AWS Networking

Module 3

Units

OVERVIEW : MODULE 03

AWS Networking

Learning Outcomes

- Develop a foundational understanding of networking principles in the AWS environment
- Master the concepts of Amazon VPC, including its components and use cases
- Gain proficiency in configuring routing within an Amazon VPC
- Acquire knowledge of security features and best practices for securing an Amazon VPC
- Apply theoretical knowledge in a practical setting through the hands-on lab, reinforcing the ability to create and manage VPCs, launch EC2 instances, and deploy applications

Lesson Learning Outcomes

- ✓ Understand the fundamentals of networking in the AWS environment
- ✓ Explore key networking concepts and terminologies used in AWS
- ✓ Gain knowledge of how networking components work together in the AWS infrastructure

LESSON OVERVIEW

MODULE 3 AWS NETWORKING

Lesson 3.1 Networking in AWS

- Understanding the Network in AWS Services

3.1

Networking in AWS

Networking in Amazon Web Services (AWS) involves designing, configuring, and managing the network infrastructure that connects various AWS services and resources. AWS provides several networking services and features to help you build scalable, secure, and high-performance applications

Networking in AWS

Understanding the Network in AWS Services

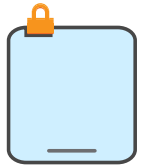
Amazon Virtual Private Cloud (VPC)

VPC is a logically isolated section of the AWS Cloud where you can launch AWS resources.

Amazon VPC

VPC Subnets

VPC Subnets are divisions within a VPC that allow you to organize resources. They are associated with a specific availability zone (AZ) in a region.



VPC Subnets

Route Tables

Route Tables contains a set of rules, called routes, that are used to determine where network traffic is directed.

Route Tables

Networking in AWS

Understanding the Network in AWS Services

Internet Gateway

Internet Gateway enables communication between instances in your VPC and the internet. It serves as a horizontally scaled, redundant component.

Internet Gateway

Amazon Route 53

Route 53 is a scalable and highly available domain name system (DNS) web service. It translates user-friendly domain names into IP addresses.

Amazon Route 53

Networking in AWS

Understanding the Network in AWS Services

Virtual Private Network (VPN) and Direct Connect

VPN and **Direct Connect** services provide secure and dedicated network connections between your on-premises data center and your VPC.

VPN & Direct Connection

Security Group and Network ACL

Security Group act as virtual firewalls for your instances, controlling inbound and outbound traffic. **Network ACL** are stateless and operate at the subnet level.

Security Group & Network ACL

Networking in AWS

SUMMARY

- ✓ Amazon Virtual Private Cloud (VPC)
- ✓ Subnets
- ✓ Route Tables
- ✓ Internet Gateway
- ✓ Elastic Load Balancer (ELB)
- ✓ Amazon Route 53
- ✓ Virtual Private Network (VPN) and Direct Connect

Lesson Learning Outcomes

- ✓ Comprehend the concept of Amazon VPC as a logically isolated section of the AWS Cloud
- ✓ Learn about the benefits and use cases of Amazon VPC in cloud architecture
- ✓ Understand the components that make up an Amazon VPC, such as subnets, route tables, and security groups

LESSON OVERVIEW

MODULE 3 AWS NETWORKING

Lesson 3.2 Introduction to Amazon Virtual Private Cloud (Amazon VPC)

- Understanding the AWS VPC

3.2

Introduction to Amazon Virtual Private Cloud (Amazon VPC)

Networking Amazon Virtual Private Cloud (Amazon VPC) gives you full control over your virtual networking environment, including resource placement, connectivity, and security. Get started by setting up your VPC in the AWS service console.

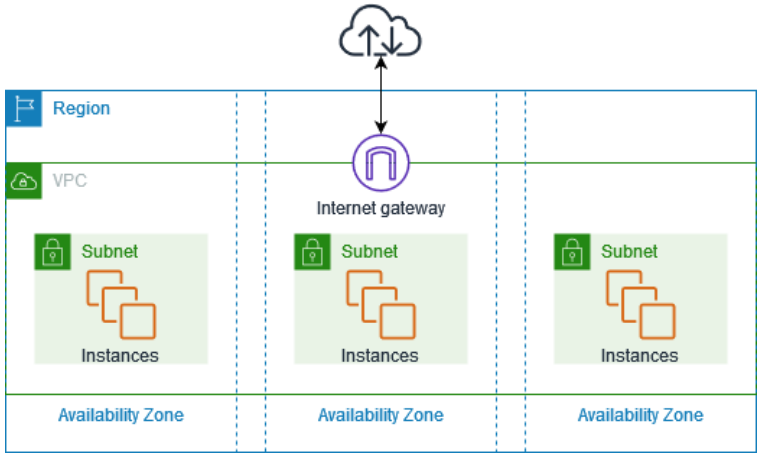
Introduction to Amazon Virtual Private Cloud (Amazon VPC)

Understanding the AWS VPC

Amazon Virtual Private Cloud (VPC) lets you provision a logically isolated section of the AWS Cloud where you can launch AWS resources in a virtual network that you define.

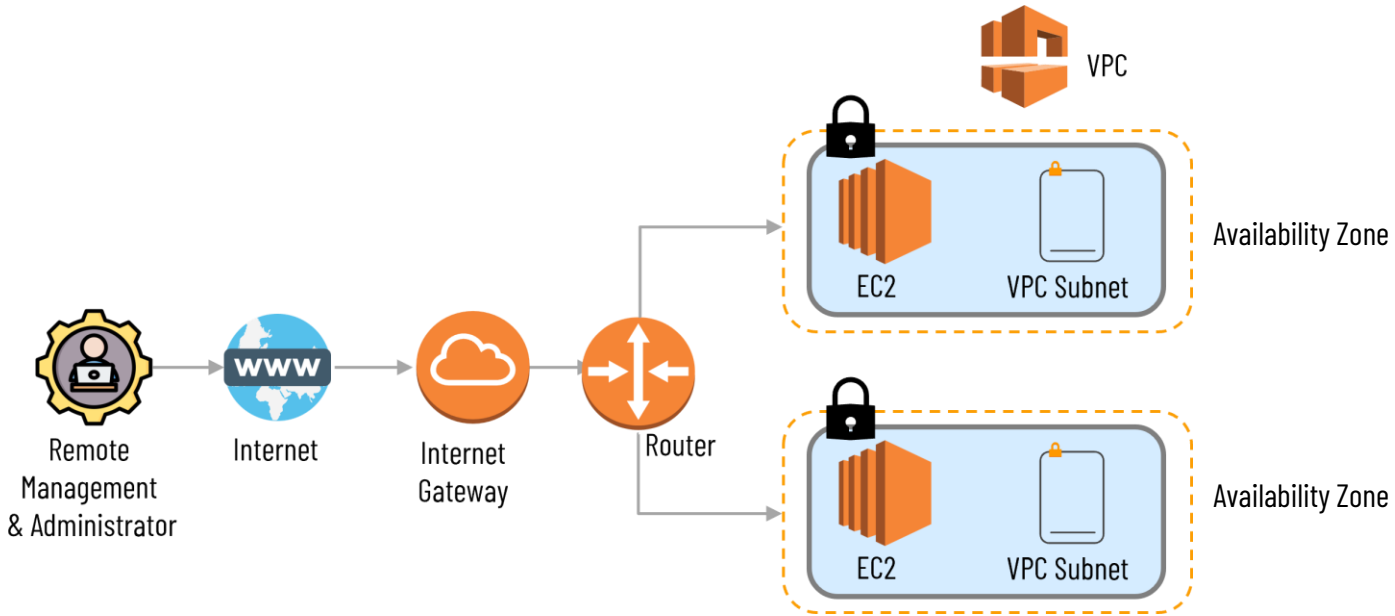
You have complete control over your virtual networking environment, including-

- Selection of your own IP address range
- Creation of subnets
- Configuration of route tables and network gateways



Introduction to Amazon Virtual Private Cloud (Amazon VPC)

Understanding the AWS VPC



Introduction to Amazon Virtual Private Cloud (Amazon VPC)

SUMMARY

- ✓ Virtual Private Cloud (VPC) and Publica Subnet/Private Subnet
- ✓ How to create a sample VPC with 2 Subnets (one Public and another Private subnet)
- ✓ Attaching an Internet Gateway with that sample VPC

Introduction to Amazon Virtual Private Cloud (Amazon VPC)

Resources

- ✓ https://docs.aws.amazon.com/vpc/latest/userguide/what-is-amazon-vpc.html
- ✓ https://docs.aws.amazon.com/vpc/latest/userguide/how-it-works.html
- ✓ https://aws.amazon.com/vpc/features/

Lesson Learning Outcomes

- ✓ Acquire knowledge about how routing works within an Amazon VPC
- ✓ Explore the configuration and management of route tables to control traffic between subnets
- ✓ Understand the use of internet and virtual private gateways for communication

LESSON OVERVIEW

MODULE 3 AWS NETWORKING

Lesson 3.3 Amazon VPC Routing

- How AWS VPC routing works

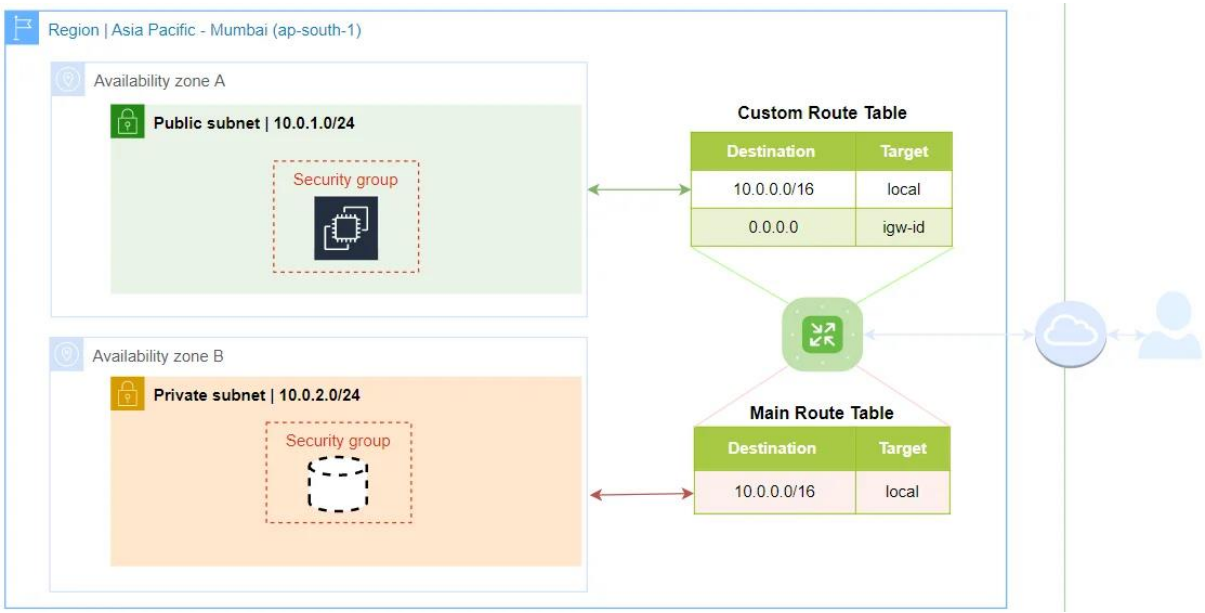
3.3

Amazon VPC Routing

Amazon VPC routing is a crucial aspect of networking within AWS. It involves configuring the rules that determine how traffic flows between different components within the VPC, such as subnets, instances, and the internet.

Amazon VPC Routing

How AWS VPC Routing Works



Amazon VPC Routing

SUMMARY

- ✓ Configure VPC two routers can adding some rules

Amazon VPC Routing

Resources

- ✓ https://docs.aws.amazon.com/vpc/latest/userguide/VPC_Route_Tables.html
- ✓ https://medium.com/awesome-cloud/aws-vpc-route-table-overview-intro-getting-started-guide-5b5d65ec875f
- ✓ https://docs.aws.amazon.com/vpc/latest/userguide/route-table-options.html

Lesson Learning Outcomes

- ✓ AWS Network securing working methods
- ✓ Implementing multilayer of Network security

LESSON OVERVIEW

MODULE 3 AWS NETWORKING

Lesson 3.4 Amazon VPC Security

- AWS VPC Network Security overview

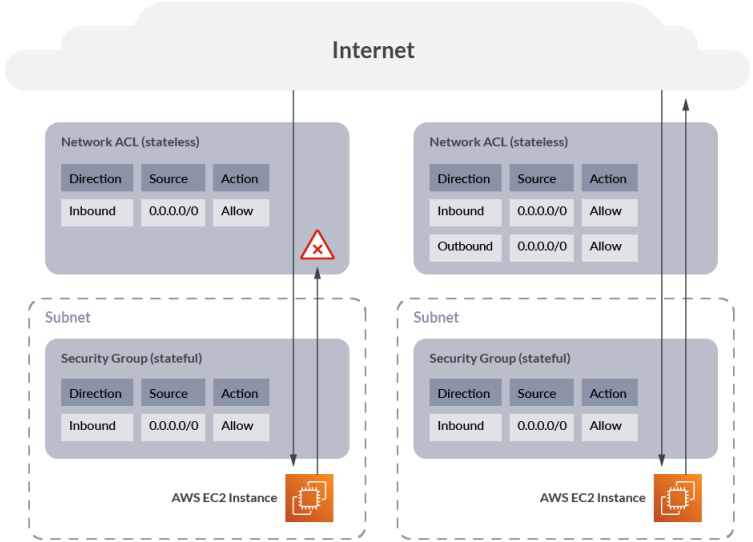
3.4

Amazon VPC Security

Amazon VPC Security is a critical aspect of AWS networking, focusing on safeguarding resources within the VPC and controlling access to and from external networks.

Amazon VPC Security

AWS VPC Network Security Overview



Amazon VPC Security

SUMMARY

- ✓ Understanding the AWS VPC Security features
- ✓ VPC Security Demo

Amazon VPC Security

Resources

- ✓ https://docs.aws.amazon.com/vpc/latest/userguide/security.html
- ✓ https://www.hyperglance.com/blog/aws-vpc-security-best-practices/

3.5

Hands-On Lab

Create a VPC and Relaunch the Sample Application in Amazon EC2