Architecting on AWS - Accelerator

Summary

Length: 40 hours Level: Advanced

This course covers all aspects of how to architect for the cloud over four-and-a-half-days. It covers topics from Architecting on AWS and Advanced Architecting on AWS to offer an immersive course in cloud architecture. You will learn how to design cloud architectures, starting small and working to large-scale enterprise level designs - and everything in between. Starting with the Well-Architected Framework, you will learn important architecting information for AWS services including: compute, storage, database, networking, security, monitoring, automation, optimization, benefits of de-coupling applications and serverless, building for resilience, and understanding costs This course may earn a Credly Badge.

Learning Objectives

In this course, you will learn how to:

Make architectural decisions based on AWS architectural principles and best practices
Use AWS services to make your infrastructure scalable, reliable, and highly available
Use AWS Managed Services to enable greater flexibility and resiliency in an infrastructure
Make an AWS-based infrastructure more efficient to increase performance and reduce costs
Use the Well Architected Framework to improve architectures with AWS solutions

Course Outline

1. ### Module 1- Introduction

   The real story of AWS
   Well-Architected Framework
   Six advantages of the cloud
   Global infrastructure

2. ### Module 2- The Simplest Architectures

   S3
   Glacier
   Choosing your regions
   Hands-on lab- Static Website

3. ### Module 3- Adding a Compute Layer

   EC2
   Storage solutions for instances
   Purchasing options such as dedicated host vs instances

4. ### Module 4- Adding a Database Layer

   Relational vs non-relational
   Managed databases
   RDS
   Dynamo DB
   Neptune
   Hands-on lab- Deploying a web application on AWS

5. Module 5- Networking in AWS Part 1

   VPC
   CIDR and subnets
   Public vs private subnets
   NAT and internet gateway
   Security groups

6. Module 6- Networking in AWS Part 2

   Virtual Private Gateway
   VPN
   Direct Connect
   VPC peering
   Transit Gateway
   VPC Endpoints
   Elastic Load Balancer
   Route 53
   Hands-on lab- Creating a VPC

7. Module 7- AWS Identity and Access Management (IAM)

   IAM
   Identity federation
   Cognito

8. Module 8- Organizations

   Organizations
   Multiple account management
   Tagging strategies

9. Module 9- Elasticity, High Availability, and Monitoring

   Elasticity vs inelasticity
   Monitoring with CloudWatch, CloudTrail, and VPC Flow Logs
   Auto scaling
   Scaling databases
   Hands-on lab- Creating a highly available environment

10. Module 10- Automation

    Why automate?
    CloudFormation
    AWS Quick Starts
    AWS Systems Manager
    AWS OpsWorks
    AWS Elastic Beanstalk

11. Module 11- Deployment Methods

    Why use a deployment method?
    Blue green and canary deployment
    Tools to implement your deployment methods
    CI/CD
    Hands-on lab- Automating infrastructure deployment

12. Module 12- Caching

    When and why you should cache your data
    Cloudfront

Elasticache (Redis/Memcached)
DynamoDB Accelerator

13. Module 13- Security of Your Data

Shared responsibility model
Data classification
Encryption
Automatic data security

14. Module 14- Building Decoupled Architecture

Tight coupling vs loose coupling
SQS
SNS

15. Module 15- Optimizations and Review

Review questions
Best practices
Activity- Design and architecture - two trues and one lie

16. Module 16- Microservices

What is a microservice?
Containers
ECS
Fargate
EKS

17. Module 17- Serverless

Why use serverless?
Lambda
API Gateway
AWS Step Functions
Hands-on lab- Implementing a serverless architecture with AWS Managed Services

18. Module 18- Building for Resilience

Using managed services greatly increases resiliency
Serverless for resiliency
Issues with microservices to be aware of
DDoS
Hands-on lab- Amazon CloudFront content delivery and automating WAF rules

19. Module 19- Networking in AWS Part 3

Elastic Network Adapter
Maximum transmission units
Global Accelerator
Site to site VPN
Transit Gateway

20. Module 20- Understanding Costs

Simple monthly calculator
Right sizing your instances
Price sensitive architecture examples

21. Module 21- Migration Strategies

    Cloud migration strategies
    Planning
    Migrating
    Optimizing
    Hands-on lab- Application deployment using AWS Fargate

22. Module 22- RTO/RPO and Backup Recovery Setup

    Disaster planning
    Recovery options

23. Module 23- Final Review

    Architecting advice
    Service use case questions
    Example test questions

Audience

This course is intended for Solutions Architects who are new to designing and building cloud architectures, Data Center Architects who are migrating from on-premises environment to cloud architectures, Other IT/cloud roles who want to understand how to design and build cloud architectures.

Prerequisites

We recommend that attendees of this course have: Attended AWS Technical Essentials classroom training or have equivalent experience Working knowledge of distributed systems Familiarity with general networking concepts Working knowledge of multi-tier architectures Familiarity with cloud computing concepts