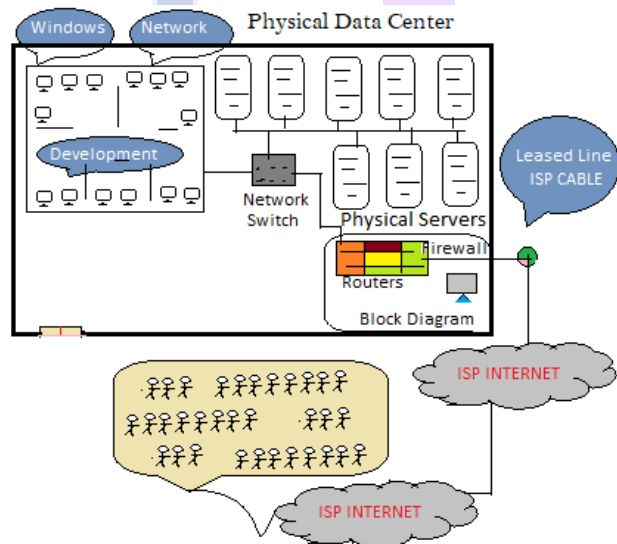# AWS COURSE CONTENT

Course Summary

Data centers have huge amount of server rooms are inter connected with Network leased lines.

Basically the Broad amount of Data centers now customized with Cloud computing resources and services , In AWS each and every resource call it as a service like …

A) Network as a service
B) Server as a service
C) Storage as a service
D) Data Base as a service... etc.

Here you are going to learn several of AWS services including live use cases with examples.

Course Content

Introduction to Cloud Computing

- What is Server Infrastructure?
  - ✓ Basic site infrastructure.
  - ✓ Redundant-capacity site infrastructure.
  - ✓ Concurrently maintainable site infrastructure.
  - ✓ Fault-tolerant site infrastructure.

- What is Datacenter?

  - ✓ Enterprise data centers
  - ✓ Managed services data centers
  - ✓ Cloud data centers

- Why Cloud Computing?
- Benets of Cloud Computing
- Public Cloud, Private Cloud, Hybrid Cloud
- Service Models (IAAS, PAAS, SAAS)

Infrastructure as a Service	Platform as a Service	Software as a Service
Application	Application	Application
Data	Data	Data
Runtime	Runtime	Runtime
Middleware	Middleware	Middleware
Operating System	Operating System	Operating System
Virtualization	Virtualization	Virtualization
Servers	Servers	Servers
Storage	Storage	Storage
Networking	Networking	Networking

Networking Basics

- What is IP Address?
- What is Internet and Intranet
- Why Networking is required?
- IPv4 address classification
- How to derive Networks using Classes?
- Sub netting/Subnet Mask
- Private Address Vs Public Address
- NAT addressing/NAT Gateway
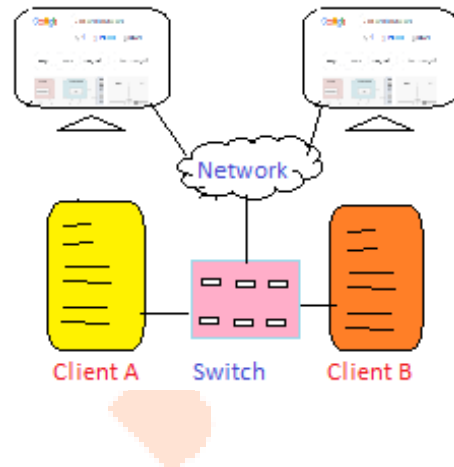
Introduction to AWS

- Elastic computing.
- Introduction to the AWS products.
- Regions and Availability Zones.
- Signing up for AWS.
- Introduction AWS management console.
- Take a digital tour of an AWS Data Center.
- Spinning Windows/Linux servers in EC2

Amazon Virtual Private Cloud (VPC)

- Networking Basics, IPv4 Addressing Scheme
- Introduction to VPC
- Public and Private IP's
- Understanding Subnetting
- Elastic IP's

- Basic VPC configuration
- DHCP in a VPC
- DNS Option set in VPC
- Implementing Private/Public subnets in VPC
- VPC security
- Inbound and outbound ACL's
- VPC core concepts
  - ✓ Route Tables
  - ✓ Subnets
  - ✓ Internet Gateway
- Building Custom VPC Network Topology for Real Time Environments
- Implementing NAT (Network Address Translation) in VPC

VPC Peering

- VPC Peering overview
- Peering Implementation between Regions
- VPC peering merit and demerits
- Real time use case with case study on VPC Peering.
- AWS Bastion host configuration.
- Secure Private Network configurations and peering access.

VPC Secure Configurations.

NAT Gateway

- ✓ Introduction to NAT
- ✓ NAT Gateway configurations
- ✓ Enable Private Subnet Internet access with NAT Gateway
- ✓ NAT Gateway routing configurations.
- ✓ VPC End Points.

- ✓ Use case on VPC End points
- ✓ NAT Gateway use cases and real-time scenarios

Security Groups and NACL

- ✓ Introduction to NACL and SG
- ✓ Security Group rules
- ✓ Controlling Inbound and Outbound traffic over the Security groups.
- ✓ Security Group Port Configurations
- ✓ VPC Traffic monitoring
- ✓ NACL Configurations
- ✓ NACL Scope and Inbound and Outbound traffic control
- ✓ Difference between SG and NACL
- ✓ NACL Port management.

Egress Only Internet Gateway

- ✓ IPv6 Overview
- ✓ Difference between NAT Gateway and Egress only Internet gateway.
- ✓ Egress only Internet gateway configurations.
- ✓ Enable Internet to Private subnet with Egress only internet gateway.
- ✓ Real time use cases and scenarios on Egress only internet gateway

Transit Gateway

- ✓ Introduction to Transit Gateway.
- ✓ Difference between Transit Gateway and VPC Peering.
- ✓ Transit Gateway Configurations between multiple regions.
- ✓ Transit Gateway use cases and real time scenarios

Open VPN

- ✓ Introduction about VPN
- ✓ Common issues on VPN
- ✓ Open VPN Configurations
- ✓ Secure channel configuration over the Open VPN
- ✓ Real time use cases and scenarios.

Route53

- Introduction of Domain Name System.
- Buying Domain names at Domain Registrars.
- Creating Zones on Route53.
- Creating Route53 Records (Address, CNAME, Alias).
- Creating Health Checks in Route53.
- Understanding routing policies provided by AWS.
- Simple Routing Policy and its Implementation.
- Weighted Routing Policy and its Implementation.
- Latency Routing Policy and its Implementation.
- Failover Routing Policy and its Implementation.
- Routing Policies Use cases and when to use Which Policy.
- Introduction to Cloud Formation

EC2 Compute Service

- EC2 Introduction
- Spinning Windows/Linux servers in EC2
- Connecting to Instances using RDP, MobaXTerm, Putty
- EC2 Vertical Scaling Overview and Scale UP and Scale Down Servers

- Security Group Basics and Implementing Security for Real Time Environments.
- Understanding Block Level Storage using EBS.
- Configuring SSD/HDD/Magnetic Storage for Windows and Linux Servers
- Implementing Scaling for EBS Storage.
- Configuring VOLUME-SNAPSHOT-VOLUME Process.
- EC2 Instance Types
- Understanding Spot Instance bidding and Configuration
- Understanding AWS Templates and images.

Elastic File System

- Introduction to EFS.
- Creating EFS and mounting on Linux Servers.
- Performance limits
- Troubleshooting
- Real time use cases on EFS.

ELB (Elastic Load Balancer)

- Introduction to ELB
- Difference between Application and Network Load Balancer.
- Implementation ALB with Application Deployment.
  - ✓ Configure Load Balancer
  - ✓ Configure security settings
  - ✓ Routing configuration
  - ✓ Register Targets
- Implementing HA using Load Balancer for Websites.
- Understanding Health Checks
- NLB , ALB integration with Route53 - "DNS"
- Configuring Advanced VPC and Cross Zone Load Balancing

- SSL certificate configuration over the AWS Certificate manager.
- Adding and removing instances on ELB
- Real time use cases and scenarios with examples.

Auto scaling

- Understanding Horizontal vs. vertical scaling.
- Understanding Auto Scaling.
- Creation of custom AMI for Auto Scaling implementation.
- Create a launch configuration.
- Create an Auto Scaling group.
- Understanding Various Scaling Types (Dynamic, Scheduled, Step, Target Tracking Scaling Policies).
- Setting up an auto-scaled, load-balanced Application using Auto scaling.

S3 (Simple Storage Service)

- Introduction to AWS Object Storage.
- Creating S3 Buckets and Uploading Data in to it.
- S3 durability and redundancy.
- Various S3 Storage Types (Standard, Infrequent, One Zone)
- Configuring S3 Versioning, Logging, Encryption.
- Going through CloudFront Reports and Analytics.
- CloudFront Security for S3 buckets using OAI (Origin Access Identity).
- Introduction to AWS Direct connect.
- Overview of FSx and AWS Backup
- Understanding S3 Analytics, Metrics and Inventory

Glacier

- Introduction to Glacier Storage.
- Creating Vaults.

- Uploading data to Vaults.
- Key deference's between S3 and Glacier.

Identity access management (IAM)

- Introduction of IAM Service.
- Creating Users and Groups.
- Grant Least Privilege.
- Con_guring a Strong Password Policy for your Users.
- Enabling MFA for Privileged Users.
- Granting permissions using IAM Policies.
- Creating Custom Policies and Associating to Users and Groups.
- Understanding Roles.
- IAM Access Credentials and its usages.
- AWS CLI.

Cloud Formation

- Introduction to cloud formation
- Cloud formation Template basics
- Resources
- Expressions
- Stacks
- Overview on YAML / JSON SCRIPT
- Intrinsic Functions
- Ansible script and Ad-Hoc commands

Simple Notification Service (SNS)

- Introduction to SNS.
- Creating topics and Evaluating ARNs.
- Subscribing using Various Protocols.

- Publishing Notifications using SNS.
- Integrating SNS Topics with Cloud Watch and Auto scaling Services.

CloudWatch

- Introduction of AWS Monitoring
- Understanding Virtualization
- Making a Status Check Failed Incident manually
- Cloud Watch Basic and Detailed Monitoring and Its Features.
- Implementing Real Time monitoring by Integrating with SNS.
- Understanding CloudWatch Logs and Metrics.
- Creating Alarms and Its Actions.
- Configuring Dashboards for Organization Architectures.

Relational Database Service (RDS)

- Introduction to Relational Databases.
- Creating Relational Databases in RDS.
- Connecting to RDS Database Instances using SQLYog.
- Creating Redundant and Fault Tolerant Databases.
- Configuring Event Notifications for Database Instances.
- Introduction about AWS ElastiCache
- Understanding Parameter, Option, and Subnet Groups.

AWS Developer Tools.

- Introduction to SDLC Automation
- Understanding DevOps tools of AWS.
- Oveview on CodeCommit , CodeBuild, CodeDeploy
- Understanding complete CI/CD Pipeline JOB Automation.
- Building code with CodeBuild and generate Package (JAR, WAR, WAR)
- Deploying package with AWS CodeDeploy.

- Jenkins Architecture
- Jenkins Configurations on EC2 Instance.
- AWS Jenkins Plugins
- CodePipeline with CodeCommit and CodeDeploy

Terraform and Packer

- What is Packer ?
- Packer configurations and management.
- Overview on Image customization
- Infrastructure provisioning
- Terraform registry
- Use cases on Terraform and packer.
- Differences between Terraform and Colud Formation.

CloudTrail

- Introduction to Audit logging by CloudTrail.
- Creating Trials.
- Storing Trial logs in S3 Buckets.

AWS Application Services for Certifcations

- SQS Overview and implementing polling messages.
- SWF Overview.
- Introduction to Elastic Transcoder.
- Introduction API Gateway.
- Introduction of Lambda.
- Implementing a sample script and executing by Lambda.

- AWS Direct Connect.
- Redshift Overview.

AWS Migration

- Server migration Overview
- Server migration work and enable features
- Server Migrations
  - ✓ From VMWare
  - ✓ From Azure
  - ✓ From Hyper-V

- Understanding AWS Migration methods.

AWS Cost Controlling Strategies

- Introduction to AWS Pricing.
- Understanding AWS Pricing Models (On Demand, Reserved, Spot).
- Best Practices for Cost Optimization.

AWS Interview Preparation Tips & Tricks

AWS Day to Day activities and CV Preparation.

AWS Organizational Best Practices and use cases.