

Cloud Computing: Complete Learning Guide

1. Background of Cloud Computing

Cloud computing evolved from virtualization and distributed computing in the early 2000s. Amazon Web Services (AWS) launched in 2006, followed by Microsoft Azure and Google Cloud Platform.

Cloud computing enables on-demand access to computing resources such as servers, storage, databases, networking, and AI services.

2. Cloud Service Models

IaaS (Infrastructure as a Service): Virtual machines, networking, storage.

PaaS (Platform as a Service): Managed runtime environments and databases.

SaaS (Software as a Service): Fully managed applications.

3. How to Learn Cloud

Step 1: Understand networking, Linux, and virtualization basics.

Step 2: Choose a primary cloud provider (AWS, Azure, or GCP).

Step 3: Practice core services (compute, storage, networking).

Step 4: Learn IAM and security fundamentals.

Step 5: Implement Infrastructure as Code (Terraform, CloudFormation).

Step 6: Build real cloud projects and CI/CD deployments.

4. Skill Levels

Beginner: Deploy virtual machines and basic services.

Intermediate: Design VPCs, load balancers, and secure architectures.

Advanced: Multi-region, HA, cost optimization, automation.

Architect: Design scalable, resilient, enterprise cloud solutions.

5. Certifications

AWS: Cloud Practitioner, Solutions Architect, DevOps Engineer.

Azure: AZ-900, Azure Administrator, Azure Architect.

Google Cloud: Associate Cloud Engineer, Professional Cloud Architect.

6. Tools for Learning and Practice

Infrastructure as Code: Terraform, CloudFormation.

Containers & Orchestration: Docker, Kubernetes.

Monitoring: CloudWatch, Prometheus, Grafana.

Security: IAM tools, Security scanners.

Conclusion

Cloud computing is a core technology for DevOps, infrastructure, and enterprise IT. Mastery requires hands-on labs, architecture design, and automation experience.