

Syllabus of AWS Solutions Architect Certification

Cloud Basics

This session deals with the basics of cloud computing. Significant features of the cloud when compared with on-premises. You will get a good understanding of the difference between public, private and hybrid cloud environments. Discuss various cloud services like

- IAAS(Infrastructure As A Service)
- PAAS(Platform As A Service)
- SAAS(Software As A Service)

Introduction to AWS

Learning Objective:

Amazon web service is one of the leading cloud providers available in the market. AWS provides a variety of services for your business and helps you get through digital transformation for the future. You will be learning the AWS global infrastructure like Regions, Availability Zones and Edge Locations. Overview of services provided by AWS such as,

- Compute
- Storage
- Database
- Networking
- Security
- Applications

End of this session you will be having a good understanding of cloud concepts and its services and the Impact of AWS in a cloud environment.

Hands-on:

- Open AWS free tier account.
- Setup payment methods and billing preferences.
- Set alarm for free tier usage

Virtual Private Cloud

Learning Objective:

Logically isolated network devices (instances) from other AWS resources called VPC. You can provide your own private IPs for your instances. Your instances inside VPC will be interconnected together through VPC. Basic components of VPC to create a basic infrastructure is follows

- VPC
- Subnets
- Route Tables
- Internet gateway

End of this session you will have clarity of AWS regions, Availability Zones, and Edge locations. Also, you will learn CIDR concepts to get a better understanding of IP ranges.

Hands-on:

- Create and configure VPC, Subnets, Internet gateway, and Route Tables.
- Create NAT Gateway, NAT instances, VPC Peering, Endpoints.
- Different between NACL and Security groups

EC2

Learning Objective: EC2 provides a scalable computing capacity for your business. AWS has a wide range of instance

family (type) include Memory-optimized, CPU optimized, Networking, etc. You can create instances using Amazon Machine Images, which is preconfigured by Amazon. AWS lets you create your own AMI and you can choose from any AMI available in Amazon Marketplace as well. Instances are available in many options,

- On-demand
- Reserved
- Spot Instance
- Scheduled instance

As a solution Architect, you will be able to give a solution for your client to choose the perfect compute service for their business needs.

Hands-on:

- Create and launch different types of operating systems like Linux, Windows and connect them.
- Create AMIs and Snapshots and launch instances using them.
- Create additional Volume and attach it with your instance.

Storage

Learning Objective:

There are many storage options available in AWS as per your needs from short term to long term. In Amazon S3 you can store an unlimited amount of data. S3, EBS, EFS, FSx, Glacier, and DeepGlacier are some major storage options available in AWS. In this session, you will be learning storage classes available in S3 and its features, cost, etc. You will get a brief knowledge of storage classes so that you can suggest your client more cost-effective. Storage classes are,

- Standard
- Standard Infrequent Access
- Standard Intelligent Tier

- S3 Glacier
- S3 Glacier Deep

Hands-on:

- Create and attach EFS with instances
- Create S3 and apply lifecycle policy and replicate the bucket into another bucket.
- Create static Webhosting

Load balancing and Autoscaling

Learning Objective:

Load balancing and Autoscaling are the significant features available in a cloud environment. A load balancer is to split the traffic between servers and trigger the auto-scaling when needed. The load balancer checks the health of the instances at a proper time interval and takes the action according to it. There are three types of load balancers available,

- Classic Load balancer
- Application Load balancer
- Network Load balancer

End of this session you will understand the load balancer concept. You will have an idea to use a suited load balancer for your application.

Hands-on:

- Create a Load balancer and attach targeted instances into it.

Create an auto-scaling group and increase the instances when CPU utilization is high, and decrease the instances when CPU

- utilization is low.

Route 53

Learning Objective:

Route 53 is a DNS service available in AWS. You can register your domain here. Create a recordset to host your website or application. Understand the routing policies available in AWS and apply which is suitable for your environment. Routing policies are

- Simple
- Weighted
- Geographical
- Latency
- Failover

Hands-on:

- Register your Domain name
- Create recordset and apply a routing policy
- Configure Health check for your Load balancer or instance.

Cloud Front

Learning Objective:

Cloud front is also called Content Delivery Network. Cloud front creates a distribution (cache) for your website or Application at your nearest edge location. So the latency would be less for the next time user. You can block a particular country people to view your website. Analyze your website views from which OS, Browser, and users.in this session you will be engaged into the following topics,

- Origins and Origin groups
- Behaviors
- Restrictions

- Invalidations

Hands-on:

Create distribution for your website. Block a few country users viewing your website. Invalidate the previous cache and

- create a new one.

IAM

Learning Objective: IAM is to control your AWS resources most securely by limiting AWS users and other Services. You will be learning policies and the role and their major impact on the resources. Configure password policies and activate MFA. In this session, you will have knowledge on,

- Users
- Groups
- Roles
- Policies

Hands-on:

- Create users and add a user to the group. Attach the customized policy to that group.
- Perform cross-account access using STS

Relational Database Service

Learning Objective:

pyRDS is a SQL based fully managed Database service. Users don t need to worry a and maintenance. Replication costs you less and implementation is simple. RDS supports the following database engine,

- Aurora
- MySQL

- MsSQL
- MariaDB
- PostgreSQL
- Oracle

Hands-on:

- Create a database with replication on another Availability zone. Configure auto-scaling, daily backup, and auto-upgrade.
- Connect your database through database client and insert tables and contents into it. Apply some queries to retrieve data.

DynamoDB

Learning Objective:

DynamoDB is a NoSQL database service available in AWS. It is a replacement for MongoDB. It can handle 20 million requests per second and also can handle over 10 trillion requests per day. In-memory caching, Backup and restore are the significant features of DynamoDB. They are mainly used for gaming applications and IoT Applications. You will be learning the following topics,

- Scaling through performance
- Server less environment
- Microservices

Hands-on:

- Create and insert contents into the DynamoDB table. Configure and manage multi-region replication.

Monitoring (Cloud Trail & Cloud Watch)

Learning Objective:

Cloud trail keeps the logs for every activity happening into your AWS account. It does have the last 90 days activity by

default. In this session, you will be learning the different types of events available in the cloud trail and its example.

- Management event
- Data event
- Insight event

Cloud Watch

Cloud Watch is monitoring to fetch the logs and perform some action accordingly. There are two types of monitoring options available. Basic and detailed monitoring. You will learn to create logs and metrics and events. It triggers some action when event occurs. Topics involved in cloud watch are,

- Events
- Logs
- Metrics
- Alarms

Hands on:

- Create a cloud watch event to start a new instance when CPU utilization is high.
- Set alarm for the events and send notification

Application Services

Learning Objective : There are many application services available in AWS. SNS is the most commonly used application service. Simple Notification Services is to generate email notification and send it to the subscribers. Another application service we use is SQS. It is a replacement for the Microsoft queuing service. Application services covered in this session are as follows,

- Simple E-mail Service

- Simple Queue Services
- Simple Notification Service

Hands on:

- Create and send notification to the users
- Create and send messages using standard and FIFO messaging queue

Design and Architecture

Learning Objective:

As a solution Architect you will be able to give a solution for your client to create, implement and improve your cloud infrastructure by using the five pillars of well architect tools.

- Operational excellence
- Reliability
- Security
- Cost optimization
- Performance efficiency