



# CODING

# CREATORS

## AWS Solution Architect Syllabus

### INTRODUCTION TO CLOUD COMPUTING

- What is Cloud?
- Cloud Service Models:
  - IAAS (Infrastructure As A Service)
  - PAAS (Platform As A Service)
  - SAAS (Software As A Service)
- Cloud Deployment Models:
  - Private Cloud
  - Hybrid Cloud

### INTRODUCTION TO AMAZON WEB SERVICES


- What is AWS? AWS Global
- Infrastructure & Components Regions,
- Availability Zones and Endpoints
- How to Subscribe for AWS account
- What are the AWS Free Tier Limits and Usage?
- Pillars of the AWS Well-Architected Framework
- AWS Certification paths
- Navigate AWS Console List of services given by AWS


### AMAZON EC2


- What is EC2?
- Instance Types
- Instance lifecycle
- Security groups
- IP Addressing
- Assigning Elastic IP
- Security from Key pairs
- Pricing Model in EC2 Instances
- Understanding Reserved Instances
- Building Linux and Windows Instances
- Connecting Instances from Different Platforms
- Network Interfaces
- EIP
- EC2 Troubleshooting Scenarios

### AMAZON MACHINE IMAGES (AMI)

- What is AMI? Managing AMI's
- Working with Linux and Windows
- AMI's Shared and Paid AMI's
- Web Server Configuration
- Creating own AMI's
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- Making an AMI Public
- AMI Market place
- What is Virtualization?

- Standard vs fifo

#### AWS COMMAND LINE (AWS CLI)

- Introduction to AWS CLI?
- Useful features in AWS CLI
- Prerequisites for CLI
- Installing AWS CLI on Windows and Linux
- Generating Access Keys and Secret Key
- Configuring AWS CLI
- Running Commands

#### IDENTITY ACCESS MANAGEMENT (IAM)

- IAM initial setup and configuration
- What is a policy?
- Policies creation
- IAM Roles
- IAM Groups and Policies
- User and Group settings
- What is MFA
- How to configure MFA
- Cross account access

#### CLOUD TRAIL

- What is cloud Trail
- Tracking User Activity
- Benefits
- Trails

#### AMAZON SQS

- What is SQS?
- SQS benefits
- Types of messages

#### SIMPLE NOTIFICATION SERVICE (SNS)

- What is SNS?
- SNS Topics
- Subscriptions
- Subscribing topic via email
- Setting notification for EC2 instance changes

#### CLOUD WATCH

- Introducing cloud watch dashboards
- Cloud watch Architecture
- Monitoring the AWS service health dashboard
- Monitoring the cloud watch
- Getting statistics for a specific EC2 instance
- Setting up notifications

#### NETWORKING BASICS

- What is network?
- Network topologies
- OSI reference models
- Ipaddresses and classes
- Difference between private and public ipaddress
- Description of Subnet, gateway, router...etc
- Different networking components
- Router, Gateway
- Subnets, CIDR

## VIRTUAL PRIVATE CLOUD (VPC)

- What is Amazon VPC?
- VPC Essentials
- Default and Non-Default VPC
- VPC networking and ACL
- Security Groups
- Route Tables public and private
- DNS and DHCP options set
- VPC Peering and end points
- Subnets
- Subnet Routing
- VPC Internet Gateway
- Elastic IP addresses and network interfaces
- Extending on-premise networks with VPC
- VPC integration with other services
- Creating NAT Instance
- Configuring web application in VPC
- Trouble shooting scenarios
- Network monitoring with flow logs
- Endpoints
- DNS hostnames
- VPC Peering

## NETWORK & SECURITY

- • ~~Security Groups~~
- ACLS
- Elastic IPs
- Placement Groups
- Key Pairs
- Network Interfaces
- Secure VPN Connection
- Site to site VPN connection
- Tunneling
- Transit gateways
- Traffic mirroring
- VPC Trouble shooting

## AMAZON ROUTE 53

- What is DNS?
- What is Hosted Zone and Record sets
- Route53 as your DNS service
- Route53 basics
- Domain Registration
- ELB Address Record
- Different types of routing policies
- Route53 and DNS failover for S3 bucket
- Health Checks

## EC2 INSTANCE STORE & EBS

What is Instance Store? How to launch instance with instance store volume

What is EBS?

EBS Performance

Difference between instance store and EBS

Features of Amazon EBS

Amazon EBS Volumes

EBS Ephemeral

Managing EBS Volumes

Creating and Deleting EBS Volumes

Attaching and Detaching EBS Volumes

Increasing EBS Volumes

Amazon EBS Snapshots

Automatic snapshots

EBS Lifecycle

Lifecycle Manager

## SIMPLE STORAGE SERVICE (S3)

- What is object storage?
- What is bucket?
- Storage classes
- Creating and deleting buckets



- Getting an object
- Static website hosting with S3
- Uses of s3 storage
- S3 IAM and Bucket policies
- Working with permissions of S3
- Object versioning
- Object lifecycle
- Bucket cross Region

#### **GLACIER STORAGE**

- Introduction to glacier
- What are vaults
- Creating a glacier vault
- Storing archives in vaults

#### **AMAZON EFS**

- What is Elastic File System?
- What is NFS?
- How to configure in different AZ's
- Mounting Amazon EC2 Instances
- Difference between EBS and EFS
- Understanding Block storage and Object storage
- Understanding file storage and Block storage

#### **SNOWBALL, SNOWBALL EDGE, SNOW MOBILE**

- Data Migration & Transfer
- What is snowball
- How device difference
- Use cases
- Benefits
- Use Case Differences
- Storage Capacity

#### **RELATIONAL DATABASE SERVICE (RDS)**

- What is RDS?

- Working with the RDS
- Deploying database Engine
- RDS security Groups and Connecting to RDS from EC2
- Subnet Groups
- Group Parameters
- MySQL, PostgreSQL, Aurora and Maria DB on RDS
- Multi AZ's
- RDS Backups
- Snapshots
- Read Replicas

#### **AMAZON DYNAMO DB**

- What is NoSQL?
- Creating tables
- views
- Getting started with Dynamo DB
- Local and Global Secondary Indexes
- Dynamo DB overview and Limits
- Provisioned Throughput
- Backups

#### **AMAZON ELASTIC CACHE**

- Overview
- Types of caches
- Types of nodes
- Mem cache
- Redis

#### **ELASTIC LOAD BALANCING (ELB)**

- What is ELB?
- Creating a load Balancer
- Load balancer Types
- What is Classic and Application ELB
- Network Load Balancer
- Internal and External load balancer
- Load balancing protocols

- Health check for the load balancer
- Adding multiple instances to the load balancer
- ELB with Scaling
- Cross zone Load balancing

#### **AUTO SCALING**

- What is Auto Scaling?
- Auto Scaling Components
- CloudWatch metrics
- Benefits of Auto scaling
- Auto Scaling Use cases
- Creation of launch Configuration

#### **LIGHTSAIL**

- What is Lightsail?
- Manage instances
- Virtual private servers with LightSail
- Deploying LAMP stack
- Deploying other applications
- Connecting instances

#### **LAMBDA**

- What is a serverless?
- What is LABMDA?
- Serverless in aws
- Traditional vs serverless
- Which services do we need?
- Create function
- What Lambda supported languages

#### **AMAZON CLOUD FORMATION**

- What is code as Service

- CloudFormation components
- Cloud Formation Essentials
- Building AWS Infrastructure as a code
- Building an S3 bucket with cloud formation
- Deploying aws resources
- Deploying a website S3 bucket
- Configuration
- Deploying VPC

#### **ELASTIC BEANSTALK**

- Elastic Beanstalk Essentials
- Getting started with EB.
- Deploy, manage, scale an application
- Work flow of Elastic Bean Stalk
- Components and usage
- Create Application
- Launch Environment
- Manage Environment
- Creating application source bundle

#### **SYSTEMS MANAGER**

- What is systems manager
- Resource Groups
- Automation
- Managed instances
- State manager
- Patch Manager
- Session Manager

#### **RESUME PREPARATION ROLES & RESPONSIBILITIES**



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