AWS Certified Solutions Architect – Professional (Advanced Architecting on AWS)

Course Duration: 24 Hours (1day)

Overview

The AWS Certified Solutions Architect – Professional course, focusing on Advanced Architecting on AWS, is designed for individuals who seek to deepen their understanding and expertise in designing Scalable, reliable, and highly available systems on AWS. This course helps learners apply advanced techniques and best practices to architect and optimize AWS cloud deployments. Through a comprehensive curriculum, participants review Core architecting concepts, manage multiple AWS accounts, connect on-premises data centres to the AWS cloud, and secure data with encryption. They also explore Advanced networking, Specialized infrastructure, containerization with ECS and EKS, Continuous Integration/Continuous Delivery (CI/CD) pipelines, DDoS protection strategies, and Large-scale data store management. Additionally, the course covers Workload migration, Cost optimization, and architecting for edge locations. By completing this course and obtaining the aws professional certification, learners will be well-equipped to design complex AWS solutions, making them valuable assets in their professional roles. The course's hands-on approach, including labs and exercises, ensures practical knowledge application, reinforcing the theoretical principles of advanced architecting on aws.

Audience Profile

The AWS Certified Solutions Architect – Professional course is designed for experienced practitioners seeking to deepen their cloud architecture skills.

- Solutions Architects
- Cloud Architects
- Technical Architects
- IT Professionals with experience in AWS
- DevOps Engineers
- Systems Engineers
- Cloud Strategists
- IT Project Managers
- Network Architects
- Security Analysts or Engineers
- Data Architects
- IT Managers with cloud infrastructure focus
- Enterprise Architects

- Application Architects
- Software Engineers with focus on cloud applications and infrastructure
- Professionals aiming for AWS Certified Solutions Architect - Professional certification

Course Syllabus

Day 1

Module 1: Reviewing Architecting Concepts

- Group Exercise: Review Architecting on AWS core best practices
- Lab 1: Securing Amazon S3 VPC Endpoint Communications

Module 2: Single to Multiple Accounts

- AWS Organizations for multi-account access and permissions
- AWS SSO to simplify access and authentication across AWS accounts and third-party services
- AWS Control Tower
- Permissions, access, and authentication

Module 3: Hybrid Connectivity

- AWS Client VPN authentication and control
- AWS Site-to-Site VPN
- AWS Direct Connect for hybrid public and private connections
- Increasing bandwidth and reducing cost
- Basic, high, and maximum resiliency
- Amazon Route 53 Resolver DNS resolution

Module 4: Specialized Infrastructure

- AWS Storage Gateway solutions
- On-demand VMware Cloud on AWS
- Extending cloud infrastructure services with AWS Outposts
- AWS Local Zones for latency-sensitive workloads
- Your 5G network with and without AWS Wavelength

Module 5: Connecting Networks

- Simplifying private subnet connections
- VPC isolation with shared services VPC
- Transit Gateway Network Manager and VPC Reachability Analyzer

- AWS Resource Access Manager
- AWS Private Link and endpoint services
- Lab 2: Configuring Transit Gateways

Day 2

Module 6: Containers

- Container solutions compared to virtual machines
- Docker benefits, components, solutions architecture, and versioning
- Container hosting on AWS to reduce cost
- Managed container services: Amazon Elastic Container Service (Amazon ECS) and Amazon
- Elastic Kubernetes Service (Amazon EKS)
- AWS Fargate
- Lab 3: Deploying an Application with Amazon ECS on Fargate

Module 7: Continuous Integration/Continuous Delivery (CI/CD)

- CI/CD solutions and impact
- CI/CD automation with AWS CodePipeline
- Deployment models
- AWS CloudFormation Stack Sets to improve deployment management

Module 8: High Availability and DDoS Protection

- Common DDoS attacks layers
- AWS WAF
- AWS WAF web access control lists (ACLs), real-time metrics, logs, and security automation
- AWS Shield Advanced services and AWS DDoS Response Team (DRT) services
- AWS Network Firewall and AWS Firewall Manager to protect accounts at scale

Module 9: Securing Data

- What cryptography is, why you would use it, and how to use it
- AWS KMS
- AWS CloudHSM architecture
- FIPS 140-2 Level 2 and Level 3 encryption
- Secrets Manager

Module 10: Large-Scale Data Stores

- Amazon S3 data storage management including storage class, inventory, metrics, and policies

- Data lake vs. data warehouse: Differences, benefits, and examples
- AWS Lake Formation solutions, security, and control
- Lab 4: Setting Up a Data Lake with Lake Formation

Day 3

Module 11: Large-Scale Applications

- What edge services are and why you would use them
- Improve performance and mitigate risk with Amazon CloudFront
- Lambda@Edge
- AWS Global Accelerator: IP addresses, intelligent traffic distribution, and health checks
- Lab 5: Migrating an On-Premises NFS Share Using AWS DataSync and Storage Gateway

Module 12: Optimizing Cost

- On-premises and cloud acquisition/deprecation cycles
- Cloud cost management tools including reporting, control, and tagging
- Examples and analysis of the five pillars of cost optimization

Module 13: Migrating Workloads

- Business drivers and the process for migration
- Successful customer practices
- The 7 Rs to migrate and modernize
- Migration tools and services from AWS
- Migrating databases and large data stores
- AWS Schema Conversion Tool (AWS SCT)

Module 14: Capstone Project

- Use the Online Course Supplement (OCS) to review use cases, investigate data, and answer architecting design questions about Transit Gateway, hybrid connectivity, migration, and cost optimization