Cloud Computing Real Time Projects Training -COURSE CONTENT

➢ Introduction to Cloud Computing
➢ Introduction to Dev Ops

A Short History

➢ Client Server Computing Concepts
➢ Challenges with Distributed Computing
➢ Introduction to Cloud Computing
➢ Why Cloud Computing?
➢ Benefits of Cloud Computing

Cloud Computing Deployment Model

➢ Private Cloud
➢ Public Cloud
➢ Hybrid Cloud

Cloud Delivery/Service Models

➢ Software as a Service (SaaS)
➢ Platform as a Service (PaaS)
➢ Infrastructure as a Service (IaaS)

Linux Basics

➢ Linux basic Commands
➢ Linux basic Administration
➢ Linux Root & Sudo users
➢ Linux File System Hierarchy
➢ YUM package management
➢ Linux Services Management

AWS Services

➢ Identity and Access Management (IAM)
➢ Amazon Elastic Compute Cloud (EC2)
➢ Amazon Simple Storage Service (S3)
➢ Elastic Block Storage (EBS)
➢ Elastic Load Balancing (ELB)

- Amazon Relational Database Service (RDS)
- Auto Scaling ϖ Virtual Private Cloud (VPC)
- Cloud Formation ϖ Simple Email Services (SES)
- Simple Notification Services (SNS)
- Server less computing (Lambda)
- Cloud Trail
- Route-53
- Glacier
- Key Management Service (KMS)

DevOps Tools

- Python
- Lambda
- Cloud Formation
- Jenkins
- Git Hub
- Terraform
- Docker
- Ansible

Introduction to AWS

- Subscription to AWS
- Introduction to the AWS Management Console
- Project overview

Identity and Access management (IAM)

- Creation of user accounts
- Setting up multi factor Authentication (MFA)
- Roles in IAM
- Groups in IAM
- Delegation of permissions for users
- Creation of custom policies for delegation
- Using Identity Providers
- Cross-Account Access
- Account settings
- Credential Report
- Encryption - Key Management Service (KMS)

Elastic Compute Cloud (EC2) Essentials

- ➢ Regions and Availability Zones – Choose the right Region
- ➢ Amazon Machine Images (AMI)
- ➢ Working with AMIs
- ➢ Choosing the right AMI
- ➢ Deciding what goes into an AMI
- ➢ Finding the right AMI
- ➢ Pricing model in EC2 instances
- ➢ On-demand, Reserved, Scheduled, Spot instances, Dedicated Hosts
- ➢ EC2 Reserved Instance Marketplace
- ➢ Importing and Exporting Instances

EC2 Instances

- ➢ Building an EC2 Windows instance & Linux Instance
- ➢ Boot strapping with user-data
- ➢ Setting up security
- ➢ Security with Key Pairs
- ➢ Working with the Security Group
- ➢ Different IPs assigned to an EC2 instance
- ➢ Assigning Elastic IPs
- ➢ Login/Access to the instance
- ➢ Creating your own custom AMI, Registering & Granting access to the AMI
- ➢ Placement groups
- ➢ EC2 instance protection
- ➢ Instance Roles
- ➢ Importing and Exporting Instances
- ➢ Elastic Network Interfaces (ENIs)
- ➢ Resources and Tags
- ➢ Accessing Meta-Data & use cases.

Elastic Block Store (EBS)

- ➢ EBS Volume Types
- ➢ EBS Encryption
- ➢ EBS Performance
- ➢ Instance Store volumes
- ➢ Instance Stores Available on Instance Types
- ➢ Instance Store Usage Scenarios
- ➢ Adding Instance Store Volumes to an AMI
- ➢ Optimizing Disk Performance
- ➢ Creating and deleting volumes

➢ Attaching and detaching volumes
➢ Mounting and Unmounting the attached volume
➢ Increasing the volume size
➢ Creating snapshots
➢ Creating Volumes & AMIs from Snapshots.
➢ Cross-Region snapshot copy & use cases.

Elastic Load Balancer (ELB)

➢ What Is Elastic Load Balancing
➢ How Elastic Load Balancing Works
➢ Classic & App ELB types.
➢ Creating load balancer
➢ Internal & External Load balancers
➢ Load balancing protocols
➢ Listener Configurations
➢ Attach & Detach Subnets
➢ Security groups for the load balancer
➢ Configure health check for the load balancer
➢ Adding multiple instance to the load balancer
➢ Custom Domain Names
➢ Monitoring and Logging
➢ ELB traffic logging

Auto Scaling

➢ What is auto scaling
➢ Auto scaling components
➢ Benefits of auto scaling
➢ Creating launch configuration, and its prerequisites.
➢ Creating Auto Scaling Groups (ASG)
➢ Attach & Detach EC2 Instances in ASG
➢ Configuration of auto scaling policies based on the Load on EC2 instances.
➢ Using Auto scaling with Elastic Load balancer (ELB).
➢ Temporarily Removing Instances
➢ Suspend and Resume Process
➢ Shut Down Your Auto Scaling Process
➢ Monitoring Your Auto Scaling Instances
➢ Health Checks ϖ Getting Notifications When Your Auto Scaling Group Changes.
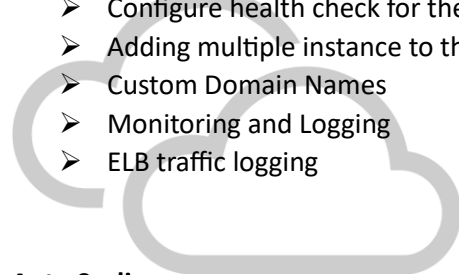
Simple Storage Service (S3)

- ➢ Creating and deleting buckets
- ➢ Adding objects to buckets
- ➢ Getting objects
- ➢ Deleting objects
- ➢ Notifications
- ➢ Uses of S3 storage
- ➢ Working with Permissions of S3, Access Control, Bucket policy
- ➢ S3 Data encryption types
- ➢ Enable Versioning, Logging for S3 objects
- ➢ Lifecycle rules in s3
- ➢ Accessing S3 storage with Tools
- ➢ Hosting a Static Website
- ➢ Audit Logging with AWS CloudTrail

Glacier Storage

- ➢ Creating Vaults
- ➢ Working with Archives
- ➢ Accessing the Glacier vault using tools
- ➢ Using Glacier for backups

Virtual Private Cloud (VPC)

- ➢ Different types of networks that can be setup in AWS
- ➢ Creating a custom VPC
- ➢ NACLs & Security Groups
- ➢ Creation of Internet Gateway (IGW)
- ➢ Connecting to instances in the gateway
- ➢ Subnets, Route Tables & Association
- ➢ NAT Instances & NAT-Gateways
- ➢ VPC Peering
- ➢ VPN overview & components
- ➢ Transit gateway

Route 53

- ➢ Configuring Amazon Route 53 as Your DNS Service
- ➢ Registering a Domain Name and Configuring Amazon Route 53 as the DNS Service
- ➢ Migrating DNS Service for an Existing Domain to Amazon Route 53
- ➢ Creating a Subdomain That Uses Amazon Route 53 without Migrating the Parent Domain
- ➢ Working with Public Hosted Zones

➢ Working with Private Hosted Zones
➢ Working with Resource Record Sets

Cloud watch

➢ Monitoring the AWS Service Health Dashboard
➢ Monitoring with Cloud watch
➢ Getting statistics for a specific EC2 instance
➢ Getting aggregated statistics
➢ Metrics for other AWS Services and related namespaces
➢ Setting up notifications

Simple Notification Service (SNS)

➢ Creation of a topic
➢ Subscribing to topic via Email
➢ Setting notification for EC2 instance changes

Simple Email Services (SES)

➢ Setting up email domain
➢ Limits of SES
➢ Test Email setup
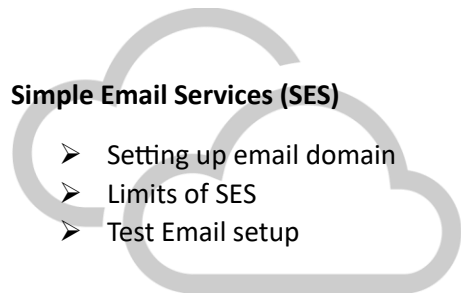
Python

➢ Introduction to Python
➢ Installation of Python
➢ Python Input and Output statements
➢ Python Data Types
➢ List, Set, Tuple, Dictionary
➢ Looping and Conditional statements in python
➢ Functions in Python

Lambda

- ➢ Introduction to Lambda
- ➢ Working with Functions
- ➢ Lambda Use cases
- ➢ Lambda Roles
- ➢ Lambda Time-out
- ➢ Lambda Use cases for DR
- ➢ Lambda Disaster recovery Configuration
- ➢ Lambda Stop/Star Instance

Cloud Formation

- ➢ Building AWS infrastructure as a code
- ➢ Utilization of Sample templates
- ➢ Introduction to JSON & YAML
- ➢ Cloud Formation Vs Terraform
- ➢ CFT Stack
- ➢ CFT Structure
- ➢ CFT code for EC2 instance with Sec group & EIP
- ➢ CFT code for VPC Whole setup

Ansible

- ➢ What is Ansible? Why Ansible?
- ➢ Configuration management Tools
- ➢ what is Pull and Push based tool
- ➢ Ansible Installation
- ➢ Ansible Command Modules
- ➢ Working with different modules in Ansible
- ➢ Ansible Host Entries
- ➢ Ansible Playbook
- ➢ How to create and work Playbook
- ➢ Ansible with AWS
- ➢ AWS automation using ansible

Docker

- ➢ Hypervisor Vs Docker Container
- ➢ Container Architecture
- ➢ Docker Basics
- ➢ Docker Architecture
- ➢ Docker Installation

- ➢ Docker Commands
- ➢ Docker Image Build
- ➢ Docker-hub registry
- ➢ Docker Volumes
- ➢ Docker Networking
- ➢ Docker Compose
- ➢ Deploying web application in container

Jenkins

- ➢ Jenkins Basics
- ➢ Jenkins Installation Linux + Windows
- ➢ Jenkins Global Tool Configurations
- ➢ Jenkins Jobs creation
- ➢ Jenkins with GitHub
- ➢ Jenkins Folders for job
- ➢ Jenkins Pipeline
- ➢ Jenkins job and pipeline for AWS
- ➢ Jenkins Groovy Scripting
- ➢ Pipelien with different stage
- ➢ Pluge in management
- ➢ Master and slave configuration
- ➢ Jenkins integration with Git repo
- ➢ Jenkins Credential Management

Git-hub

- ➢ Creating Login/Access
- ➢ Working with Public & Private Repo
- ➢ working with repo settings
- ➢ Web hooks in Git hub
- ➢ Jenkins integration with Git repo

Terraform

- ➢ Terraform introduction
- ➢ Terraform implementation
- ➢ Terraform Vs Cloud Formation
- ➢ Terraform working with providers
- ➢ Terraform Code Writing
- ➢ Terraform Plugins

- ➢ Terraform Cloud Modules
- ➢ Terraform StateFiles
- ➢ Terraform as Infrastructure as a code
- ➢ Terraform StateFiles Backup
- ➢ Terraform Modules
- ➢ Terraform Variable file