

AWS Course Content

Introduction

Section: 1

- . About the course
- . Introduction - Cloud Computing and Virtualization
- . Cloud Service & Deployment Models, Mapping - Enterprise DC & AWS
- . AWS Virtualization, Xen
- . Web Servers, Web Services, APIs
- . SLA
- . RPO & RTO
- . High Availability vs Fault Tolerance
- . Latency vs Throughput

Section 2:-

Compute - EC2 (Elastic Compute Cloud) Pre-EC2: Virtual Machines, EC2 definition

- Regions and Availability Zones
- AMI, Instance Types, Demo vCPU, Root Device Volume, Key Pair, Demo
- Elastic IP, Instance Metadata, Public Key, Demo
- AMI Copy, AMI Permissions, Demo
- ENI, Instance Tenancy, Dedicated Instance and Host
- Pricing, Reserved and Spot Instances, Design Patterns
- EC2 Summary

Section 3:-

Storage - EBS (Elastic Block Store) Pre-EBS - File System and Storage Layer Concepts

- EBS concepts, Throughput & IOPS
- Volume Types - GP2, IO1, ST1 and SC1
- Demo - Volume Operations
- Snapshots Snapshot Demo - copy operations
- Encryption, Pricing, EBS Optimization, Design Patterns (RAID, DR)

Section4:-

Network - VPC (Virtual Private Cloud)

Pre-VPC - Basic Networking, Router, CIDR, IP address detail

- Pre-VPC - Subnet, Firewalls, Stateful and Stateless firewalls
- Subnets, Public & Private Subnets, Default VPC & Subnets, Demo
- Demo Continued Firewalls in AWS VPC - Security Groups and NACLs

- Demo: 3-tier architecture using Security Groups Route Tables, NAT Gateway & NAT Instance
- NAT Demo
- VPC Peering -
- VPC Endpoints, VPC Flow Logs
- VPC Flow Logs Demo
- Pricing and Design Patterns
- Bastion Host

Section: 5

Network - ELB (Elastic Load Balancer)

- Pre-ELB, Classic Load Balancer and its architecture
- CLB Demo
- Cross-zone load balancing, Listeners and Health Checks
- Cross Zone Load Balancing Scenarios
- Application Load Balancer, Target Groups, Listener Rules, Demo SSL connections, Network Load Balancer, Demo. High Availability using Load Balancer - Demo
- Pricing and Design Patterns

Section: 6

Compute - Auto Scaling

- Pre-AS: Vertical and Horizontal Scaling, AWS Auto Scaling, Launch Configuration
- Launch Template, Dynamic Scaling, Simple Scaling Policy, Cooldown Period
- Demo - Dynamic Scaling with Simple Scaling Policy, Desired Capacity
- Step Scaling, Demo
- Manual Scaling, Schedule Scaling - Demo
- Instance Termination, Pricing and Design Patterns
- Load Balancer and Auto Scaling Integration

Section: 7

Network - Route53

- Pre-Route53: How DNS works, A Name record, CNAME, Alias and Latency Route53 Terminologies, Public/Private Hosted Zone, DNS Support - Demo
- Simple and Failover Routing Policies, Demo
- Latency Based & Geolocation Routing Policies, DNS Failover, Demo
- Complex Routing Demo, Route53 with ELB, Demo Complex Routing II
- Pricing, Design Patterns, Blue-Green Deployment

Section: 8

Storage - S3 (Simple Storage Service)

- Pre-S3: Online Storage, S3 Introduction, Consistency Models, Demo
- Storage Hierarchy, Buckets, Transfer Acceleration, Requestor Pays, Object Keys
- Object Metadata, S3 Storage Class, Demo
- Object Versioning, Demo
- Lifecycle Management, Storage Class Analysis, Demo
- Cross Region Replication, Demo
- Permissions, Data Encryption, Demo
- Static Website Hosting on S3, Integration with Route53, Demo
- Pricing and Design Patterns

Section: 9

Storage - EFS (Elastic File Store)

- Pre-EFS: Shared File System, EFS, Mount Target, Mount a file system
- EFS Demo
- EFS File Sync, Pricing

Section: 10

Security & Identity - IAM (Identity and Access Management)

- Pre-IAM: Authentication, Authorisation, Users and Groups
- Amazon Resource Name (ARN), IAM Hierarchy
- IAM Users, Groups, MFA
- Demo - IAM users, groups, MFA
- ROOT User, JSON, IAM Policies, Resource & User based policies
- Demo-1 - IAM Policies
- Demo-2 - IAM Policies - Resource Based Policies
- Policy Evaluation Logic, IAM Roles, Cross-account Roles
- Demo - IAM Roles & Cross-Account Roles
- EC2 Instance Profile, Demo4:39
- Identity Federation - Web Id & SAML

Section:- 11

Command Line Interface

- CLI concepts, Setup, Use users or roles with CLI - Demo

Section:- 12

Encryption and KMS (Key Management Service) - Basic, without Demo and Lab

- Pre-KMS: Encryption Primer, DEK, CMK, Envelope Protection, KMS Components
- Demo - KMS
- Integration with EBS, RDS, S3 etc. , Pricing

Section: 13

Database - DynamoDB (NoSQL from AWS)

- Pre-DynamoDB: NoSQL Introduction and its requirement in today's world
- DynamoDB Intro, Table Components, Primary Key, Indexes - GSI & LSI , APIs
- Consistency Model, Capacity Units - RCU & WCU, How to calculate RCU & WCU
- DynamoDB Demo
- .DynamoDB Partitions
- Accessing Database, Backup & Restore, Demo
- DynamoDB Streams, Demo
- Replication using Global Tables
- Pricing and Design Patterns

Section: 14

Database - RDS (Relational Database Service)

- Pre-RDS - RDBMS, RDS Intro, DB instance, VPC in RDS, Multi-AZ
- Demo - DB Instance, Subnet Groups, Multi-AZ deployment, DB Instance modification
- RDS Maintenance, Upgrades, Backup & Restore - Demo
- Read Replica, Demo
- Option & Paramter Groups, Encryption, Reserved DB Instances, Events & Log Files
- Pricing and Design Patterns
- RDS Aurora Cluster, Different Endpoints, VPC in Aurora, Master User - Demo

Section: 15

Notification - Simple Notification Service (SNS)

- Pre-SNS: Subscriptions, SNS Topic - Demo
- Sending SMS messages, Design Pattens and Pricing

Section: 16

Monitoring – CloudWatch

- Pre-CW: why monitor, Architecture, Metrics, Namespaces, Dimension, Statistics
- CW Dashboard - Demo
- CloudWatch Alarms - Demo
- CloudWatch Logs, Log Agent
- CloudWatch Log Agent Demo - Send application logs to CloudWatch

- CloudWatch Events - Demo
- Pricing & Design Patterns

Section: 17

Auditing & Management - CloudTrail, Trusted Advisor, AWS Config

- CloudTrail: Event History, Trails, Log Encryption - Demo
- Trusted Advisor- Demo
- AWS Config

Section: 18

Migration Services

- Migration Strategies - Green-Brown Field, The R's, Plan & Discover, Landing Zone
- SMS (Server Migration Service)
- AWS Import/Export & Snowball
- VM Import/Export

Section: 19

Automation - Infrastructure as a Code (IaC)

- CloudFormation - Templates, Resources, Parameters, Stacks
- CloudFormation Demo - Launch EC2 Instance & Parameterize it, DeletionPolicy
- CloudFormation - Mappings, Functions, Pseudo Parameters
- CloudFormation Demo
- CloudFormation Assignment

Section: 20:- Certificate Preparations and Mock interviews

Overview of Ansible and Terraform