Architecting on AWS

Private Training Course for IHS Markit Colleagues

Course Description

This course focuses on building IT infrastructure on the AWS platform. You will learn how to optimize the AWS Cloud by understanding AWS services and how they fit into cloud-based solutions. Best practices and design patterns are covered to help you architect optimal IT solutions on the AWS Cloud. Build and explore a variety of infrastructures through guided discussions and hands-on activity.

- **Instructor:** AWS Expert
- **Course Level:** Intermediate
- **Duration:** 3 days

Activities

This course includes presentations, group exercises, and hands-on labs.

Course Objectives

In this course, you will:

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

Intended Audience

This course is recommended for IHS Markit cloud functional personas: Infrastructure Architect, Data Platforms Engineer, Networks Engineer, and anyone who needs to understand the scope of cloud infrastructures.

Prerequisites

We recommend that attendees of this course have:

- Taken the AWS Cloud Practitioner Essentials digital training
- Working knowledge of distributed systems and multi-tier architectures
- Familiarity with general networking and cloud computing concepts

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Course Outline

Day 1

Module 1: Introduction

- The Well-Architected Framework
- AWS Global Infrastructure

Module 2: The simplest architectures

- Amazon Simple Storage Service (Amazon S3)
- Amazon S3 Glacier
- Choosing AWS Regions for your architectures
- Hands-on lab: Hosting a Static Website

Module 3: Adding a compute layer

- Amazon Elastic Compute Cloud (Amazon EC2)
- Amazon Machine Images (AMIs)
- Amazon Elastic Block Storage (Amazon EBS)
- Amazon Elastic File System (Amazon EFS)
- Amazon FSx

Module 4: Adding a database layer

- Database layer considerations
- Amazon Relational Database Service (Amazon RDS)
- Amazon DynamoDB AWS Database Migration Service (AWS DMS)
- Hands-on lab: Deploying a Web Application on AWS

Module 5: Networking in AWS – Part 1

- Amazon Virtual Private Cloud (Amazon VPC)
- Network security in the cloud
- Hands-on lab: Creating a VPC

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Course Outline

Day 2

Module 6: Networking in AWS – Part 2

- AWS VPN connections
- AWS Direct Connect (DX)
- VPC peering AWS Transit Gateway
- Load balancing on AWS
- Amazon Route 53

Module 7: AWS Identity and Access Management (IAM)

- Account users and AWS IAM
- Federating users
- Amazon Cognito
- AWS Organizations

Module 8: Elasticity, high availability, and monitoring

- Amazon CloudWatch
- AWS CloudTrail
- Amazon EC2 Auto Scaling
- Scaling your databases
- Hands-on lab: Creating a highly available environment

Module 9: Automation

- AWS CloudFormation
- AWS Systems Manager
- AWS OpsWorks
- AWS Elastic Beanstalk
- Hands-on lab: Automating infrastructure deployment with AWS CloudFormation

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Day 3

Module 10: Caching

- Caching on AWS with Amazon CloudFront
- Session management
- Amazon DynamoDB Accelerator (DAX)
- Amazon ElastiCache

Module 11: Building decoupled architectures

- Decoupling Your Architecture
- Decoupling with Amazon SQS
- Decoupling with Amazon SNS
- Developing with Amazon MQ

Module 12: Microservices and serverless architectures

- Amazon Elastic Container Service (Amazon ECS)
- AWS Fargate
- AWS Lambda
- Amazon API Gateway
- AWS Step Functions
- Hands-on lab: Implementing a serverless architecture with AWS Managed Services

Module 13: RTO/RPO and backup recovery setup

- Disaster planning
- Data replication
- Recovery strategies
- AWS Storage Gateway

Module 14: Optimization and review

- Best practices for optimization
- Review questions