BATCH : BATCH 85

LESSON : **AWS DAY 19**

DATE : 27.08.2022

SUBJECT : **VPC-2**

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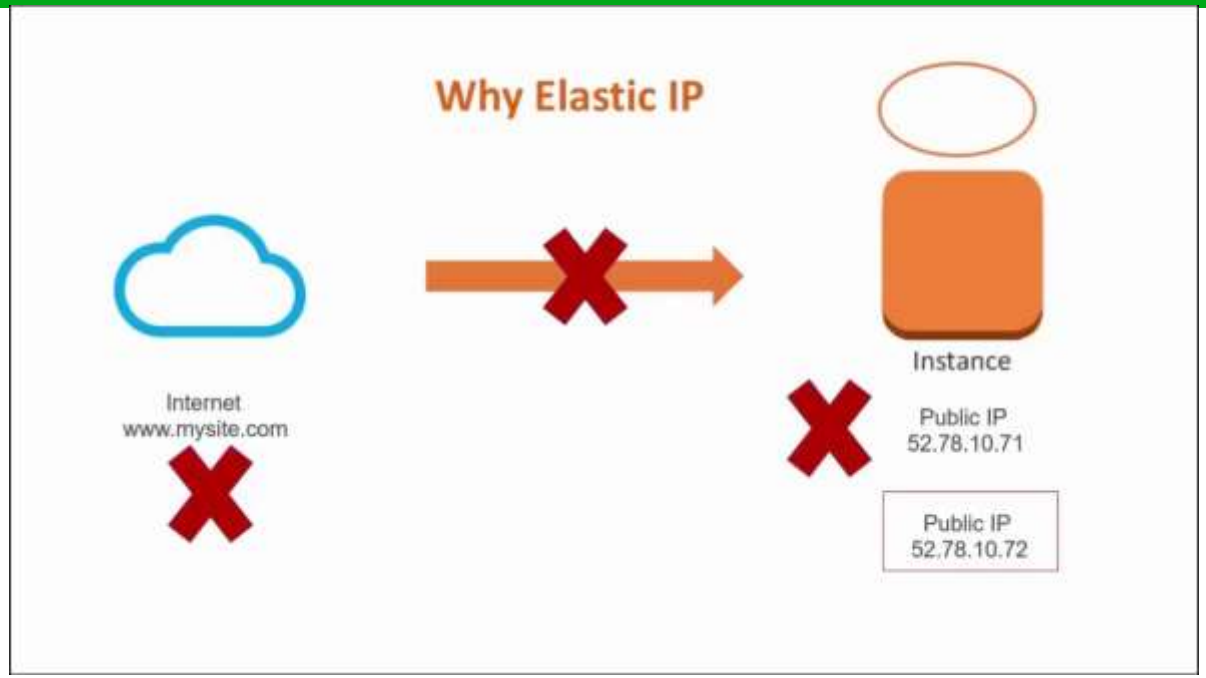
VPC-2

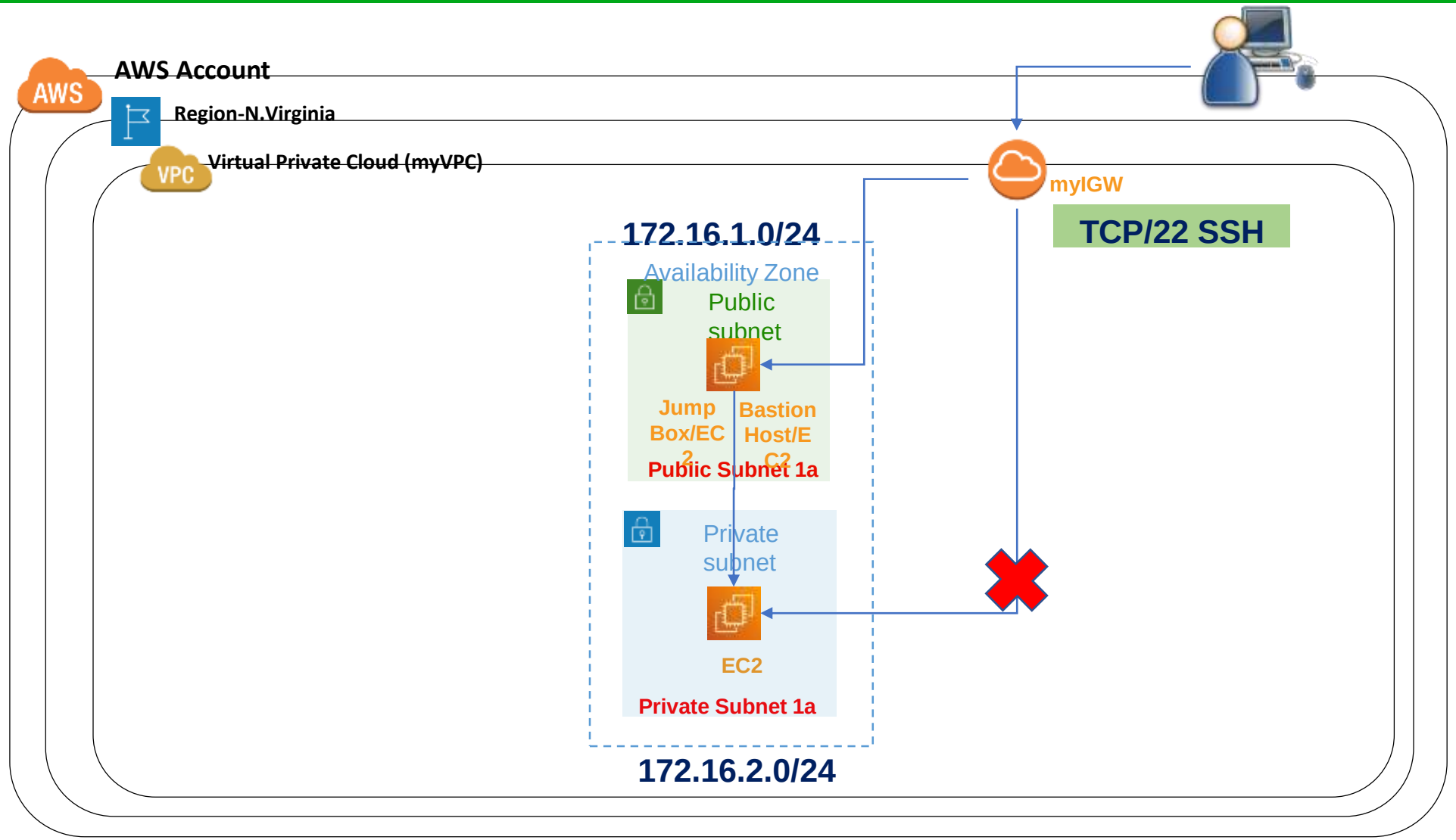
What is Elastic IP?



- ✓ An Elastic IP address is a Static IPv4 Address.
- ✓ Legal requirement for some applications or license policy to may render you to use static IP. In addition, some AWS components/services such as NAT Gateway and Route53 may need Elastic IP.
- ✓ Elastic IP is free of charges as long as they are being used.However, you will be charged for each Elastic IP if you reserve and do not use it.

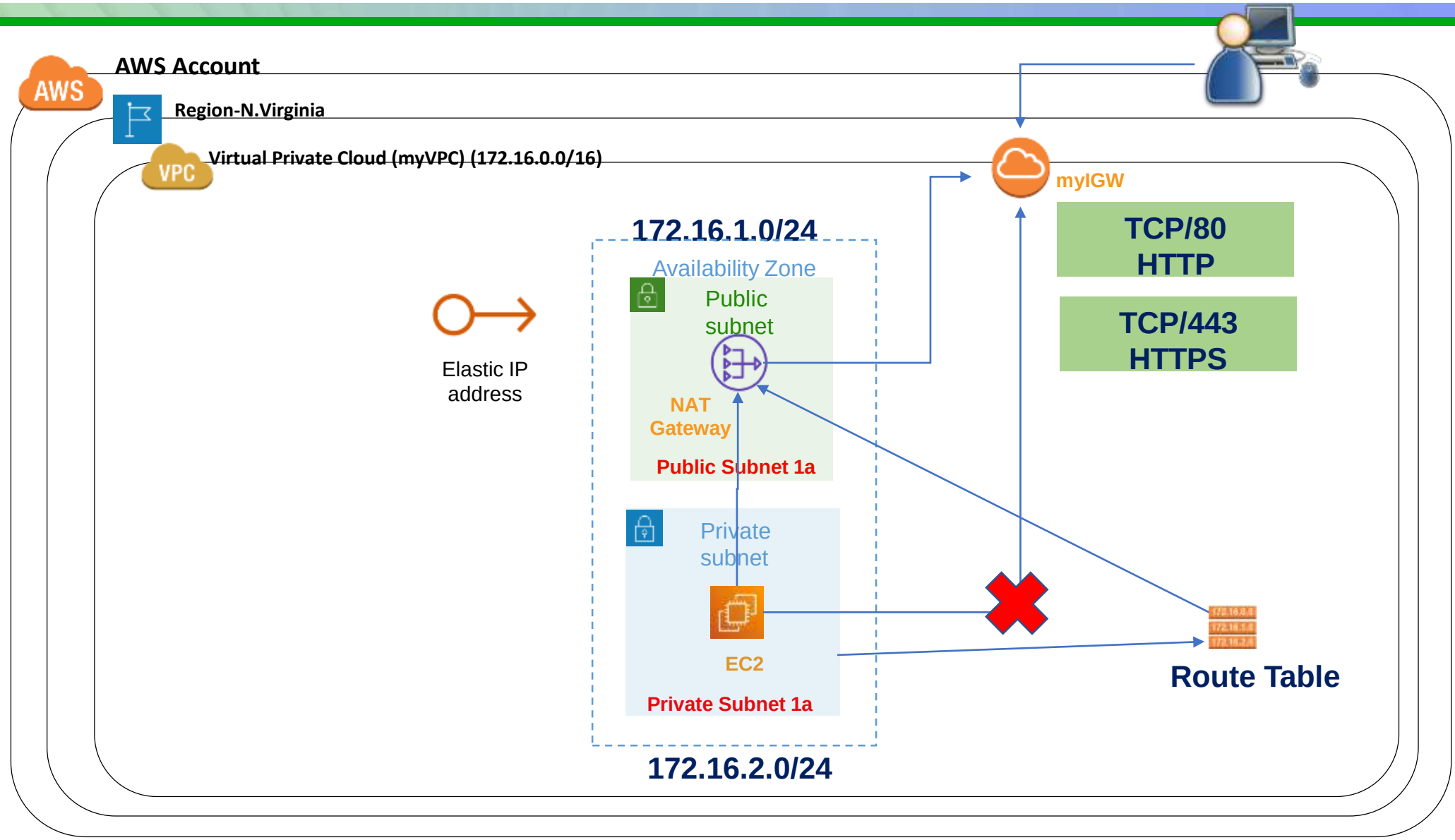
Bastion Host/ Jump Box

Bastion host also known as a Jump Box is a particular purpose computer on a network that acts as a proxy server and allows the client machines to connect to the remote server. The Bastion hosts are used in cloud environments as a server to provide access to a private network from an external network such as the Internet.



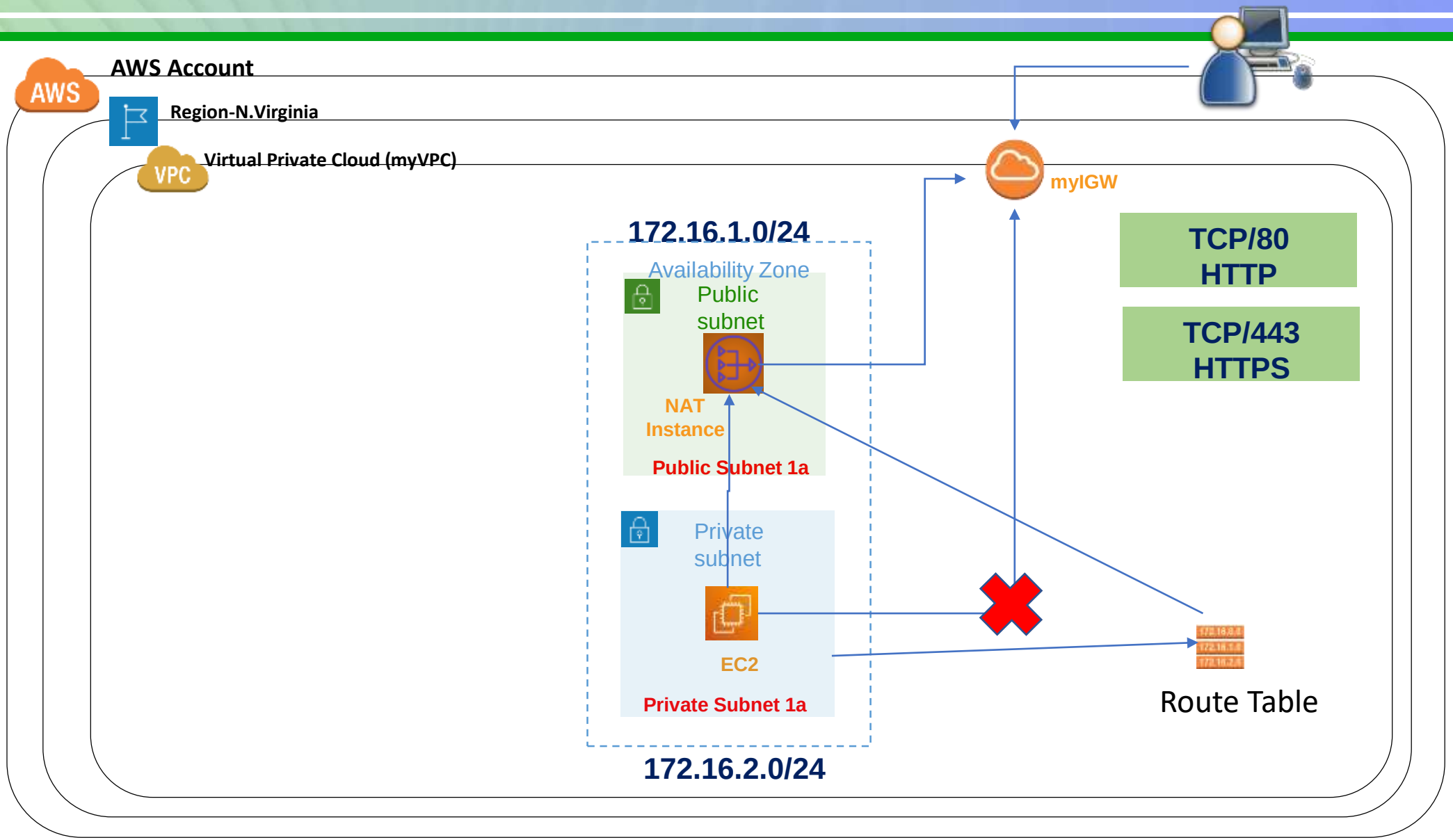
Nat Gateway

A NAT gateway is a Network Address Translation (NAT) service. You can use a NAT gateway so that instances in a private subnet can connect to services outside your VPC but external services cannot initiate a connection with those instances.



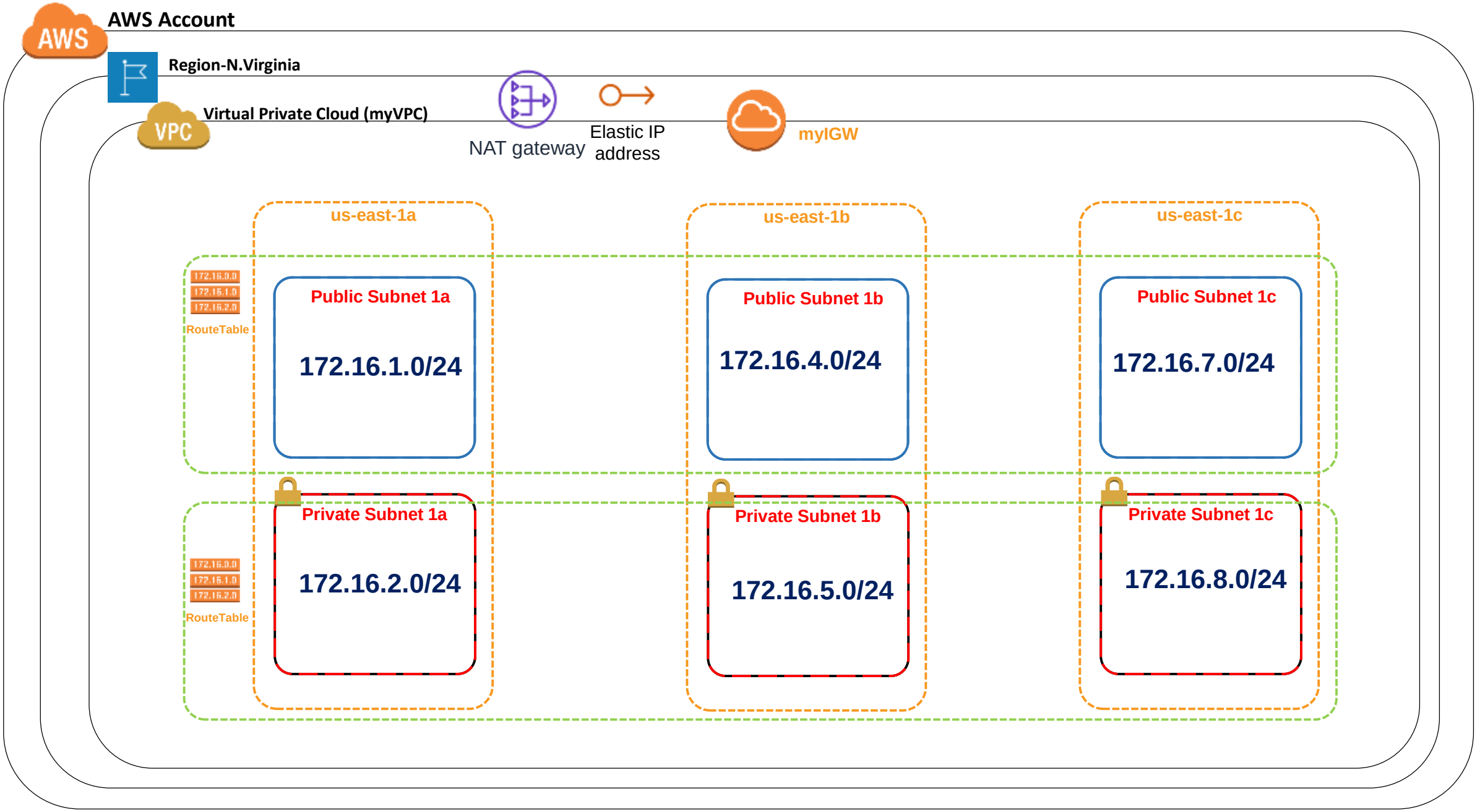
Nat Instance

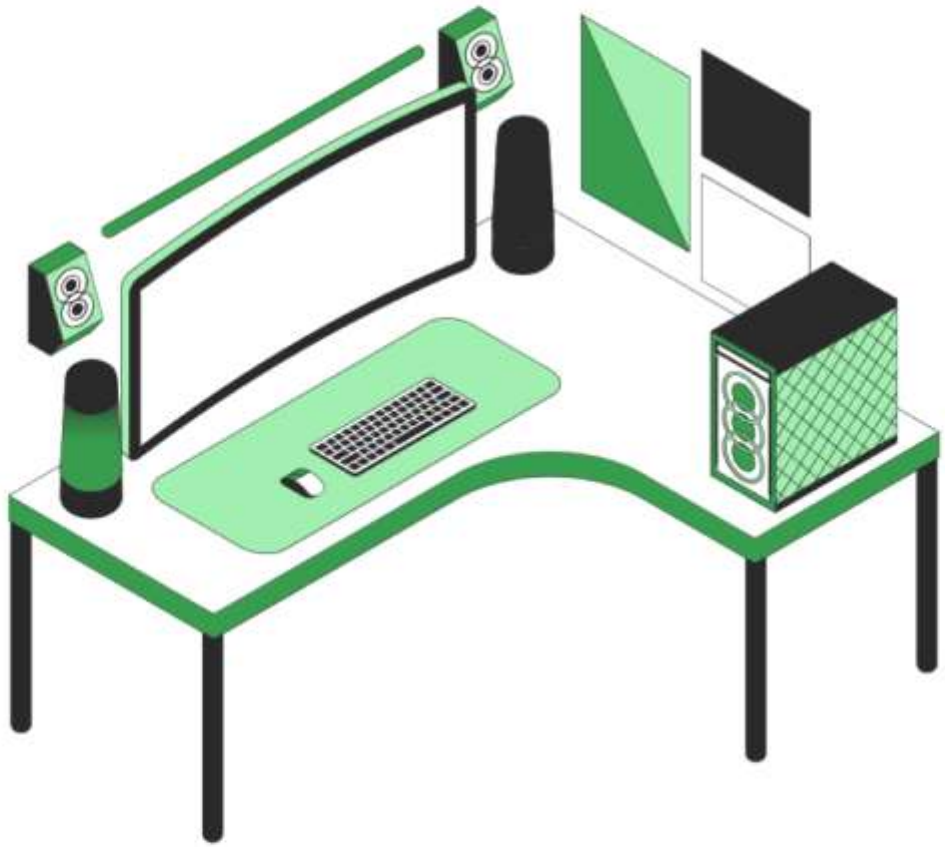
A NAT instance is like a NAT Gateway so that instances in a private subnet can connect to services outside your VPC but external services cannot initiate a connection with those instances.



Nat Gateway vs Nat Instance

Attribute	NAT gateway	NAT instance
Availability	Highly available. NAT gateways in each Availability Zone are implemented with redundancy. Create a NAT gateway in each Availability Zone to ensure zone-independent architecture.	Use a script to manage failover between instances.
Bandwidth	Can scale up to 45 Gbps.	Depends on the bandwidth of the instance type.
Maintenance	Managed by AWS.You do not need to perform any maintenance.	Managed by you, for example, by installing software updates or operating system patches on the instance.
Performance	Software is optimized for handling NAT traffic.	A generic Amazon Linux AMI that's configured to perform NAT.
Cost	Charged depending on the number of NAT gateways you use, duration of usage, and amount of data that you send through the NAT gateways.	Charged depending on the number of NAT instances that you use, duration of usage, and instance type and size.
Type and size	Uniform offering; you don't need to decide on the type or size.	Choose a suitable instance type and size, according to your predicted workload.
Public IP addresses	Choose the Elastic IP address to associate with a NAT gateway at creation.	Use an Elastic IP address or a public IP address with a NAT instance. You can change the public IP address at any time by associating a new Elastic IP address with the instance.
Private IP addresses	Automatically selected from the subnet's IP address range when you create the gateway.	Assign a specific private IP address from the subnet's IP address range when you launch the instance.
Security groups	Cannot be associated with a NAT gateway. You can associate security groups with your resources behind the NAT gateway to control inbound and outbound traffic.	Associate with your NAT instance and the resources behind your NAT instance to control inbound and outbound traffic.
Network ACLs	Use a network ACL to control the traffic to and from the subnet in which your NAT gateway resides.	Use a network ACL to control the traffic to and from the subnet in which your NAT instance resides.
Flow logs	Use flow logs to capture the traffic.	Use flow logs to capture the traffic.
Port forwarding	Not supported.	Manually customize the configuration to support port forwarding.
Bastion servers	Not supported.	Use as a bastion server.
Traffic metrics	View CloudWatch metrics for the NAT gateway.	View CloudWatch metrics for the instance.
Timeout behavior	When a connection times out, a NAT gateway returns an RST packet to any resources behind the NAT gateway that attempt to continue the connection (it does not send a FIN packet).	When a connection times out, a NAT instance sends a FIN packet to resources behind the NAT instance to close the connection.
IP fragmentation	Supports forwarding of IP fragmented packets for the UDP protocol. Does not support fragmentation for the TCP and ICMP protocols. Fragmented packets for these protocols will get dropped.	Supports reassembly of IP fragmented packets for the UDP, TCP, and ICMP protocols.


AWS Account
Region-N.Virginia
Virtual Private Cloud (myVPC)
NAT gateway
Elastic IP address
myIGW
us-east-1a
us-east-1b
us-east-1c
172.16.0.0
172.16.1.0
172.16.2.0
RouteTable
Public Subnet 1a
172.16.1.0/24
Public Subnet 1b
172.16.4.0/24
Public Subnet 1c
172.16.7.0/24
Private Subnet 1a
172.16.2.0/24
Private Subnet 1b
172.16.5.0/24
Private Subnet 1c
172.16.8.0/24



Do you have any questions?

Send it to us! We hope you learned something new.