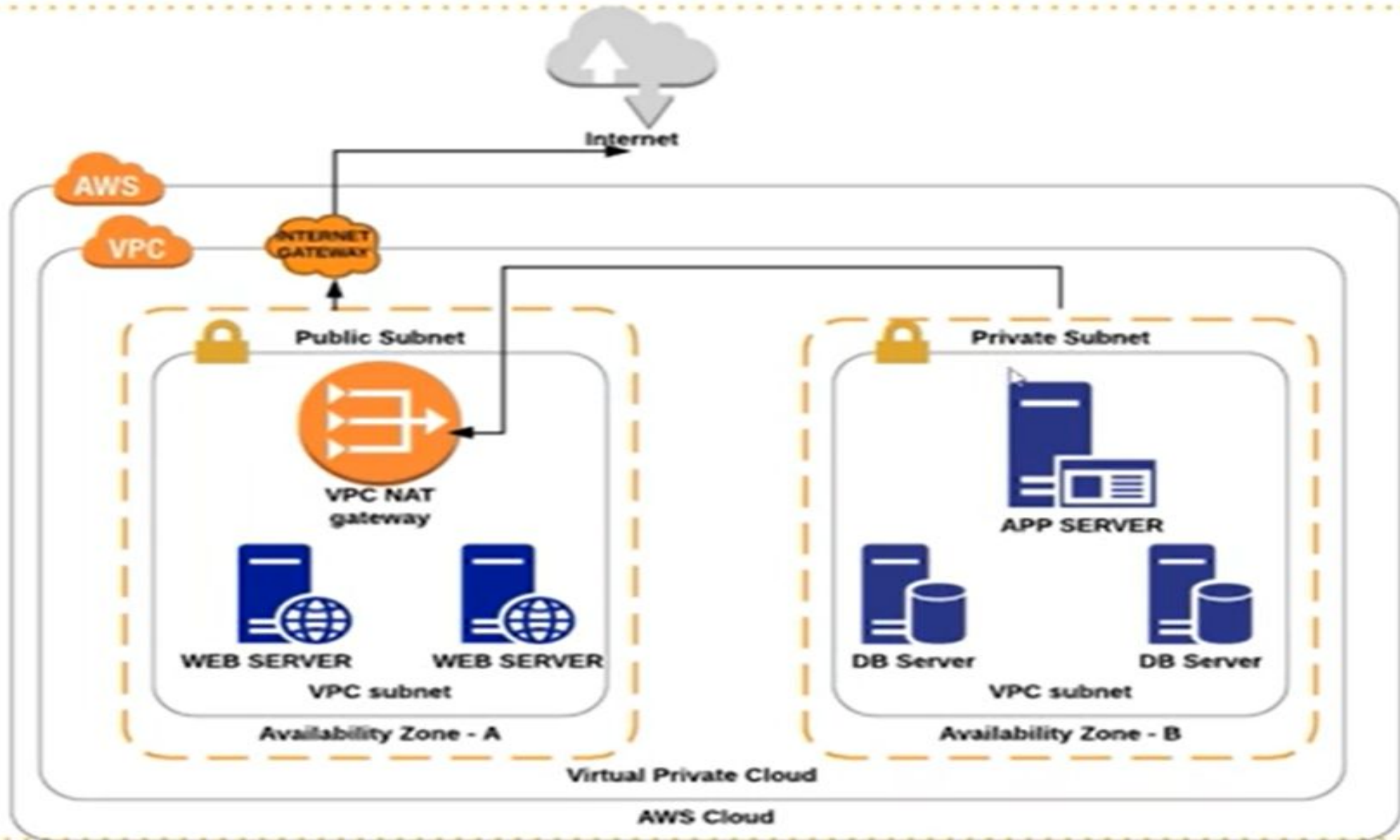
3) NAT Gateway

- ✓ Network address translation (NAT) gateway to enable instances in a private subnet to connect to the internet or other AWS services.
- ✓ A NAT gateway supports the following protocols: TCP, UDP, and ICMP.
- ✓ An elastic IP address has to be associated with a NAT gateway when it is created.
- ✓ NAT gateway makes sure that instances present in the private subnets are able to connect to the internet and communicate with it.



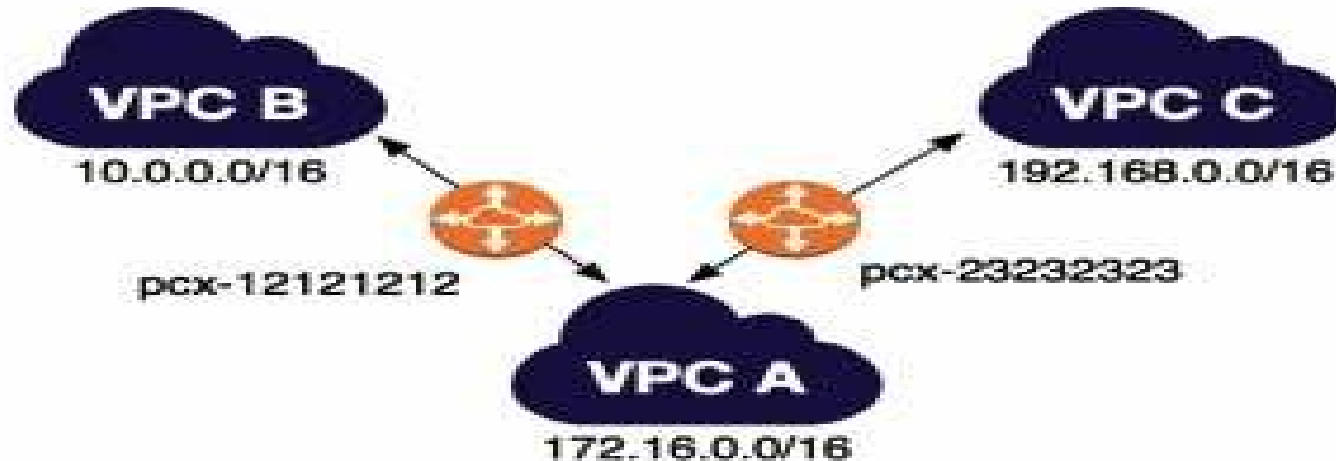
4) Virtual Private Cloud (VPC)

- ✓ VPC stands for Virtual Private Cloud.
- ✓ Amazon Virtual Private Cloud (Amazon VPC) provides a logically isolated area of the AWS cloud where you can launch resources.
- ✓ Most of used cases required Public and Private subnet.
- ✓ You have complete control over your virtual networking environment, including a selection of your IP address range, the creation of subnets, and configuration of route tables and network gateways.
- ✓ You can easily customize the network configuration for your Amazon Virtual Private Cloud. For example, you can create a public-facing subnet for web servers that can access to the internet and can also place your backend system such as databases or application servers to a private-facing subnet.
- ✓ VPC provide multiple layers of security, including security groups and network access control lists, to help control access to Amazon EC2 instances in each subnet.



What can we do with a VPC?

- ✓ Launch instances in a subnet of your choice.
- ✓ We can choose our own subnet addressing.
- ✓ We can assign custom IP address ranges in each subnet.
- ✓ We can create an internet gateway and attach it to our VPC.
- ✓ It provides much better security control over your AWS resources.
- ✓ We can assign security groups to individual instances.
- ✓ **VPC peering** allows you to connect one VPC with another VPC



Thank You !