SOLUTIONS ARCHITECT

Certificate of Completion: Solutions Architect

Course Code: M004/25

Duration: 40 Hours

Delivery Format: Hybrid

Target Audience:

The target candidate should have at least 1 year of hands-on experience designing cloud solutions that use AWS services.

Program Outcomes:

Upon completion of this program, participants will be able to:

- Design secure access to AWS resources.
- Design secure workloads and applications.
- Determine appropriate data security controls.
- Design scalable and loosely coupled architectures.
- Design highly available and/or fault-tolerant architectures.
- Determine high-performing and scalable storage solutions.
- Design high-performing and elastic compute solutions.
- Determine high-performing database solutions.

Detailed Syllabus

Module 1: Design Secure Architectures

Outcome: Participants will be able to design secure access to AWS resources, secure workloads and applications, and determine appropriate data security controls.

Topics:

- Secure access to AWS resources (Access control, AWS federated access, IAM, AWS security best practices, shared responsibility model).
- Secure workloads and applications (Application configuration security, AWS service endpoints, network traffic control, secure application access, AWS security services, threat vectors).
- Data security controls (Data access, governance, recovery, retention, encryption, key management).

Activities:

- Designing IAM models and implementing role-based access control.
- Designing VPCs with security components and securing applications with AWS services.
- Implementing data encryption and managing data access and lifecycle.

Assessments:

- Scenario-based questions on designing secure access and workloads.
- Case studies on implementing data security controls and compliance needs.

Module 2: Design Resilient Architectures

Outcome: Participants will be able to design scalable and loosely coupled architectures, and highly available/fault-tolerant architectures.

Topics:

- Scalable and loosely coupled architectures (API management, AWS managed services, caching strategies, microservice design, event-driven architectures, scaling, serverless technologies, etc.).

- Highly available and/or fault-tolerant architectures (AWS global infrastructure, managed services, networking basics, disaster recovery, load balancing, etc.).

Activities:

- Designing event-driven and microservice architectures.
- Determining scaling strategies and choosing AWS services for loose coupling.
- Implementing automation for infrastructure integrity and designing highly available architectures.

Assessments:

- Design assignments for scalable and loosely coupled systems.
- Case studies on designing highly available and fault-tolerant architectures.

Module 3: Design High-Performing Architectures

Outcome: Participants will be able to determine high-performing and scalable storage solutions, design high-performing and elastic compute solutions, and determine high-performing database solutions.

Topics:

- High-performing and scalable storage solutions (Hybrid storage, AWS storage services, storage types).
- High-performing and elastic compute solutions (AWS compute services, distributed computing, queuing and messaging, scalability, serverless technologies).
- High-performing database solutions (AWS global infrastructure, caching strategies, data access patterns, database capacity planning, database types).

Activities:

- Selecting storage services and configurations for performance.
- Designing elastic compute solutions and selecting appropriate compute options.
- Designing database architectures and selecting appropriate database engines.

Assessments:

- Problem-solving exercises on storage and compute performance.
- Design tasks focused on database solutions.

Module 4: Design Cost-Optimized Architectures

Outcome: Participants will be able to design cost-optimized compute, storage, database, and network architectures.

Topics:

- Cost-optimized compute solutions (AWS cost management, compute services, scaling strategies)
- Cost-optimized storage solutions (AWS cost management, storage services, storage types)
- Cost-optimized database solutions (AWS cost management, caching strategies, database engines)
- Cost-optimized network architectures (AWS cost management, network connectivity, load balancing)

Activities:

- Analyzing cost-effective compute and storage options.
- Designing cost-optimized database solutions and network architectures.

Assessments:

- Case studies on cost optimization for different architectural designs.

- Assignments on selecting cost-effective AWS services.