



MULTI CLOUD





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MULTI CLOUD COURSE SYLLABUS

Introduction to Cloud & Multi-Cloud

Cloud Basics

- What is Cloud Computing?
- Cloud Service Models (IaaS, PaaS, SaaS)
- Cloud Deployment Models (Public, Private, Hybrid, Multi-Cloud)
- Cloud Market Overview (AWS vs Azure vs GCP)

Multi-Cloud Strategy

- Why Multi-Cloud? (Benefits & Challenges)
- Multi-Cloud Use Cases (Enterprises, Startups, Government)
- Future Trends in Multi-Cloud

AWS Cloud (Amazon Web Services)

Core Concepts

- AWS Global Infrastructure (Regions, AZs, Edge Locations)
- Identity & Access Management (IAM, Roles, Policies, MFA)

Compute Services

- Amazon EC2 (Instances, AMI, Key Pairs, Security Groups)
- Auto Scaling & Elastic Load Balancer
- AWS Lambda (Serverless Computing)

Storage Services

- Amazon S3 (Buckets, Versioning, Lifecycle Policies)
- Amazon EBS, EFS, Glacier

Networking & Security

- Virtual Private Cloud (VPC, Subnets, Route Tables, NACLs)
- Security Groups vs NACLs
- Route 53 (DNS, Traffic Routing, Failover)
- CloudFormation

Databases & Monitoring

- MySQL
- CloudWatch (Metrics, Alarms, Logs)
- CloudTrail (Auditing, Logging)

Hands-On Projects

- Deploying a 3-Tier Application on AWS
- Static Website Hosting on S3

Microsoft Azure

Core Concepts

- Azure Global Infrastructure & Resource Groups
- Identity: Azure Active Directory, RBAC

Compute

- Virtual Machines (VMs)
- Azure App Services
- Azure Functions (Serverless)
- Azure Kubernetes Service (AKS)

Storage

- Blob, Table, Queue, File Storage
- Managed Disks
- Storage Security & Redundancy Options

Networking & Security

- Virtual Network (VNet)
- Network Security Groups (NSG)
- Load Balancer, Traffic Manager
- ExpressRoute & VPN Gateway

Databases & Monitoring

- Azure SQL Database
- Cosmos DB
- Azure Monitor, Log Analytics, Application Insights

Hands-On Projects

- Deploying a Serverless Application with Azure Functions
- Hosting a Web App with Azure App Services

Google Cloud Platform (GCP)

Core Concepts

- Projects, Billing, Resource Hierarchy
- Identity & Access Management (IAM, Service Accounts)

Compute

- Compute Engine (VMs)
- Cloud Functions

Storage

- Cloud Storage (Buckets, Lifecycle)

Networking & Security

- VPC Networks, Subnets
- Cloud Load Balancing, Cloud CDN
- Firewall Rules



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Databases & Monitoring

- Cloud SQL, Spanner
- Cloud Operations Suite (Stackdriver)
- Logging, Monitoring, Tracing

Hands-On Projects

- Hosting a Website on Cloud Storage

Multi-Cloud Networking & Security

Networking

- VPC Peering Across Clouds
- DNS & Load Balancing Across Clouds

Security

- Key & Secrets Management
 - AWS Secrets Manage
 - Azure Key Vault
 - GCP Secret Manager
- Compliance & Governance Across Clouds

Multi-Cloud DevOps & Automation

Infrastructure as Code

- Terraform (Multi-Cloud IaC)

CI/CD Across Clouds

- AWS CodePipeline
- Azure DevOps
- GCP Cloud Build
- GitHub Actions for Multi-Cloud

Containers & Orchestration

- Kubernetes on EKS, AKS, GKE
- Docker Across Clouds
- Hybrid Kubernetes Clusters

Monitoring Across Multi-Cloud

- Prometheus & Grafana
- Datadog / New Relic Integration

Hands-On Projects

- Multi-Cloud Kubernetes Deployment (EKS + AKS + GKE)
- Multi-Cloud CI/CD Pipeline

Advanced Cloud Services

Serverless Computing

- AWS Lambda vs Azure Functions vs GCP Cloud Functions
- Event-Driven Architectures

Data & Analytics Across Clouds

- AWS Athena, Azure Synapse, GCP BigQuery
- Multi-Cloud Data Lake Strategy

AI/ML Services

- AWS SageMaker
- Azure ML Studio
- Google Vertex AI

Cost Optimization & FinOps

- AWS Cost Explorer
- Azure Cost Management
- GCP Billing & Budgets

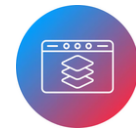
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