Day 1 – AWS Infrastructure Basics

Introduction

On Day 1, I focused on understanding the basics of AWS Cloud instead of directly creating EC2 instances or Kubernetes clusters. Cloud services appear simple, but many complex components work in the background. Learning these fundamentals early makes advanced AWS services easier to understand later.

What Is Infrastructure?

Infrastructure includes everything an application needs to run smoothly, such as servers, storage, and networking.

Traditional Setup (Before Cloud)

Earlier, companies managed physical servers, storage systems, network devices, and their own data centers. This setup was expensive, difficult to scale, and time-consuming to maintain.

Infrastructure in the Cloud

With cloud computing, infrastructure is virtual, available on demand, and managed by cloud providers. AWS offers Infrastructure as a Service (IaaS), allowing users to create servers quickly, build networks easily, and use storage without buying hardware.

AWS Regions

An AWS Region is a geographical area where AWS operates multiple data centers. Examples include us-east-1 (North Virginia), ap-south-1 (Mumbai), and eu-west-1 (Ireland).

Why Regions Matter

Regions help reduce latency, meet legal requirements, plan disaster recovery, and improve security. Each region operates independently.

Availability Zones

Availability Zones are isolated data centers within a region. They are designed to protect applications from failures and ensure high availability.

Virtualization

Virtualization allows multiple virtual machines to run on a single physical server, improving resource utilization and reducing costs. This technology is the foundation of cloud computing.

Hypervisor

A hypervisor is software that enables virtualization by managing and allocating system resources to virtual machines. AWS uses a Type 1 hypervisor (Nitro system) for better performance and security.

EC2 Connection

When an EC2 instance is launched, AWS automatically assigns resources using virtualization and runs the instance inside an Availability Zone within a Region.

Final Summary

Day 1 focused on building a strong foundation with Regions, Availability Zones, Virtualization, and Hypervisors. These basics help create cloud systems that are scalable, secure, and highly available.