Introduction

The AWS Certified Solutions Architect – Professional Level exam is intended for individuals who perform a Solutions Architect role. This exam validates an examinee's ability to:

- Identify and gather requirements in order to define a solution to be built on AWS
- Evolve systems by introducing new services and features
- Assess the tradeoffs and implications of architectural decisions and choices for applications deployed in AWS
- Design an optimal system by meeting project requirements while maximizing characteristics such as scalability, security, reliability, durability, and cost effectiveness
- Evaluate project requirements and make recommendations for implementation, deployment, and provisioning applications on AWS
- Provide best practice and architectural guidance over the lifecycle of a project

The knowledge and skills required at the professional level include the majority of the following AWS and general IT knowledge areas:

AWS Knowledge

- AWS core services, including: Compute and Networking, Storage and CDN, Database, Application Services, Deployment and Management.
- Security features that AWS provides and best practices
- Able to design and implement for elasticity and scalability
- Network technologies as they relate to AWS networking, including: DNS and load balancing, Amazon Virtual Private Cloud (VPC), and AWS Direct Connect
- Storage and archival options
- State management
- Database and replication methodologies
- Self-healing techniques and fault-tolerant services
- Disaster Recovery and fail-over strategies
- Application migration plans to AWS
- Network connectivity options
- Deployment and management

General IT Knowledge

- Large-scale distributed systems architecture
- Eventual consistency
- Relational and non-relational databases
- Multi-tier architectures: load balancers, caching, web servers, application servers, networking and databases
- Loose coupling and stateless systems
- Content Delivery Networks
- System performance tuning
- Networking concepts including routing tables, access control lists, firewalls, NAT, HTTP, DNS, TCP/IP, OSI model
- RESTful Web Services, XML, JSON
- One or more software development models
- Information and application security concepts including public key encryption, remote access, access credentials, and certificate-based authentication

These training courses and materials will assist in exam preparation:

- Architecting on AWS (aws.amazon.com/training/architect)
- Architecting on AWS – Advanced Concepts
- In-depth knowledge or training in at least one high-level programming language
- AWS Cloud Computing Whitepapers (aws.amazon.com/whitepapers)
  - Overview of Security Processes
  - Storage Options in the Cloud
  - Defining Fault Tolerant Applications in the AWS Cloud
  - Overview of Amazon Web Services
  - Compliance Whitepaper
  - Architecting for the AWS Cloud
- Experience deploying hybrid systems with on-premises and AWS components
- Utilization of the AWS Architecture Center website (aws.amazon.com/architecture)

Note: This examination blueprint includes weighting, test objectives, and example content. Example topics and concepts are included to clarify the test objectives. They should not be construed as a comprehensive listing of all of the content of this examination.

The table below lists the domains measured by this examination and the extent to which they are represented.

Domain	% of Examination
1.0 High Availability and Business Continuity	15%
2.0 Costing	5%
3.0 Deployment Management	10%
4.0 Network Design	10%
5.0 Data Storage	15%
6.0 Security	20%
7.0 Scalability & Elasticity	15%
8.0 Cloud Migration & Hybrid Architecture	10%
TOTAL	**100%**

Response Limits

The examinee selects from four (4) or more response options the option(s) that best completes the statement or answers the question. Distracters or wrong answers are response options that examinees with incomplete knowledge or skill would likely choose, but are generally plausible responses fitting into the content area defined by the test objective.

Test item formats used in this examination are:

- **Multiple-choice:** examinee selects one option that best answers the question or completes a statement. The option can be embedded in a graphic where the examinee "points and clicks" on their selection choice to complete the test item.
- **Multiple-response:** examinee selects more than one option that best answers the question or completes a statement.
- **Sample Directions:** Read the statement or question and from the response options, select only the option(s) that represent the most correct or best answer(s) given the information.

Content Limits

1 Domain 1.0: High Availability and Business Continuity

1.1 Demonstrate ability to architect the appropriate level of availability based on stakeholder requirements
1.2 Demonstrate ability to implement DR for systems based on RPO and RTO
1.3 Determine appropriate use of multi-Availability Zones vs. multi-Region architectures
1.4 Demonstrate ability to implement self-healing capabilities

Content may include the following:

- High Availability vs. Fault Tolerance

2 Domain 2.0: Costing

2.1 Demonstrate ability to make architectural decisions that minimize and optimize infrastructure cost
2.2 Apply the appropriate AWS account and billing set-up options based on scenario
2.3 Ability to compare and contrast the cost implications of different architectures

3 Domain 3.0: Deployment Management

3.1 Ability to manage the lifecycle of an application on AWS
3.2 Demonstrate ability to implement the right architecture for development, testing, and staging environments
3.3 Position and select most appropriate AWS deployment mechanism based on scenario

4 Domain 4.0: Network Design for a complex large scale deployment

4.1 Demonstrate ability to design and implement networking features of AWS
4.2 Demonstrate ability to design and implement connectivity features of AWS

5 Domain 5.0: Data Storage for a complex large scale deployment

5.1 Demonstrate ability to make architectural trade off decisions involving storage options
5.2 Demonstrate ability to make architectural trade off decisions involving database options
5.3 Demonstrate ability to implement the most appropriate data storage architecture
5.4 Determine use of synchronous versus asynchronous replication

6 Domain 6.0: Security

6.1 Design information security management systems and compliance controls
6.2 Design security controls with the AWS shared responsibility model and global infrastructure
6.3 Design identity and access management controls
6.4 Design protection of Data at Rest controls
6.5 Design protection of Data in Flight and Network Perimeter controls

7 Domain 7.0: Scalability and Elasticity

7.1 Demonstrate the ability to design a loosely coupled system
7.2 Demonstrate ability to implement the most appropriate front-end scaling architecture
7.3 Demonstrate ability to implement the most appropriate middle-tier scaling architecture
7.4 Demonstrate ability to implement the most appropriate data storage scaling architecture
7.5 Determine trade-offs between vertical and horizontal scaling

8 Domain 8.0: Cloud Migration and Hybrid Architecture

8.1 Plan and execute for applications migrations
8.2 Demonstrate ability to design hybrid cloud architectures