

# AWS Solution Architect [Associate]

## Course Outline

### **Module 1:** Introduction to Cloud and AWS Concept

- Introduction to Cloud Computing
- Cloud Computing Characteristics & Models
- The Six Benefits of Cloud Computing on AWS
- The AWS Cloud Adoption Framework
- AWS Global Infrastructure
- AWS Shared Responsibility Model
- AWS Region & Availability Zone

### **Module 2:** Core AWS Services

#### **Topic 1:** Elastic Compute Cloud (EC2)

- Overview of EC2
- Choosing the Right Amazon EC2 Instance
- Broad Set of Compute Instance Types
- Benefits from Intel Capabilities
- Amazon EC2 Pricing Options
- Amazon EC2 Resource Management
- Amazon EC2 Best Practices
- EC2 Auto Recovery

#### **Topic 2:** Virtual Private Cloud (VPC)

- Overview of VPC
- AWS Infrastructure Patterns
- Multi-VPC Pattern & Multi-Account Pattern
- VPCs and IP Addresses
- Subnet, Subnet Size & Subnet Types
- Security Groups & Network ACLs
- VPC NAT Gateways vs. NAT Instances
- Amazon VPC Flow Logs
- VPC Peering
- AWS Direct Connect
- VPC Best Practices
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### **Topic 3:** Elastic Block Storage (EBS)

- AWS Storage Options
- Amazon Elastic Block Store (EBS) Review
- Amazon EBS Volume Types

### **Topic 4:** Elastic File Storage (EFS)

- Amazon EFS Review
- Amazon EFS Architecture
- Amazon EFS Resources
- Amazon EFS Implementation

### **Topic 5:** Simple Storage Service (S3)

- Amazon S3 Review
- Amazon S3 Data Consistency Model

### **Topic 6:** Glacier

- Amazon Glacier Review
- Lifecycle Policies

### **Topic 7:** Relational Database Service

- Amazon Relational Database Service (RDS) Review
- When to Use Amazon RDS
- Scale with Amazon RDS
  - ✓ Amazon Aurora Overview
  - ✓ Amazon Aurora Scalable Performance
  - ✓ Amazon Aurora: Resilient Design

### **Topic 8:** DynamoDB

- Amazon DynamoDB Review
- Provisioned Throughput
- Amazon DynamoDB Consistency

### **Topic 9:** IAM Overview

- AWS Identity and Access Management (IAM) Review
- Types of Security Credentials
- Root Account Access vs. IAM Access
- IAM Permissions
- IAM Policies
- IAM Users, Groups & Roles

## **Topic 10:** Others

- Amazon CloudTrail Overview
- Amazon Config Overview
- Amazon Organization Overview

## **Module 3:** Making Your Environment Highly Available

- What is High Availability
- High Availability Driven by Your Requirements
- High Availability Factors
- On-Premises HA vs. HA on AWS
- High Availability and AWS Regions

### **Topic 1:** Elastic Load Balancing (ELB)

- Amazon Elastic Load Balancing (ELB) Review
- Amazon Elastic Load Balancing Products
- Connection Draining
- Internet-Facing & Internal Load Balancer

### **Topic 2:** Route 53

- Amazon Route 53 Review
- HA Domain Name Service (DNS)
- Amazon Route 53 Features
- Amazon Route 53 Routing Support
- Amazon Route 53 DNS Failover
- Amazon Route 53 Typical Architecture
- Multi-Region Deployment

### **Topic 3:** CloudWatch

- Amazon CloudWatch Review
- Monitor AWS Resources with Amazon CloudWatch
- CloudWatch Alarm
- Store & Monitor Application Log Files

### **Topic 4:** Autoscaling

- Enable Scalability
- Vertical vs. Horizontal Scaling
- Auto Scaling group
- Auto Scaling Steps
- Auto Scaling Considerations

## **Topic 5:** Others

- Amazon Lambda Overview

## **Module 4:** Automating Your Infrastructure

- Manual Configuration Challenges
- Automate Your Environment
- Infrastructure as Code Mean

### **Topic 1:** AWS CloudFormation

- Ways to Work with CloudFormation
- Organizing Your CloudFormation
- Anatomy of a CloudFormation Template

### **Topic 2:** Elastic Beanstalk

- Amazon Elastic Beanstalk Review
- Blue-Green Deployment on AWS Elastic Beanstalk

### **Topic 3:** Additional Services

- AWS OpsWorks Overview
- AWS Systems Manager Overview
- Amazon EC2 Run Command Overview

## **Module 5:** Designing Web-Scale Applications

- Web Storage Pattern
- Use Caching
- Cache Static and Re-usable Content
- Web Hosting Architecture

### **Topic 1:** Amazon CloudFront

- Cache Static and Re-usable Content
- CloudFront Distributions
- The Expiration Period
- CloudFront Custom SSL Support
- Use Alternate Domain Names with HTTPS
- Origin Access Identity to Restrict Access

## **Module 6:** Decoupling Your Infrastructure

- Loosely Couple Your Components
- Decoupling Review
- Loose Coupling Strategies
- Implement a Service-Oriented Architecture (SOA)

### **Topic 1:** Amazon Simple Queue Service (SQS)

- Amazon Simple Queue Service (SQS) Review
- Amazon SQS Queue Types
- Amazon SQS Key Feature
- Amazon SQS Use Cases

### **Topic 2:** Amazon Simple Notification Service (SNS)

- Amazon Simple Notification Service (SNS) Review
- Amazon SNS Subscriber Types
- Use Case

### **Topic 3:** Other Services

- Amazon MQ Overview
- Amazon API Gateway Overview

## **Module 7:** Securing Your Infrastructure

- Security Design Principles
- Key Services for Security

### **Topic 1:** Amazon Inspector

- Amazon Inspector Review
- Prevent Common Exploits
- Amazon Inspector Rules

### **Topic 2:** AWS Shield

- AWS Shield Review
- Types of Threats
- Benefits of AWS Shield
- AWS Shield Standard
- AWS Shield Advanced

### **Topic 3:** AWS GuardDuty

- Amazon GuardDuty Review
- Amazon GuardDuty Concepts

#### **Topic 4:** AWS Key Management Service

- Amazon Key Management Service Review
- Amazon GuardDuty Concepts
- Benefits of Using AWS KMS
- AWS KMS Integration with Other AWS

#### **Topic 5:** AWS CloudHSM

- Amazon CloudHSM Review
- AWS CloudHSM Features and Benefits
- Amazon GuardDuty Concepts
- AWS CloudHSM vs AWS KMS

#### **Topic 6:** Authentication

- Amazon Directory Service Overview
- AWS Security Token Service (STS) Overview

#### **Module 8:** Making Your Infrastructure Perform More Efficiently

- Amazon ElastiCache Overview
- Amazon Kinesis Overview

#### **Module 9:** Making Your Infrastructure Cost-Optimized

- Amazon Trusted Advisor Overview
- Amazon Calculation Tools Overview

#### **Module 10:** Troubleshooting

#### **Module 11:** Well-Architect Infrastructure

- Well-Architect Framework
- Pillars of the Well-Architected Framework
- Well-Architected Design Principles

#### **Module 12:** Design Patterns and Sample Architectures

- High Availability Design Patterns
- Solving the Problem with Amazon EMR
- Build-In Business Intelligence with Amazon Redshift
- AWS Solution using Amazon Elastic Transcoder