Cloud Engineer - AWS with DevOps

Duration: 10-12 Weekends
Prerequisites
- Basic Knowledge of Operation & Infrastructure

Basics for Cloud Engineer

1. Linux Basics
- Intro to Linux
- Basic Commands
- Network Configuration
- Software Management
- User and Group management.
- Firewall.

2. Storage Basics
- Filesystem usage.
- Mount Options.
- Checking free space.
- Giving permissions.

Advanced Course Curriculum

1. Introduction to Cloud & AWS
- Define cloud computing.
- Cloud computing Infrastructure.
- The requirements that need to be fulfilled to qualify as a cloud service.
- Cloud service and deployment models.
- Common misconceptions about cloud computing.
- Common cloud Implementations.
- Architecture discussion
- Lab preparation
- Overview of major AWS services
- Get to know different AWS services and their Usage
- Benefits of studying AWS

2. Amazon Elastic Compute Cloud (EC2)
- Defining EC2 Instances
- Different type of Images (AMI)
- Create Linux EC2 instances
- Create Windows EC2 instance
- Connecting to EC2 instances
- Lab AMI creation
- Volumes (EBS)
- Lab volume creation
- Setting up a volume once attached to Ec2
- Hands on snapshot creation
- Lab security Groups
- Key Pairs
- Elastic Load Balancing
- Hands on Elastic load balancing
- Launch configuration
- Auto scaling concepts
- Lab Auto scaling
- Lab ELB
- Lab creation of billing alerts

- Lab Cloud Watch
- Hands on setting up for NodeJs development

3. Identity And Access Management Techniques (IAM)
- Understand Users, Groups and Roles
- Policies and Policy documents
- Lab creating roles,user and groups
- Access control
- Policy management
- Hands on assigning policies to users, groups and roles
- Restricting different services for users.

4. S3
- S3 buckets and its usage
- Lab creating a S3 Bucket
- Lab upload and retrieve data from S3 bucket.
- Giving privileges on to S3 bucket.
- Hands on S3 policies and ACLs
- Lab Life Cycle Management
- Lab object expiration in S3
- Lab S3 Versioning
- S3-RRS, S3-IA and Glacier
- CORS
- Lab hosting a website on S3

5. SNS, SWF and SQS
- Working with simple notification system.
- Understanding queuing service.
- SNS and SQS real-time use case
- Introduction to SWF and use case
- Lab on SNS
- Programming Amazon SQS and SNS using the AWS NodeJS SDK

6. Networking: Setting up VPC and NAT
- Custom VPC and default VPC concepts
- CIDR notation
- Subnets and routing concepts
- Different methods to connect to custom VPC
- Lab to create Subnets, ACLs, Routing rules.
- Lab to create security groups at instance.
- Lab creating a notification subscription.
- Lab creating a VPC.
- Lab setting up public and private subnets
- Lab setting up Internet/Nat gateway
- Securing your network.
- Network ACLs

7. AWS Databases RDS and Dynamodb
- AWS Database services overview – RDS, DynamoDB, Elasticache, Redshift
- Lab creating RDS instances
- Read Replicas
- RDS scaling concepts
- RDS postgres sql server
- RDS Oracle Server
- Lab Migrating from Oracle to Aurora using Database migration Service
- Lab configuring Multi-AZ failover
- Lab accessing a database hosted on RDS
- DynamoDb Core knowledge
- Scaling with Dynamodb
- DynamoDb write and read unit calculation
- DynamoDb with NodeJS
- Elasticache concepts

8. Application Services
- R53 and DNS
- Domain registration
- R53 routing policies
- Lab on routing policy setup

- Routing policies in detail
- AWS CloudFront
- AWS Cloud Formation
- Deployment Using Cloud Formation
- OPS works
- Lab OPS works
- Cloud Trail
- Direct Connect

9. Project: Work
- Hands-on workshop/Project: Deploying a web-application using AWS services
- Deploy a PHP application to access/create/upload files on S3 through EC2
- Deploy PHP application to create tables, insert values in DynamoDb through EC2
- Lab on Kinesis, through cloud formation
- Programming Amazon SQS and SNS using the AWS NodeJS SDK
- Lambda with NodeJS
- Lab setting up Dynamodb with Nodejs
- Elasticache with Nodejs

10. Big Data Solutions
- Data warehousing in AWS
- Big data solutions in AWS

11. Important
- Designing Fault tolerant and Highly Available architecture
- Data Security
- Backup and Disaster Recovery
- Deployment on AWS
- Cost Optimization in AWS

12. Bonus Brief Introduction to Docker
- What are containers and images
- Introduction to Dockers
- Architecture of Docker
- Lab working with Dockers

DevOps

1. Overview on DevOps
- Software Delivery Process
- Why DevOps?
- DevOps pipelines

2. Version Control Systems
- Overview
- History of version control systems
- Centralized vs Distributed version control systems
- Introduction to Git
- Installation of Git
- Configuring Git
- Basic operation on Git

3. Building & Testing
- Build automation
- Build automation tools
- MAVEN build automation tool
- Gradle build automation tool
- Dependency Management
- JFrog as a Dependency management tool

4. Continues Integration
- What is continues integration?
- Components of CI systems
- Advantages of CI

5. **Jenkins - CI Server**
   - Overview
   - History of Jenkins
   - Jenkins nodes
   - Jenkins build Process
   - Jenkins plugins
   - Project
6. **Configuration Management Tool Ansible**
   - Overview
   - Why Ansible?
   - Ansible modules
   - Ansible playbooks
   - Ansible variables
   - Ansible vault
   - Project

7. **Docker - Software Packaging Tool**
   - - Docker Overview
   - - Installing Docker
   - - Docker hub
   - - Docker images
   - - Docker containers
   - - Working with containers
   - - Docker file
   - - Project to ship web site as docker
8. **Overview DevOps Tools: Chef**
   - Overview of Chef Workstation Setup Organization Setup
   - Common Chef Terminology (Server, Workstation, Client, Repository etc.) Servers and Nodes
   - Chef Configuration Concepts

Preparation for Interview

   - ❖ **Doubts clarification session**
   - ❖ **500+ practice questions, based on exam format**