

# Architecting on AWS

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Duration	Delivery Method	Level
3 days	Online / Instructor Led	Intermediate

## Introduction:

Architecting on AWS is for solutions architects, solution-design engineers, and developers seeking an understanding of AWS architecting. In this course, you will learn to identify services and features to build resilient, secure and highly available IT solutions on the AWS Cloud. Architectural solutions differ depending on industry, types of applications, and business size. AWS Authorised Instructors emphasise best practices using the AWS Well-Architected Framework and guide you through the process of designing optimal IT solutions, based on real-life scenarios. The modules focus on account security, networking, compute, storage, databases, monitoring, automation, containers, serverless architecture, edge services, and backup and recovery. At the end of the course, you will practice building a solution and apply what you have learned with confidence.

## Audience Profile

This course is intended for solutions architects, solution-design engineers, developers seeking an understanding of AWS architecting and individuals seeking the AWS Solutions Architect-Associate certification.

## Pre-requisite

Before attending this course, delegates must have attended AWS Cloud Practitioner Essentials classroom or digital training, or have:

- Working knowledge of distributed systems
- Familiarity with general networking concepts
- Familiarity with IP addressing
- Working knowledge of multi-tier architectures
- Familiarity with cloud computing concepts

## Course Objectives

After completing this course, students will be able to:

- Identify AWS architecting basic practices.
- Explore using the AWS management tools: The AWS Console, Command Line Interface (CLI), and CloudFormation in a lab environment.
- Examine the enforcement of accounts security using policies.

- Identify the elements that build an elastic, secure, virtual network that includes private and public subnets.
- Practice building an AWS core networking infrastructure.
- Determine strategies for a layered security approach to Virtual Private Cloud (VPC) subnets.
- Identify strategies to select the appropriate compute resources based on business use-cases.
- Practice building a VPC and adding an Elastic Cloud Compute (EC2) instance in a lab environment.
- Practice installing an Amazon Relational Database Service (RDS) instance and an Application Load Balancer (ALB) in the VPC you created.
- Compare and contrast AWS storage products and services, based on business scenarios.
- Compare and contrast the different types of AWS database services based on business needs.
- Practice building a serverless infrastructure in a lab environment.
- Discuss the ways in which AWS edge services address latency and security.
- Practice building a CloudFront deployment with an S3 backend in a lab environment.
- Explore AWS backup, recovery solutions, and best practices to ensure resiliency and business continuity.
- Build a highly available and secure cloud architecture based on a business problem, in a project-based facilitator-guided lab.

## Course Content

### Module 1: Architecting Fundamentals Review

- AWS Services and Infrastructure
- Infrastructure Models
- AWS API Tools
- Securing your infrastructure
- The Well-Architected Framework
- Hands-on lab: Explore Using the AWS API Tools to Deploy an EC2 Instance

### Module 2: Account Security

- Security Principals
- Identity and Resource-Based Policies
- Account Federation
- Introduction to Managing Multiple Accounts

### Module 3: Networking

- IP Addressing
- Amazon Virtual Private Cloud (VPC), Patterns and Quotas
- Routing
- Internet Access
- Network Access Control Lists (NACLs)

### Module 4: Compute

- Amazon Elastic Cloud Compute (EC2)
- EC2 Instances and Instance Selection
- High Performance Computing on AWS

- Lambda and EC2, When to Use Which
- Hands-On Lab: Build Your Amazon VPC Infrastructure

### **Module 5: Storage**

- Amazon S3, Security, Versioning and Storage Classes
- Shared File Systems
- Data Migration Tools

### **Module 6: Database Service**

- AWS Database Solutions
- Amazon Relational Database Services (RDS)
- DynamoDB, Features and Use Cases
- Redshift, Features, Use Cases and Comparison with RDS
- Caching and Migrating Data
- Hands-on Lab: Create a Database Layer in Your Amazon VPC Infrastructure

### **Module 7: Monitoring and Scaling**

- Monitoring: CloudWatch, CloudTrail, and VPC Flow Logs
- Invoking Events
- Elastic Load Balancing
- Auto Scaling Options and Monitoring Cost
- Hands-on Lab: Configure High Availability in Your Amazon VPC

### **Module 8: Automation**

- CloudFormation
- AWS Systems Manager

### **Module 9: Containers**

- Microservices
- Monitoring Microservices with X-Ray
- Containers

### **Module 10: Networking**

- VPC Peering & Endpoints
- Transit Gateway
- Hybrid Networking
- Route 53

### **Module 9: Serverless Architecture**

- Amazon API Gateway
- Amazon SQS, Amazon SNS
- Amazon Kinesis Data Streams & Kinesis Firehose
- Step Functions
- Hands-on Lab: Build a Serverless Architecture

### **Module 10: Edge Services**

- Edge Fundamentals
- Amazon CloudFront

- AWS Global Accelerator
- AWS Web Application Firewall (WAF), DDoS and Firewall Manager
- AWS Outposts
- Hands-On Lab: Configure an Amazon CloudFront Distribution with an Amazon S3 Origin
- Planning for Disaster Recovery
- AWS Backup
- Recovery Strategies