

# AWS Course Content

## 1. Introduction to Cloud Computing

- History
- Client-Server Computing Concepts
- Problems with Distributed Computing
- What is Cloud Computing?
- Why Cloud Computing?
- Benefits of Cloud Computing

## 2. Cloud Computing Deployment Models

- Private Cloud
- Public Cloud
- Hybrid Cloud

## 3. Cloud Delivery/Service Models

- Software as a Service
- Platform as a Service
- Infrastructure as a Service

## 4. Linux Basics

- Linux basic Commands
- Linux basic Administration

## 5. AWS Services

- Amazon Elastic Compute Cloud (EC2)
- Amazon Simple Storage Service (S3)
- Elastic Block Storage (EBS)
- Elastic Load Balancing (ELB)
- Amazon Relational Database Service (RDS)
- Amazon DynamoDB
- Auto Scaling
- Amazon Elastic Cache
- Identity and Access Management (IAM)
- Virtual Private Cloud (VPC)
- CloudFormation
- Simple Email Services (SES)
- Simple Queue Services (SQS)

- Simple Notification Services (SNS)
- Server less computing (Lambda)
- Import/Export (Snowball)
- Cloud Formation
- Cloud Trail
- Elastic Beanstalk
- Cloud Front
- Route-53
- Glacier
- Key Management Service (KMS)

## 6. Introduction to AWS

- Subscription to AWS
- Introduction to the AWS Management Console

## 7. Elastic Compute Cloud (EC2) Essentials

- Regions and Availability Zones - Choose the right Region
- Amazon Machine Images (AMI)
- Working with AMIs
- Choosing the right AMI
- Deciding what goes into an AMI
- Finding the right AMI
- Pricing model in EC2 instances
- On-demand, Reserved, Scheduled, Spot instances, Dedicated Hosts
- EC2 Reserved Instance Marketplace
- Importing and Exporting Instances

## 8. EC2 Instances

- Building an EC2 Windows instance & Linux Instance
- Bootstrapping with user-data
- Setting up security
- Security with Key Pairs
- Working with the Security Group
- Different IPs assigned to an EC2 instance
- Assigning Elastic IPs

- Login/Access to the instance
- Creating your own custom AMI, Registering & Granting access to the AMI
- Placement groups
- EC2 instance protection
- Instance Roles
- Importing and Exporting Instances
- Elastic Network Interfaces
- Resources and Tags
- Accessing Meta-Data & use cases

## 9. Elastic Block Store

- EBS Volume Types
- EBS Encryption
- EBS Performance
- Instance Store volumes
- Instance Stores Available on Instance Types
- Instance Store Usage Scenarios
- Adding Instance Store Volumes to an AMI
- Optimizing Disk Performance
- Creating and deleting volumes
- Attaching and detaching volumes
- Mounting and Unmounting the attached volume
- Increasing the volume size
- Creating snapshots
- Creating Volumes & AMIs from Snapshots
- Cross-Region snapshot copy & use cases

## 10. Elastic Load Balancer

- What Is Elastic Load Balancing
- How Elastic Load Balancing Works
- Classic & App ELB types
- Creating load balancer
- Internal & External Load balancers
- Load balancing protocols
- Listener Configurations
- SSL Negotiation Configurations

- Attach & Detach Subnets
- Security groups for the load balancer
- Configure health check for the load balancer
- Adding multiple instances to the load balancer
- Custom Domain Names
- Cross-Zone Load Balancing
- DNS Failover
- Sticky Sessions
- Monitoring and Logging
- Connection Draining
- ELB traffic logging

## 11. Auto Scaling

- What is Auto Scaling?
- Auto scaling components
- Benefits of auto scaling
- Creating launch configuration and its prerequisites
- Creating Auto Scaling Groups (ASG)
- Attach & Detach EC2 Instances in ASG
- Configuration of Auto scaling policies based on the Load on EC2 instances.
- Using Auto scaling with an Elastic Load Balancer
- Temporarily Removing Instances
- Suspend and Resume Process
- Shut Down Your Auto Scaling Process
- Monitoring Your Auto Scaling Instances
- Health Checks
- Getting Notifications When Your Auto Scaling Group Changes

## 12. Simple Storage Service (S3)

- Creating and deleting buckets
- Adding objects to buckets
- Getting objects
- Deleting objects
- Notifications
- Uses of S3 storage

- Working with Permissions of S3, Access Control, Bucket policy
- S3 Data encryption types
- Enable Versioning, Logging for S3 objects
- Lifecycle rules in s3
- Accessing S3 storage with Tools
- Hosting a Static Website
- Cross-Origin Resource Sharing
- Cross-region replication
- Audit Logging with AWS Cloud Trail

### 13. Glacier Storage

- Creating Vaults
- Working with Archives
- Accessing the Glacier vault using tools
- Using Glacier for backups
- Job Operations
- Data Retrieval Policy Operations

### 14. Identity and Access management (IAM)

- Creation of user accounts
- Setting up multi-factor Authentication (MFA)
- Roles in IAM
- Groups in IAM
- Delegation of permissions for users
- Creation of custom policies for delegation
- Using Identity Providers
- Cross-Account Access
- Account settings
- Credential Report
- Encryption - Key Management Service (KMS)

### 15. Virtual Private Cloud (VPC)

- Different types of networks that can be setup in AWS
- Creating a custom VPC
- NACLs & Security Groups
- Creation of Internet Gateway

- Connecting to instances in the gateway
- Subnets, Route Tables & Association
- NAT Instances & NAT-Gateways
- DHCP Options Sets & DNS
- VPC Peering
- VPN overview & components

## 16. Route 53

- Configuring Amazon Route 53 as Your DNS Service
- Registering a Domain Name
- Configuring Amazon Route 53 as the DNS Service
- Migrating DNS Service for an Existing Domain to Amazon Route 53
- Creating a Sub domain That Uses Amazon Route 53 without Migrating the Parent Domain
- Working with Public Hosted Zones
- Working with Private Hosted Zones
- Working with Resource Record Sets
- Health Checks and DNS Failover
- Creating, Updating, and Deleting Health Checks
- Transferring a Domain from a Different AWS Account or Registrar
- Using IAM to Control Access to Amazon Route 53 Resources

## 17. Cloud watch

- Debugging cloud related issues
- Monitoring the AWS Service Health Dashboard
- Monitoring with Cloud watch
- Getting statistics for a specific EC2 instance
- Getting aggregated statistics
- Metrics for other AWS Services and related namespaces
- Setting up notifications

## 18. Simple Notification Services

- Creation of a topic
- Subscribing to topic via Email

- Setting notification for EC2 instance changes

## 19. Simple Queue Service

- Creation of a queue
- Sending messages to the queue
- Sending SNS to SQS
- Retrieving messages from SQS

## 20. Simple Email Services

- Setting up email domain
- Limits of SES
- Test Email setup

## 21. Elastic Beanstalk

- Creation of Web-App using Elastic Beanstalk
- Building a sample application using Beanstalk
- Modifying the properties of the deployment

## 22. Relational Database Service (RDS)

- DB Instances
- Selecting the DB-Engine
- Configuring the Database Server
- Creating your Database
- Setting up automatic backups, snapshots & restores
- Authorizing access to the DB with RDS Security Groups
- DB Instance Replication
- Security: Using IAM to Manage Access to Amazon RDS Resources
- RDS Limits
- Managing MySQL Database server
- DB Instance Life Cycle: Renaming a DB Instance
- Deleting or Rebooting a DB Instance
- Working with Storage Types
- Upgrading a DB Instance
- Working with Option Groups & DB Parameter Groups
- Working with Reserved DB Instances
- Monitoring
- Database Log Files

## 23. Cloud Front

- How Cloud Front Delivers Content
- Working with Distributions
- Working with Web Distributions
- Working with Objects
- Request and Response Behaviour
- Serving Private Content through Cloud Front
- Using an HTTPS Connection to Access Your Objects
- Using IAM to Control Access to Cloud Front Resources
- Monitoring Cloud Front Activity Using Cloud Watch

## 24. ElastiCache

- ElastiCache Terminology and Concepts
- Backup and Restore
- Clusters Explanation
- CloudWatch Metrics with ElastiCache
- Managing ElastiCache
- Managing Replication Groups
- DNS Names and Underlying IP

## 25. Cloud Formation

- Building AWS infrastructure as a code
- Utilization of Sample templates
- Introduction to JSON