

## **AWS & DEVOPS**

### **Course Outline**

- Get started with Getting Started Guide.
- Use Handouts to understand the concepts and course flow.
- Complete Assignments at the end of each day.
- Complete your project at the end of Course.
- Plan for Terraform or Ansible Certification

## **DEVOPS**

### **Course Content:**

#### **1. Intro to DevOps, Tools, Processes**

- What is DevOps
- Tools used in Process

## **2. SCM Tools**

- Github, Git Client
- Gitlab, Bitbucket and Azure Repos
- Github actions
- Commonly used Git commands - git clone
- Git Branching

## **3. Terraform**

- Intro to Terraform, Advantages
- Terraform Providers
- Terraform Commands
- Terraform backend and State management
- Terraform Modules

## **4. Jenkins and Build Tools**

- Intro to CI/CD, Jenkins
- Installation and setup of Jenkins
- Jenkins Jobs - Freestyle and Pipeline Jobs
- Jenkins Slave setup
- Jenkins Groovy scripting

## 5. Ansible

- Intro to Config Mgmt tools - Ansible, Chef, puppet
- Advantages of using Config Mgmt
- Ansible Installation and setup
- Ansible Adoc commands
- Ansible Modules - Shell, File, Copy and Apt
- Ansible Playbooks
- Examples
- Intro to Ansible Variables
- Types - Global, Play, Group and Host vars
- Loops in Ansible
- Handlers
- Error/Exception Handling
- Intro to Microservices and Docker
- Docker Installation and Commands
- Sample Docker File
- Docker File

## 6. Docker

- Docker Volume
- Dockerhub Registry
- Dependent Containers

- Docker Env Variables
- Docker Compose
- Docker Networking
- Container Orchestration
- Docker Swarm

## **7. Logging and Monitoring Tools**

- Cloudwatch logs
- Logging tools - ELK, Splunk
- Monitoring tools - Infra (Grafana, Prometheus, Nagios, Zabbix)
- Grafana and Prometheus setup

## **8. Agile Development**

- Intro to Agile and Project development
- Jira tool
- Spring Planning, Daily Standup
- Agile Story, Backlog, Spring, Retro etc

## **9. Azure DevOps**

- Intro to Azure DevOps
- Azure Boards, Repos, Pipelines, Artifacts
- Running a Sample Job



## **Course Content:**

### **1. Intro to Cloud, AWS, Regions and Azs, Pricing Model**

- What is Cloud Computing
- Cloud Computing types and Service Models
- What is AWS. Benefits of using AWS
- AWS Region, AZ, Edge Location, Local Zone
- Purchase Options

### **2. AWS Compute Services, Security Groups**

- What are different AWS Computing Services
- EC2 and Instance types
- EC2 Public, Private and Elastic IP
- EC2 Security Groups

### **3. AWS VPC, Subnets,**

- What is Amazon VPC, Subnet
- Internet and NAT Gateway
- Subnet setup and NACLs

- NACLs vs Security Groups
- OSI Model and Layers
- Load Balancer types - ALB, NLB

## **4. AWS AMI, Marketplace, EBS, Snapshots, Types of EBS Storage**

- What is AMI
- AMI Marketplace
- AWS Metadata and Userdata
- AWS Userdata logging
- EBS and Instance Store
- EBS types - gp2, gp3, io2

## **5. Storage Services**

- Types of Storage Services - Object and Block Storage
- Types of Storage Classes
- Other Block storage - EFS, FSx
- Different ways to create and EC2 instance

## **6. AWS CLI, Cloud Formation and SDK**

- CLI install and setup
- Sample commands to run using CLI
- What is IaasC

- What is Cloudformation. Benefits of CloudFormation
- Yaml and Json templates
- Sample CF template

## **7. Relational Database**

- What is RDS, why we need it
- DB engine Options
- RDS backup and Snapshots
- SQL and No-SQL offerings
- Aurora Instance types
- What is Dynamo DB, Elastic Cache

## **8. Identity and Access Management**

- What is Identify and access management
- Advantages of using IAM
- Root, Admin and Normal user
- AWS IAM Policies
- IAM Users and Roles
- IAM Access keys

## **9. Cloudwatch, SNS, CloduTrail, VPC Flowlogs**

- What is Cloudwatch
- Basic and Detailed Monitoring

- Metrics for EC2, Volume, RDS, Load Balancers
- Custom Metrics
- EC2 Alarm creation
- Auto-Scaling groups and EC2 Alarms

## **10. Route53 and Elastic Beanstalk, Cognito, CloudFront**

- What is DNS
- Route53 and its advantages
- Routing Policies in Amazon Route53
- Elastic Beanstalk and its advantages
- CloudFront
- Cognito

## **11. AWS Lambda, Step Function, Athena, API Gateway**

- Serverless Computing - Lambda, Athena, API Gateway
- AWS Lambda, Languages supported
- AWS Step Functions
- API Gateway. Advantages of using API Gateway



- AWS Athena
- AWS Event bridge

## **12. AWS Developer and Cost Services**

- AWS Code Commit, Code deploy, Code build
- AWS Cost and Billing explorer
- AWS Billing alerts



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