AWS Certified Solutions Architect Associate

Crash Course Guide

How this Guide will help you?

This AWS Certified Solutions Architect Associate crash course provides an overview of the various AWS services and their use cases. By understanding the different AWS services and how they can be integrated, you can design and deploy scalable and resilient cloud architectures for your applications and services. Whether you are new to AWS or a seasoned cloud architect, this crash course can serve as a valuable resource for your AWS learning journey.

Exam Overview

- The AWS Certified Solutions Architect Associate certification is a widely recognized and respected credential that validates your expertise in designing and deploying scalable, fault-tolerant, and highly available systems on AWS.

- In this quick guide, you will learn the essential concepts and services needed to pass the exam and gain the skills necessary to design and deploy AWS-based solutions.

Exam Format

- No. of Questions : 65 (multiple-choice and multiple-answer questions)
- Duration: 130 Minutes
- Pass Score: 720 out of 1000
- Exam Fee: $150

AWS Fundamentals

This section covers the foundational concepts of AWS, including the ***AWS Management Console, Regions, Availability Zones,*** and ***Identity and Access Management (IAM).***

AWS Fundamentals - Explanation

- ***AWS Management Console***: The AWS Management Console is a web-based interface that allows you to access and manage your AWS resources. It provides a user-friendly interface for creating and managing AWS services, including EC2 instances, S3 buckets, and RDS databases.
- ***Regions***: AWS Regions are physical locations around the world where AWS resources are hosted. Each region consists of multiple Availability Zones, which are isolated data centers within a region. For example, the US East (N. Virginia) region has six Availability Zones.
- ***Availability Zones***: AWS Availability Zones are isolated data centers within a region. Each Availability Zone is designed to be independent and physically separate from other Availability Zones to ensure maximum availability and fault tolerance.
- ***Identity and Access Management (IAM)***: IAM is a service that enables you to manage access to AWS resources securely. IAM allows you to create and manage users, groups, and roles and control their access to AWS resources. For example, you can create an IAM user for your developers and grant them access only to the resources they need to do their job.

Compute Services

This section covers the various compute services offered by AWS, including ***EC2, Auto Scaling, Elastic Load Balancing,*** and ***Lambda.***

Compute Services - Explanation

- ***Elastic Compute Cloud (EC2)***: EC2 is a scalable virtual machine service that allows you to launch and manage instances of virtual servers in the cloud. EC2 instances can be configured with various CPU, memory, storage, and network options to meet different application requirements.
- ***Auto Scaling***: Auto Scaling is a service that allows you to automatically scale your EC2 instances based on demand. Auto Scaling can automatically launch new instances or terminate existing ones based on predefined scaling policies.
- ***Elastic Load Balancing (ELB)***: ELB is a service that automatically distributes incoming traffic across multiple EC2 instances to improve performance, availability, and scalability. ELB can be used with Auto Scaling to automatically scale the number of EC2 instances based on traffic.
- ***Lambda***: Lambda is a serverless compute service that allows you to run code without provisioning or managing servers. Lambda functions can be triggered by various events, such as changes to S3 objects or API Gateway requests.

Storage Services

This section covers the various storage services offered by AWS, including ***S3, EBS, EFS,*** and ***Glacier.***

Storage Services - Explanation

- ***Simple Storage Service (S3)***: S3 is a scalable and durable object storage service that allows you to store and retrieve any amount of data from anywhere on the web. S3 can be used for storing and sharing files as well as hosting static websites, and can also be integrated with other AWS services.
- ***Elastic Block Store (EBS)***: EBS is a scalable block storage service that provides persistent storage for EC2 instances. EBS volumes can be attached to EC2 instances and used as primary storage for applications or databases.
- ***Elastic File System (EFS)***: EFS is a scalable and fully managed file storage service that allows you to create and manage file systems that can be accessed from multiple EC2 instances concurrently. EFS can be used for storing and sharing files between multiple EC2 instances or for hosting content for web applications.
- ***Glacier***: Glacier is a low-cost and secure archival storage service that allows you to store large amounts of data for long-term retention. Glacier is suitable for storing data that is infrequently accessed and can be retrieved within several hours.

Database Services

This section covers the various database services offered by AWS, including ***RDS, DynamoDB, Aurora,*** and ***Redshift.***

Database Services - Explanation

- ***Relational Database Service (RDS)***: RDS is a fully managed relational database service that allows you to launch and operate a relational database in the cloud. RDS supports various database engines, including MySQL, PostgreSQL, Oracle, and SQL Server.
- ***DynamoDB***: DynamoDB is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability. DynamoDB is suitable for storing and retrieving large amounts of data, such as customer profiles or product catalogs.
- Aurora: Aurora is a MySQL and PostgreSQL-compatible relational database engine that provides high performance, scalability, and availability. Aurora is designed to be compatible with existing MySQL and PostgreSQL applications and can provide up to five times better performance than standard MySQL or PostgreSQL.
- Redshift: Redshift is a fully managed data warehouse service that allows you to analyze and query large amounts of data using SQL. Redshift is optimized for data warehousing and can handle petabyte-scale data sets.

Networking Services

This section covers the various networking services offered by AWS, including ***VPC, Route 53, Direct Connect,*** and ***Elastic Network Interfaces (ENIs).***

Networking Services - Explanation

- ***Virtual Private Cloud (VPC)***: VPC is a service that allows you to launch AWS resources into a virtual network that you define. VPC provides network isolation, security, and granular control over your network settings.
- ***Route 53***: Route 53 is a scalable and highly available domain name system (DNS) service that allows you to route incoming traffic to various AWS resources, such as EC2 instances, S3 buckets, and load balancers.
- ***Direct Connect***: Direct Connect is a dedicated network connection between your on-premises data center and AWS. Direct Connect can provide higher bandwidth, lower latency, and increased security compared to public internet connections.
- ***Elastic Network Interfaces (ENIs)***: ENIs are virtual network interfaces that can be attached to EC2 instances to provide additional network connectivity options. ENIs can be used to create advanced networking configurations, such as multiple network interfaces on a single EC2 instance.

Application Services

This section covers the various application services offered by AWS, including ***SQS, SNS, SWF,*** and ***API Gateway.***

Application Services - Explanation

- ***Simple Queue Service (SQS)***: SQS is a fully managed message queuing service that allows you to decouple and scale microservices, distributed systems, and serverless applications.
- ***Simple Notification Service (SNS)***: SNS is a fully managed messaging service that allows you to publish and subscribe to messages and notifications from various AWS services and applications.
- ***Simple Workflow Service (SWF)***: SWF is a fully managed workflow service that allows you to coordinate and track the execution of multiple distributed tasks and workflows.
- ***API Gateway***: API Gateway is a fully managed service that allows you to create, deploy, and manage APIs for your applications, including RESTful APIs and WebSocket APIs. API Gateway can be used to provide secure and scalable access to your backend services and data, and can also be integrated with other AWS services, such as Lambda and DynamoDB.

Real World Examples

To illustrate the different AWS services covered in this quick guide, here are some real-world examples:

Real World Examples - Explanation

- ***Netflix***: Netflix is one of the largest streaming platforms in the world, and it relies heavily on AWS to provide its services. Netflix uses EC2 instances to host its streaming servers, S3 to store its content, and DynamoDB to manage customer profiles and recommendations.
- ***Airbnb***: Airbnb is an online marketplace for short-term lodging and experiences, and it also uses AWS to power its platform. Airbnb uses EC2 instances to run its web servers and databases, S3 to store user-generated content, and CloudFront to deliver content to users.
- ***Expedia***: Expedia is an online travel agency that uses AWS to provide its services. Expedia uses EC2 instances to run its web servers and databases, S3 to store images and other content, and RDS to manage its databases.
- ***Lyft***: Lyft is a ride-hailing company that also uses AWS to power its platform. Lyft uses EC2 instances to run its backend services and databases, S3 to store user-generated content, and API Gateway to manage its APIs.

THANK YOU FOR READING!

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