Certificate Course in AWS Cloud Architecting (CCAWSCA)

PROGRAM CURRICULUM

Module 1: Cloud Concepts Overview

1. Introduction to Cloud Computing
2. Advantages of the Cloud
3. Introduction to AWS
4. Moving to the AWS Cloud

Module 2: Cloud Economics and Billing

1. Introduction, Fundamentals of Pricing, Total Cost of Ownership
2. Simple Monthly Calculator, Delaware North Case Study
3. AWS Organizations, AWS Billing & Cost Management, Billing Dashboard
4. Technical Support Models, Support Plan Scavenger Hunt

Module 3: AWS Global Infrastructure Overview

1. Introduction,
2. AWS Global Infrastructure
3. AWS Global Infrastructure Demo
4. AWS Services & Service Categories

Module 4: Cloud Security

1. Introduction to cloud security
2. AWS Shared Responsibility Model
3. Introduction to AWS IAM (Lab), AWS IAM Console Demonstration
4. Securing a New AWS Account, Securing Accounts, Securing Data
5. Working to Ensure Compliance

Module 5: Networking and Content Delivery

1. Introduction, Networking Basics, Amazon VPC, VPC Networking
2. Amazon VPC Console Demonstration, Design a VPC (Activity), VPC Security
3. Build Your VPC and Launch a Web Server (Lab)
4. Route 53, Cloud Front

Module 6: Compute

1. Introduction, Compute Services Overview, Amazon EC2 (Lab)
2. Amazon EC2 versus Managed Services (Activity), Amazon EC2 Part Console Demonstration
3. Amazon EC2 Cost Optimization, Container Services, Introduction to AWS Lambda (Activity)
4. Introduction to AWS Elastic Beanstalk (Activity)

Module 7: Storage

1. Introduction, AWS EBS, Amazon Elastic Block Store Console Demonstration, Working with EBS (Lab)
2. AWS S3, AWS S3 Console Demonstration
3. AWS EFS, AWS EFS Console Demonstration
4. AWS S3 Glacier, AWS S3 Glacier Console Demonstration,
5. Storage Technology Selection (Activity)

Module 8: Databases

1. Introduction, Amazon RDS, Amazon RDS Console Demonstration
2. Build a Database Server (Lab),
3. Amazon Dynamo DB, Amazon Dynamo DB Demonstration
4. Amazon Redshift, Amazon Aurora, Database Case Study (Activity)

Module 9: Cloud Architecture

1. Introduction, AWS Well-Architected Framework Design Principles
2. Operational Excellence, Security, Reliability, Performance Efficiency, Cost Optimization, Reliability & High Availability
3. AWS Trusted Advisor
4. Interpret AWS Trusted Advisor Recommendations (Activity)

Module 10: Automatic Scaling and Monitoring

1. Introduction, Elastic Load Balancing, Elastic Load Balancing (Activity)
2. Amazon Cloud Watch, Amazon Cloud Watch (Activity)
3. Amazon EC2 Auto Scaling, Scale & Load Balance your Architecture (Lab)
4. Interpret AWS Trusted Advisor Recommendations (Activity)

Module 11: Designing Your Environment

1. Choosing a Region, Selecting Availability Zones
2. Virtual Private Cloud (VPC), Dividing VPCs and Subnets
3. Default VPCs and Default Subnets, Controlling VPC Traffic
4. Connecting Multiple VPCs, Integrating On-premises Components
5. VPC Best Practices, Designing Your Environment
6. Improve This Architecture, Designing Your Environment

Module 12: Designing for High Availability I

1. Load Balancing and Fault Tolerance, Improve This Architecture
2. High Availability Across Regions, Connections Outside of Amazon VPC
3. Designing for High Availability I, Making Your Environment Highly Available (Lab)
4. Forklifting and Existing Application, Designing for High Availability I.

Module 13: Designing for High Availability II

1. Best Practice – Scalability, determining if Scaling is Needed
2. Automatic Scaling, Improve This Architecture
3. Scaling Data Stores, AWS Lambda and Event Driven Scaling
4. Using Auto Scaling with AWS Lambda (Lab)

Module 14: Automating Your Infrastructure

1. Manual Environment Configuration, Infrastructure as code on AWS
2. Grouping resources in a template
3. Resources not supported by AWS Cloud Formation
4. Automating Infrastructure Deployment with AWS Cloud Formation (Lab)

Module 15: Decoupling Your Infrastructure

1. Loose Coupling, Loose Coupling Strategies
2. Communicating Easily and Reliably Among Components
3. Communicating with Loose Coupling and Amazon Dynamo DB
4. Amazon API Gateway, Server less Architectures, Decoupling Examples

Module 16: Designing Web-Scale Media

1. Storing Web-Accessible Content with Amazon S3
2. Caching with Amazon Cloud Front, Managing NoSQL Databases
3. Storing Relational Data in Amazon RDS,
4. Implementing a Server less Architecture with AWS Managed Services (Lab)

Module 17: Well Architected Framework

1. Introduction to Well-Architected Framework,
2. Pillars of the Well-Architected Framework
3. Well-Architected Design Principles,

Module 18: Well-Architected Pillar 1: Operational Excellence

1. Principles of the Operational Excellence Pillar
2. Drive Operational Excellence
3. Operational Excellence Pillar Questions

Module 19: Well-Architected Pillar 2: Security

1. Principles of the Security Pillar
2. Preventing Common Security Exploits
3. Securing Data in Cloud Front, Encrypting Data
4. Authentication, Introduction to Amazon Cloud Front (Lab)

Module 20: Well-Architected Pillar 3: Reliability

1. Principles of the Reliability Pillar
2. Making Your Infrastructure More Reliable
3. Reliability Pillar Questions
4. Multi-Region Failover with Amazon Route 53 (Lab)

Module 21: Well-Architected Pillar 4: Performance Efficiency

1. Principles of the Performance Efficiency Pillar
2. Infrastructure Efficiency Improvements,
3. Performance Efficiency Pillar Questions and Best Practice

Module 22: Well-Architected Pillar 5: Cost Optimization

1. Principles of the Cost Optimization Pillar, Optimizing the Cost of Your Infrastructure
2. Dedicated Instances and Dedicated Hosts, Trusted Advisor
3. Optimizing Costs with Caching,
4. AWS Cost Calculation Tools, Cost Optimization Questions

Module 23: Troubleshooting

1. Troubleshooting Steps
2. AWS Support Options

Module 24: Design Patterns & Sample Architectures

1. High-Availability Design Patterns
2. Stream Processing Example
3. Sensor Network Data Ingestion and Processing Example
4. Application Backend Example, Transcoding and Serving Video Files Example

Module 25: Lab

1. Go Green Insurance Company

Note: There is no submission.