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### **AWS Cloud Solution Architect**

#### Module 1: AWS Cloud Computing Basics - Changed

**Learning Objective:** In this Module you will learn about AWS Cloud Computing Basics,

Creation of a Free AWS Account, Understanding of AWS Architecture & Support Plan

- Cloud Computing- laaS, SaaS, PaaS
- Overview of AWS Cloud
- AWS Global Infrastructure
- AWS Free Tier Account Creation
- AWS Management Console
- AWS Region
- AWS Availability Zone(AZ)
- AWS Support Plan
- AWS Payment Method
- Setting up Billing/Budget Alarm

#### Module 2: Identity and Access Management (IAM)

**Learning Objective:** In this Module you will learn about Identity and Access Management

(IAM), AWS Roles/Permissions & How to give access of your AWS account to other users

- Identity and Access Management (IAM)
- Create IAM Users & Group
- Copy Permission from existing users
- Applying Policies/Permission to Groups



- IAM Users Sign-in Link
- Set Password Policy for IAM Users
- Activate Virtual Multi-Factor Authentication(MFA)
- Create access keys, Activate/deactivate keys

#### Module 3: Virtual Private Cloud (VPC)

**Learning Objective:** In this Module you will learn VPC, Subnet, CIDR and Difference in

**Default and Custom VPC** 

- Basic of Networking
- Virtual Private Cloud(VPC)
- CIDR/IP Range & Subnet
- Understanding & Working on Default VPC
- Creating Custom VPC
- Adding CIDR in VPC
- Creating Subnet in VPC

# Module 4: Components of VPC i.e. Route Table, NACL, SG, Internet Gateway (IG)

**Learning Objective:** In this Module you will learn about various components of VPC

- Understanding Route Table
- Create Custom Route Table
- Add Route in Route Table
- Associating Subnet to Route Table
- Internet Gateway
- Create Custom Internet Gateway



- Attach Internet Gateway to VPC
- Security Group(SG)
- Understanding Default SG
- Create Custom SG
- Create Inbound & Outbound Rule
- Permit Rule in SG
- NACL (Network Access control List)
- Understanding Default NACL
- Create Custom NACL
- Create inbound & outbound rule
- Associate NACL to Subnet
- Difference Between NACL & SG

#### **Module 5: EC2**

**Learning Objective:** In this Module you will learn about EC2 creation, EC2 families,

Amazon Machine Image and EC2 Deletion

- Basic of Virtualization
- What is EC2
- EC2 Instance Families
- Amazon Machine Image(AMI) & AWS Marketplace
- Delete on Termination settings
- Launching an EC2 Instance
- Create Public/Private Key Pair
- EC2 SLA
- Shared & Dedicated Host, dedicated Instance
- EC2 Instance State
- Stop & Start of EC2 Instance



- EC2 Shutdown behavior
- Enable EC2 Termination Protection
- EC2 Elastic IP
- EC2 Instance State
- EC2 Hibernation

#### Module 6: NAT Instance, NAT Gateway & VPC Peering

**Learning Objective:** In this Module you will learn NAT Type & Peering between VPC

- Need of NAT
- Understanding of NAT Instance
- Private & Public Subnet
- Source/Destination Check setting
- Understanding of NAT Gateway
- Need of VPC Peering
- Create Peering Connection and test
- Editing Route Table for VPC peering to work

#### Module 7: Elastic Block Storage (EBS) & Instance Store

Learning Objective: In this Module you will learn about Type of Storages

- What is EBS
- Create EBS Volume
- Type of EBS Volume
- General Purpose & Provisioned IOPS SSD
- Throughput Optimized & Cold HDD
- What is Instance Store Volume
- Persistent/Non-Persistent volume



- Hot Add EBS Volume
- Hot Extend & Modify EBS Volume
- EBS Volume SLA
- EBS Backed Instance & Instance Store Backed Instance

### Module 8: Reserved Instance, On Demand Instance, Saving Plans, Spot Instance

**Learning Objective:** In this Module you will learn about multiple ways to Save Cost in

#### **AWS**

- EC2 Purchasing Options
- On Demand Instance
- Reserved Instance
- Standard & Convertible EC2
- EC2 Saving Plan
- EC2 Spot Plan
- Spot Instance Pricing History
- Spot Instance Use Cases

### **Module 9: ENI & Placement Groups**

**Learning Objective:** In this Module you will learn about ENI & different types of Placement Groups

- Elastic Network Interface(ENI)
- Attach ENI to EC2
- Assign Elastic IP to ENI
- What is Placement Group
- Need of Placement Group



- Cluster Placement Group Spread Placement Group
- Partition Placement Group

#### Module 10: EBS Snapshot, EBS Volume Migration

Learning Objective: In this Module you will learn about EBS Snapshot

- Create Snapshot of EBS Volumes
- Restore Snapshot
- Incremental Nature of snapshot
- Copying Snapshot
- Migrating EBS from one AZ to another AZ using Snapshot
- Migrate EBS from one Region to another Region using Snapshot

# Module 11: EBS Encryption, KMS, Private & Public Snapshots, Sharing & Copying EBS Snapshot, Creating AMI

**Learning Objective:** In this Module you will learn about EBS Volume & Snapshot Encryption, the ways to share the snapshot in AWS, Encryption of Disk to protect data &

Creation of AMI

- What is Encryption
- Key Management Service(KMS)
- Encryption keys- Customer Managed Key & AWS Managed Key (Default key)
- Encrypted EBS Volume
- Encrypted Snapshot
- Encryption At Rest
- Encryption in Transit
- Changing the Encryption State
- Private and Public Snapshots



- Sharing EBS Snapshot
- Copying EBS Snapshotv
- Creating Custom Amazon Machine Image (AMI)
- De-Registering AMI
- Deleting AMI

### Module 12: Elastic Load Balancer, Installing IIS, Testing Load Balancer & Auto scaling deep dive

**Learning Objective:** In this Module you will learn about Load balancer & Auto Scaling

- What is Load Balancer
- Types of Load Balancer
- Working on Classic Load balancer
- ELB Nodes
- Adding EC2 in Load balancer
- Configuring health Check in ELB
- Installing IIS in EC2
- Test Load Balancer in Action
- Need of Auto scaling
- Auto Scaling Components
- Launch Configuration
- Auto Scaling Group
- Auto Scaling Policies
- Re Balancing in Auto Scaling
- Cloud Watch with Auto Scaling
- ELB with Auto Scaling



Module 13: S3 storage, S3 objects Cross Region Replication, Hosting Website in S3, SNS, Relational Database RDS, Configure Active Standby RDS & Check Failover, Create Read Replica

**Learning Objective:** In this Module you will learn about S3, S3 Replication and Creation of Static Website using S3

- Simple Storage Service S3
- \$3 availability & Durability
- S3 Bucket
- Versioning in S3
- Configuring Cross Region Replication
- S3 Storage Class Type & SLA
- Hosting Static Website in S3
- Creating topic in Simple Notification Service (SNS)
- Configuring Simple Notification Service (SNS) on S3
- What is Relational database
- Relational Database as a services (RDS)
- Creating Active & Standby RDS
- Multi-AZ Deployment of RDS
- Perform Failover
- Create Read Replica
- Test using MySQL Workbench

Module 14: Redshift, Kinesis, AWS Lambda, Dynamo DB, Route 53, Testing Routing Policies, Creating A Record, CNAME Record, Alias Record

**Learning Objective:** In this Module you will learn about Global DNS & Different Type of Database



- Redshift
- Redshift Use Cases
- What is Non-Relational Database
- Dynamo dB
- Dynamo dB Use Cases
- Testing Dynamo dB
- Kinesis
- Kinesis Use Cases
- Lambda
- Lambda Use Cases
- What is Route 53
- Create Hosted Zone
- Creating A & CNAME Record
- Creating Alias record
- How to register Domain name
- Check Health of Resource
- Test different routing policies
- Using ELB in Route53
- Using S3 in Route53

Module 15: Cloud Front, Cloud Formation, SQS, Cloud Trail AD Connector, IAM Roles for EC2 and S3 access, On premises user Integration with Cloud(Hybrid Cloud),

**Learning Objective:** In this Module you will learn about use of CDN in cloud, logging &

Messaging Service in AWS, Achieving SSO using AD Connector

- CloudFront
- Using S3 as CloudFront Edge Location



- Create CloudFront
- CloudFormation
- Test Cloud Formation using JSON template
- CloudTrail to Check Logs
- What is Simple Queue Service(SQS)
- Create a Queue & Send Message
- Creation of Domain Controller (DC)
- Creation of AD Connector
- On Premises DC Integration using AD Connector

# Module 16: Deploying & Configuring Fortinet Firewall, VPG & VPN Setup, Letter of Sorry (Bill reversal)

**Learning Objective:** In this Module you will learn how to connect your on premises office to AWS cloud using VPN and you will learn how to raise a Bill Reversal Request

- Need of VPN
- How to Setup VPN
- Virtual Private Gateway(VPG)
- Deploy Fortinet Fortigate Firewall
- Configuring Firewall
- Create Site To Site VPN Tunnel
- Test connectivity using EC2 in 2 different regions
- Request for Reversal of Charges