Technology Architecture Masterclass: On-Prem, AWS & Azure

Duration: 4 Days

Course Delivery Approach

- **60% Theory / 40% Practical:**
  The course blends key architectural concepts with hands-on labs to ensure strong understanding and real-world application.

Architecture Coverage

- **On-Prem, AWS & Azure:**
  Participants learn how the solution's architecture is designed, deployed, and managed across on-prem datacenters and leading cloud platforms (AWS and Azure), including key components, integration points, and operational workflows.

Module 1: What is Architecture vs. Design

- Definitions and distinctions
- Architecture as structure and relationships
- Design as implementation and constraints
- Stakeholder roles: architects vs designers
- Architecture in on-prem vs cloud (AWS/Azure)

Lab:

- Compare a 3-tier app design in on-prem, AWS, and Azure
- Create a diagram showing architecture vs design layers

Module 2: Architectural Decision-Making

- Decision frameworks (TOGAF, AWS Well-Architected, Azure CAF)
- Business drivers: latency, compliance, data gravity
- Risk analysis and mitigation
- Documentation and traceability

Lab:

- Use AWS Well-Architected Tool to assess a sample workload

Module 3: Trade-Off Balancing

- Cost vs performance vs scalability
- Elasticity and provisioning models

- CapEx vs OpEx in on-prem vs cloud
- Latency vs throughput vs availability

Lab:

- Use AWS Pricing Calculator and Azure TCO Estimator

Module 4: Architecture Styles

- Monolithic architecture
- Microservices and service mesh
- Event-driven and reactive systems
- Layered and hexagonal architecture
- Hybrid and distributed styles

Lab:

- Refactor a monolith into microservices using Docker
- Design an event-driven system using AWS EventBridge or Azure Event Grid

Module 5: Architecture Diagrams & C4 Models

- Types of diagrams: logical, physical, deployment
- C4 model: Context, Container, Component, Code
- Tools: Lucidchart, Draw.io, Structurizr
- Diagramming best practices

Lab:

- Create a C4 model for a hybrid banking app

Module 6: Infrastructure Architecture

- Compute: VMs, containers, serverless
- Storage: block, file, object
- Networking: subnets, routing, firewalls
- Hybrid connectivity: VPN, Direct Connect, ExpressRoute

Lab:

- Design a secure VPC with public/private subnets
- Compare on-prem VLAN setup with AWS VPC architecture

Module 7: Security & Compliance Architecture

- Identity and access: IAM, RBAC, AD
- Encryption and key management
- Compliance frameworks: GDPR, HIPAA, ISO
- Threat modelling and zero trust

Lab:

- Implement IAM policies in AWS and Azure
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Module 8: Monitoring, Observability & Automation

- Logging, tracing, metrics
- Tools: CloudWatch, Azure Monitor
- Automation: IaC, CI/CD

Lab:

- Set up monitoring for a microservices app
- Automate deployment using Terraform or Cloud Formation

Module 9: High availability and DR

- Disaster planning
- Back up Strategies
- Recovery strategies

Lab:

- Deploying application across multiple regions meeting RTO and RPO