

DevOps-AWS-Syllabus

1 Hardware, Storage and Network Components

Operating System, CPU, Memory, Hard Disc, Storage

Internal Storage, External storage

Block and Object storage

Ip address, Router, NIC card, Ethernet, Protocols

Record Types ----> CName record , A record, MX record

Comparison b/w Laptop and Mobile

What is the difference b/w IaaS, PaaS, SaaS

What is the diff b/w SLA (Service Level Agreement), SLO (Service Level Objective), SLI (Service Level Indicator)

Protocols - Http, Https, Hostname, Context Root, Port

CIDR (Classless Inter Domain Routing), Cronjob

2 Cloud Providers

Amazon Web Service - Amazon

Azure -Microsoft

Google cloud Provider - Google

Alibaba

Digital Ocena

IBM

3 Linux Architecture (Hardware, Kernel Process)

Regions, Availability Zones (AZ's), Disaster Recovery

Infrastructure ----> Compute, Storage, Network

AWS CLI

Identity and Access Management (IAM) ----> Users, Groups, Roles, Policies, Permissions, Security Measures Like MFA.

CloudTrail

Trusted Advisor

Elastic Compute Cloud (EC2) ----> AMI(Amazon Machine Image), Instance type, EBS Volume, Security Group, Pem File

Static IP Vs Elastic IP

Public IP Vs Private IP

Volume Vs Snapshot

AMI Vs Image

CloudWatch, SNS

Simple Storage Service(S3) ----> Bucket, Objects, Cross Region Replication, Life cycle, Versioning, Encryption, Security, Bucket Policy

CloudFront Overview

Elastic Block Storage

Regional Database Service (RDS) ----> MYSQL, Nosql, SQL, Oracle, Postgrace, Arora, Multi AZ, Backup, Users, Data entry, Replica

Elastic LoadBalancer

----> Clasic LoadBalancer (Http, Https, Tcp,Udp)

----> Application LoadBalancer (Http, Https), Static IP

----> Network LoadBalancer (Tcp, Udp), Elastic IP

----> Gateway LoadBalancer

Difference b/w Bastion server, Application server and Database server

Virtual Private Cloud (VPC) ----> Subnets, Igw, Nat Gw, Route Tables, SG, NACL

Classless Inter Domain Routing (CIDR)

Security Group Vs NACL (Network Access Control List)

VPC Peering

VPC Endpoint

Route53 ----> Hostedzone, Name Servers, Records, Routing Policies

Amazon Certified Manager (ACM)

Auto Scaling

----> Horizontal Auto scaling (Static and Dynamic Scaling)

----> Vertical Auto scaling

EBS Vs EFS (Elastic File System)

Elastic Cache

Config Manager

Lambda

5 DevOps (Agile Methodology, Sprint, Tasks, Lyfe Cycle)

6 Frontend and Backend Application Process

7 GitHub (Source Code Management)

- > Git Administration
- > Git Life cycle
- > Git Commands
- > Cloning Repositories
- > Branching Strategy
- > Pull Requests

8 ApacheTomcat (Web server)

- > Installation
- > Directory Structure
- > Deploy the static Application

9 Tomcat (Application Server)

- > Installation
- > Directory Structure
- > User Creation
- > Deploy the Java Based Application

10 Difference b/w Web Server and App Server

11 Jenkins CICD

- > Installation
- > Continuous Integration (CI), Continuous Delevery, Continuous Deployment (CD)
- > Create the Maven Project using Freestyle Project type, Create Views
- > Deploy the App into Tomcat
- > Poll SCM, Build Periodically, Git Web Hooks, Discard Old Build, Disable this project, Delete workspace before build starts
- > Add timestamps to the Console Output
- > JACOCO plugin
- > Jenkins Directory structure
- > Plugin Management
 - * Safe Restart, Next Build Number, Email Extension, SonarQube Scanner, Blue Ocean, Deploy to container, Maven Integration, JaCoCo, SSH Agent, Thin Backup, Build Name Setter, Ansi Colour
- > Port Number Change
- > Build with parameters
- > Jenkins Security
 - * Create Users
 - * Provide the specific access Jenkins
 - * Provide the access to specific access to specific projects
- > Create the Pipeline Project Jobs (Scripted way and Declarative way)
- > Create the Multibranch Pipeline Project Jobs
- > Create Master/Slave
- > Jenkins Backup
- > Jenkins Migration
- > Jenkins Shared Libraries
- > Jenkins CLI
- > Integrate Nexus with Jenkins
- > Integrate SonarQube with Jenkins
- > Configure Email Functionality

12 **Maven (Build Tool)**

- > Installation
- > Directory Structure
- > Content of pom.xml
- > Maven Repositories
- > Maven Life Cycles

13 **SonarQube (Code Quality)**

- > Pre-Requisites
- > Installation
- > Administration
 - * Users Creation
 - * Project Creation
 - * Project Deletion
 - * Token Generation
 - * Create Quality Profiles
 - * Create Quality Gates
 - * Configure Email settings

14 **Nexus, S3 (Artifactory)**

- > Installation
- > Nexus Directory structure
- > Create the Repositories
- > Integrate the Maven with Nexus
- > Create Users

15 **Enduser, Admin and Jenkins CICD Flow**

---> Docker

- * Introduction
- * Containerization Vs Virtualisation
- * Docker Vs Virtual Machine
- * Docker Installation
- * Dockerfile, Image , Container, Commands
- * Docker Volumes
- * Docker Networks
- * Docker Compose
- * Docker Swarm

---> Kubernetes

- * Introduction
- * Architecture
- * Objects
 - > POD
 - > Replica Set/Controller
 - > Deployment
 - > Daemon Set
 - > Stateful set
- * Ingress Controller
- * Ingress Objects
- * Service Objects
- * Deployment Strategy
 - > Recreate
 - > Rolling Update
- * Persistent Volumes, Persistent Volume Claim
- * Liveness & Readiness probes
- * Secrets and Configmap
- * Kubernetes RBAC
- * Horizontal Pod Autoscaling (HPA)
- * Service Account, Role, Role Binding
- * Cluster Role, Cluster Role Binding
- * Helm
- * Monitor Kubernetes Using Prometheus And Grafana

- 17 **Grafana, Prometheus**
- 18 **ELK (Elasticsearch, Logstash and Kibana)**
- 19 **Terraform (Infrastructure as a Code)**

20 **Ansible (Configuration Management Tool)**

- > Introduction
- > Ansible Architecture
- > Installation
- > Host Inventory File
- > Ansible Commands
- > Develop The Ansible Playbooks
- > Tags, Handlers
- > Group Variables and Host Variables
- > Loops
- > Conditional Statements - When
- > Ansible Vault
- > Ansible Roles
- > Working with Dynamic Inventory
- > Ansible Tower

21 **Shell Scripting**

- * Introduction
- * Types of Shells
- * File Naming Conventions
- * Comments
- * Variables
- * Control commands – while loop
- * Control commands – Switch case
- * Functions
- * Pipe
- * Command line Arguments
- * String
- * Input and Output Redirection
- * Control commands – if
- * Control commands – for