

## Module 1

### Introduction to Cloud Computing & AWS

- What is Cloud Computing
- Cloud Service & Deployment Models
- How AWS is the leader in the cloud domain
- Various cloud computing products offered by AWS
- Introduction to AWS S3, EC2, VPC, EBS, ELB, AMI
- AWS architecture and the AWS Management Console, virtualization in AWS (Xen hypervisor)
- What is auto-scaling
- AWS EC2 best practices and cost involved.

## Module 2

### Elastic Compute and Storage Volumes

- Introduction to EC2
- Regions & Availability Zones(AZs)
- Pre-EC2, EC2 instance types
- Comparing Public IP and Elastic IP
- Demonstrating how to launch an AWS EC2 instance
- Introduction to AMIs, Creating and Copying an AMI
- Introduction to EBS
- EBS volume types
- EBS Snapshots
- Introduction to EFS
- Instance tenancy- Reserved and Spot instances
- Pricing and Design Patterns.

## Module 3

### Load Balancing, Autoscaling and DNS

- Introduction to Elastic Load Balancer
- Types of ELB – Classic, Network and Application
- Load balancer architecture
- Cross-zone load balancing
- Introduction to Auto Scaling, vertical and horizontal scaling, the lifecycle of Auto Scaling
- Components of Auto Scaling, scaling options and policy, instance termination
- Using load balancer with Auto Scaling
- Pre-Route 53 – how DNS works
- Routing policy, Route 53 terminologies, Pricing.

## Module 4

### Virtual Private Cloud

- VPC as a networking layer for EC2,
- IP address and CIDR notations,
- Components of VPC – network interfaces, route tables, internet gateway, NAT,
- Security in VPC – security groups and NACL, types of VPC, what is a subnet, VPC peering with scenarios, VPC endpoints, VPC pricing and design patterns.

## Module 5

### Storage – Simple Storage Service (S3)

- Introduction to AWS storage
- Pre-S3 – online cloud storage
- API, S3 consistency models
- Storage hierarchy, buckets in S3
- Objects in S3, metadata and storage classes, object versioning, object lifecycle management, cross-region replication, data encryption, connecting using VPC endpoint, S3 pricing.

## Module 6

### Databases and In-Memory DataStores

- What is a database, types of databases, databases on AWS
- Introduction to Amazon RDS
- Multi-AZ deployments, features of RDS
- Read replicas in RDS, reserved DB instances
- RDS pricing and design patterns
- Introduction to Amazon Aurora, benefits of Aurora, Aurora pricing and design patterns
- Introduction to DynamoDB, components of DynamoDB, DynamoDB pricing and design patterns
- What is Amazon Redshift, advantages of Redshift
- What is ElastiCache, why ElastiCache.

## Module 7

### Management and Application Services

- Introduction to CloudFormation
- CloudFormation components
- CloudFormation templates
- The concept of Infrastructure-as-a-code
- Functions and pseudo parameters
- Introduction to Simple Notification Service, how does SNS work
- Introduction to Simple Email Service, how does SES work
- Introduction to Simple Queue Service, how does SQS work.

## Module 8

### Access Management and Monitoring Services

- Pre-IAM, why access management
- Amazon Resource Name (ARN), IAM features
- Multi-factor authentication (MFA) in IAM, JSON
- IAM policies, IAM permissions, IAM roles, identity federation, pricing
- Introduction to CloudWatch, metrics and namespaces, CloudWatch architecture, dashboards in CW, CloudWatch alarms, CloudWatch logs, pricing and design patterns
- Introduction to CloudTrail, tracking API usage.

## Module 9

### Automation and Configuration management

- What is AWS Lambda
- How Lambda is different from EC2
- Benefits and limitations of Lambda
- How does Lambda work
- Use cases of Lambda, Lambda concepts
- Integration S3 with Lambda
- What is Elastic Beanstalk, how does Beanstalk work, Beanstalk concepts, Beanstalk pricing
- What is configuration management
- What is AWS OpsWorks, AWS OpsWorks benefits
- CloudFormation vs OpsWorks, services in OpsWorks, AWS OpsWorks Stacks, OpsWorks pricing.

## Module 10

### AWS Migration

- What is Cloud migration
- Why migration is important
- Migration process in AWS, the 6 R's migration strategy
- Virtual machine migration, migrating a local vm onto the AWS cloud
- Migrating databases using Database Migration Service (DMS)
- Migrating a local database to RDS
- Migrating an on-premises database server to RDS using DMS, other migration services.

## Module 11

### Architecting AWS – whitepaper

- Important guidelines for creating a well-architected AWS framework that is resilient and performant
- Designing of fault-tolerant and high-availability architecture

- Resilient storage
- Decoupling mechanism
- Multi-tier architecture solution
- Disaster recovery solution
- Scalable and elastic solutions.

## Module 12

### DevOps on AWS

- What is DevOps,
- Introduction to AWS DevOps,
- AWS Developer tools – CodeCommit, CodeBuild, CodeDeploy and CodePipeline, integrating GitHub with CodePipeline,
- Creating a DevOps lifecycle using AWS DevOps tools.

## Module 13

### Amazon FSx and Global Accelerator

- What is FSx
- Types of FSx and FSx for Windows server
- How does FSx for Windows File Server work, FSx for Lustre
- Use cases of FSx
- Automatic failover process
- Supported clients and access methods
- What is a Global Accelerator, How Global Accelerator works, Listeners and Endpoints
- What are AWS Organizations, Features of AWS Organizations, Managing multiple accounts
- What are ENIs, ENAs and EFAs, Working with network interfaces
- Enhanced Networking with ENA, EFA with MPI, Monitoring an EFA

## Module 14

### AWS Architect Interview Questions

- Guidance for clearing the exam, most probable interview questions and other helpful tips for clearing the exam and interview.

