

I will help students:

- ⇒ To develop skills on cloud computing technologies- AWS, Microsoft Azure, and more
- ⇒ Help to prepare for Amazon Web Services Certification Exam - AWS Certified Solutions Architect- Associate Level & AWS Certified SysOps Administrator - Associate Level
- ⇒ Practical & Theory Ratio will be 7:3.
- ⇒ Hands on training with live demonstrations
- ⇒ Power Point Presentation, Live Demos, Interactive Question & Answer sessions and comprehensive reading material with digital content
- ⇒ Will provide exam notes & practice exams which will include a series of sample exam questions

Below topics will be covered for Amazon Web Services Cloud Computing courses:

### **1. Introduction to Amazon Web Services (AWS) & the Cloud**

What Is Cloud Computing & Advantages of Cloud Computing

AWS Architecture and Terminology, AWS Regions and Availability Zones

Understanding How AWS is Physically Set Up

Understanding AWS, Understanding EC2 , Understanding Amazon Elastic Block Store (EBS) & Amazon Simple Storage Service (S3)

Understanding VPCs, Understanding RDS

Selecting the appropriate AWS service based on compute, data, or security requirements

Cloud Service Models, Essential Characteristics & Cloud Computing Deployment Models

LAB - Navigate the AWS Management Console

### **2.AWS Elastic Compute Cloud- AWS EC2**

Understanding EC2 Instance Types, The Lifecycle of Instances

Storage Options for EC2 Instances & Advanced EC2 Features

LAB- Deploying an EC2 Linux and EC2 Windows Instance, Security Groups, Monitoring and Reporting

### **3. AWS Storage Fundamentals**

High Level view of AWS Storage Solutions

Amazon Simple Storage Service (S3), Amazon Glacier, Amazon Elastic Block Store (EBS), Amazon Cloudfront & AWS Storage Gateway

Managing Instance Volumes Using EBS, EBS Snapshots and Replication

LAB- AWS EBS- Creating and Deleting EBS Volume, Attaching & Detaching EBS Volume and Creating Snapshot etc.

### **4. AWS Simple Storage Service (S3)**

AWS Simple Storage Service (S3) Essentials, S3 Bucket/Object Versioning And Life Cycle Policies

Moving Objects Into S3, Handling Bucket And Object Permissions, Accessing S3 Objects, Protecting Data In S3

AWS S3 Concepts & Advanced S3 Features, Hosting A Website In S3

Amazon Simple Storage Service (S3), Amazon Elastic Block Store (EBS) and Amazon CloudFront storage solutions

Amazon Glacier - Archives, Vaults, Vaults Locks & Data Retrieval

Amazon Glacier versus Amazon Simple Storage Service (Amazon S3)

LAB- S3 Bucket Policy and Versioning

LAB- Enabling S3's Life Cycle feature - Lifecycle Policies  
LAB- Creating A Static Hosting Website With S3

## **5. Amazon IAM (Identity And Access Management)**

Understand the security measures AWS provides and key concepts of AWS Identity and Access Management (IAM)

IAM Best Practices For New Accounts, Building IAM Policies & Using IAM Roles with EC2

LAB- IAM - Creating and Managing User Access

LAB- Logging IAM events on CloudTrail

## **6. Amazon VPC (Virtual Private Cloud) And Networking**

Introduction To VPC And AWS Networking, AWS Networking Architecture

Subnets, Route Tables, Internet Gateways

Dynamic Host Configuration Protocol (DHCP) Option Sets

Elastic IP Addresses (EIPs), Elastic Network Interfaces (ENIs)

Endpoints & VPC Peering

Security Groups, Network Access Control Lists (ACLs)

Network Address Translation (NAT) Instances and NAT Gateways

NAT Instance, NAT Gateway

Virtual Private Gateways (VPGs), Customer Gateways (CGWs), and Virtual Private Networks (VPNs)

VPC Networking, VPC Security

VPC Access Methods & VPC Configuration, Extending The VPC To On-Premise Networks

LAB- Building a Virtual Private Cloud from Scratch & Securing Your VPC

LAB- Creating a NAT Instance in a VPC

LAB- Configuring VPC Peering & Routing Between VPCs

## **7. AWS Security Fundamentals**

Understanding AWS Security Measures

AWS Shared Responsibility Model

AWS Compliance Program

AWS Global Infrastructure Security

Physical and Environmental Security

Layered Security, Security Groups & Network ACLs

AWS Reports, Certifications, and Third-Party Attestations

AWS Account Security Features

AWS Credentials, Passwords

Cloud Security Considerations & Security Best Practices for Clouds

LAB- Security Group and Network ACLs

LAB- Encrypting & Controlling Access to S3; Logging and Auditing Access and Actions

## **8. Securing Data on AWS**

Shared Responsibility Model

Protecting Data at Rest

Protecting Data in Transit

Securing Your Operating Systems and Applications

How to use IAM to keep your data secure

AWS Multi-Factor Authentication (AWS MFA)

LAB- MFA (Multifactor Authentication) on Amazon Web Services

## **9. Database Fundamentals for AWS**

Amazon RDS (Relational Database Service) Overview, Working With RDS  
Relational Database Service (RDS): Structure, Understanding RDS Multi-AZ Failover  
RDS Security Groups, Read Replicas with MySQL RDS Across Regions  
DynamoDB and NoSQL, DynamoDB vs Amazon RDS Database  
LAB- Setting Up RDS  
LAB - Creating DynamoDB Tables

## **10. Understanding Backup Options**

Overview of Backup Services on AWS and Services that Include Backups  
Managing Backup And Disaster Recovery Processes,  
Quickly Recovering from Disasters  
S3 and RDS Backup Options, EBS Options, EC2 Backup Strategies  
LAB- S3, RDS Backup & EBS Options

## **11. Load Balancing with Elastic Load Balancing (ELB)**

Introduction to ELB, Basic ELB concepts  
Internet-facing ELBs & VPC-facing ELBs  
LAB- Elastic Load Balancer Configurations for high availability  
LAB- SSL on Elastic Load Balancer

## **12. AWS's Domain Name System**

Amazon Route 53 Overview  
Domain Name System (DNS) & Concepts  
Steps Involved in Domain Name System (DNS) Resolution  
Record Types & Supported Record Types  
Domain Registration  
Domain Name System (DNS) Service  
Hosted Zones  
Amazon Route 53 Enables Resiliency  
Domain name management, Route 53 Web Request Handling, Route53 and DNS Failover  
LAB- Configuring Route 53 from the AWS Management Console  
LAB- Route 53 Complex Configurations

## **13. Amazon CloudTrail**

Amazon CloudTrail Overview, Configuring CloudTrail In The Console  
LAB- Monitoring CloudTrail Events With CloudWatch

## **14. Working with Amazon CloudFront**

Amazon CloudFront Key Concepts And Overview  
CloudFront architectural considerations, Dynamic Content With CloudFront, Streaming Media With CloudFront  
Monitoring CloudFront with CloudWatch  
LAB- Creating A Multi-Region CloudFront Solution

## **15. Understand AWS management tools**

Amazon CloudWatch and AWS Trusted Advisor

Monitoring with Amazon CloudWatch and Trusted Advisor  
LAB- Configuring CloudWatch from the AWS Management Console

## **16. Active Directory and Amazon Web Services**

Setting up Simple Active Directory  
Setting up AWS Directory Service for Microsoft Active Directory  
Active Directory Connector  
AWS Hybrid Active Directory Environments  
LAB- Join EC2 Instance to the Domain (Simple AD & AWS AD) Windows

## **17. AWS Web Application Firewall (WAF)**

WAF Overview and AWS WAF  
AWS WAF Rule Creation  
LAB- Barracuda AWS WAF Configuration

## **18. High Availability And Fault Tolerant Systems on AWS**

Designing highly available, cost -efficient, fault-tolerant, scalable systems, Disaster Recovery And Fail-over Strategies  
Implement DR for systems based on RPO and RTO  
Implement Elasticity  
Scaling Vertically & Horizontally  
AutoScaling vs. Resizing  
Applying Auto Scaling And ELB To Create High Availability And Fault Tolerance  
Deploying, managing, and operating scalable, highly available, and fault tolerant systems on AWS  
LAB- Elastic Load Balancer With High Availability Hands On  
LAB- Configuring an Auto Scaling Application

## **19. Monitoring Performance and Availability**

Creating CloudWatch Alarms to Monitor Amazon EC2 Instances & EBS for Performance and Availability  
Creating CloudWatch Alarms to Monitor the Elastic Load Balancer for Performance and Availability  
Creating CloudWatch Alarms to Monitor the RDS for Performance and Availability

## **20. Troubleshooting**

EC2 Troubleshooting Scenarios  
VPC Troubleshooting Scenarios  
ELB Troubleshooting Scenarios  
Auto Scaling Troubleshooting Scenarios  
LAB- Troubleshooting Connectivity Issues