LINUX ADMINISTRATOR

COURSE DURATION

30 HOURS

DETAILED SYLLABUS

Introduction to Unix & Linux :-
(1Hours)
History of Unix & Linux
Basic Concepts of Operating Systems, Kernel,
shell   and file system structure
Basic Concepts of Linux
Basic Commands of Linux
Advanced Linux Commands

Installation of Linux :-
(1Hours)
Interactive Installation
Kickstart Installation
Network based Installation

Boot Process of Linux OS:-
(1Hours)

Directory Structure of Linux OS:-
(1Hours)

Linux Basic Cmmands:-
(2 Hurs)
CP , MV ,CAT, CAL,WHO,MKDIR,RMDIR etc...

Creating, Viewing, and Editing Text Files:
(1+1Hours)
Redirecting Output to file
Editing Text files from the shell prompt
Editing files with Vim
Editing Text Files with a Graphical Editor
Command with vim

Software Package Administration :-
(1+1Hrs)
Installing and deleting software packages
Querying and updating software packages

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Disk Partitioning and Mounting File System (1+1Hrs)
Using fdisk, disk druid utilities for disk partitioning
Using mkfs, dd commands to create file systems
Mounting various file systems
Auto mounting of file system
Logical Volume Manager (LVM)

User and group administration (1+2hrs)
Creating and deleting users from the system
Modifying users profile
Creating and deleting groups
Important system files related to user administration

Access to files with Linux File system Permissions: (1+1Hours)

Linux File System Permissions
Managing File system permissions from the CL
Controlling New File Permissions and ownership

Advanced file permissions (ACL) (1+1Hours)
Assigning advanced files permissions i.e. SUID, SGID and Sticky bit
Creating, modifying and deleting ACL's

Backup and recovery (1Hours)
Introduction to various types of backup media
Backup and restoring data using dump / restore commands
Backup and restoring using tar and cpio commands
Automation of Jobs

Troubleshooting your system (1Hours)
Recovering the super user password
Recovering the boot loader (GRUB)
Troubleshooting Xserver problems
Troubleshooting network related problems.

This course helps the students to understand various cloud services offered by AWS related to IT Infrastructure. This Course covers the fundamentals of building IT infrastructure on the AWS platform. You will explore AWS Cloud best practices and design patterns for architecting optimal IT solutions on AWS, and build a variety of infrastructures in guided, hands-on activities. This is hands-on training, walk through various scenarios. This course helps you to pass AWS Certified Associate solution architect.

Amazon Web Services (AWS) Training for IT Professionals

Course Outline

Delivery methods

ILT – Instructor-Led Classroom Training

Sessions are conducted in a physical classroom environment.

ILO – Instructor-Led Online Training

Sessions are conducted via Gotomeeting over the internet

Basics of AWS
- What is cloud computing?
- Introduction to AWS
- Global Infrastructure of AWS
- AWS Services Walkthrough-High-level
- AWS Account Creation
- Management Console Walkthrough
- Basic Account Management Setting
- Introduction to Billing Dashboard & Cost Explorer

AWS EC2 Virtual Servers
- Components of a Virtual Server
- Introduction to Elastic Cloud Compute - EC2
- Use cases and important features of EC2
- Introduction to AMI - Its Uses
- Introduction to Instance and its types
- Security Groups - Creation & Management
- Key Pair - Why & How
- Launching & Connecting to Window Instance
- Launching & Connecting to Linux Instance
- Setting up a web server on Linux Instance - Hosting a website
- Elastic IP Address
- Placement Group

AWS-LB Introduction to Load Balancer
- Types of Load Balancer in AWS
- Use Cases of Load balancers
- Important Components of Load Balancer
- How Health-Check Works for Load Balancer
- Configuration of a load balancer and its management

AWS CloudWatch
- Important Components of CloudWatch
- Creating and Managing metrics in CloudWatch
- Creating and managing Events in CloudWatch
- Creating and Managing Dashboards in CloudWatch
- Creating and managing Alarms in CloudWatch
- Logs and Log agent in CloudWatch

AWS AS Auto Scaling
- Use Cases of Auto scaling
- Important Components of Auto Scaling
- Configuration of Auto scaling
- Launch Configuration and LB Group

AWS Route53 DNS
- Introduction to Route53
- How Route53 Works
- Domain Registration in Route53
- Health Checks in Route53
- Routing Policies in Route53
- Creating and Managing different Routing Policies
- Records Sets supported by Route53
- Alarms and Notifications in Route53

AWS VPC Networking
- IP Address and CIDR Block
- Concept of Virtual Cloud - Private
- Introduction to Virtual Private Cloud -VPC
- Subnet and Route Tables
- Internet Gateway and NAT
- Creating and managing a NAT Instance
- Network Interface - NI
- Access Control List - ACL
- VPC Peering
- Endpoints
- VPN and CGW

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AWS S3 Storage System
- Storage Services provided by AWS
- Difference Between Object storage and Block Storage
- Introduction to Simple Storage Service - S3
- Use Case & Benefits of using S3
- Components of S3
- Important Properties of S3 bucket
- Enabling and Managing Versioning on S3 bucket
- Managing Logging on S3 Bucket
- Creating Life-Cycle Management Rule S3
- Hosting a static-website in S3
- Cross-Region replication in S3
- Transfer Accelerator in S3
- MFA and Pre-signed URL in S3
- Security feature of S3-Encryption, Bucket Policy, Permission etc.

AWS EFS File System Storage
- Understanding Use Cases
- Introduction to Elastic File System - EFS
- Configuration of EFS
- Creating and using EFS with Multiple EC2 Instances
- Troubleshooting in EFS

AWS Cloud Formation
- Important Components of CFN
- Templates and its components
- Creating and Managing stack
- Creating template using template designer
- Launching Word press site using CFN template

AWS IAM Authentication & Authorizations
- Introduction to Identity & Access Management
- Components of IAM
- Creating and Managing Users & Groups
- Creating and Managing IAM Policies
- Roles and its use cases
- Multi-Factor Authentication - [MFA]
- Security Features in IAM

AWS RDS (Relational Database services)
- Database Services provided by AWS
- Introduction to RDS
- Components of RDS
- DB engines provided by RDS
- Snapshots and Back-up in RDS
- Read Replicas in RDS
- Creating and connecting to a RDS database
- RDS Security Groups

AWS SNS (Simple Notification Service)
- How SNS Works?
- Important Components of SNS
- Creating and Managing Topics in SNS
- Adding Subscriber in SNS
- Managing SNS Policy

AWS SMS (Server Migration service)
- SMS Overview
- SMS Components
- Migrating servers from on-prem to AWS

DEVOPS TOOLS

COURSE DURATION – 90 HOURS

Module 1: Introduction to DevOps

Module 2: Version Control System, GIT/GIT Hub

Module 3: Jenkins

Module 4: Docker And Kubernetes

Module 5: Ansible

Module 6: SELENIUM

Module 7: MAVEN

DEVOPS TOOLS

COURSE DURATION
– 90 HOURS

Module 1: Introduction to DevOps

·Understand DevOps, its roles and responsibilities
·DevOps problems and solutions
·Identify cultural impediments and overcome it
·Understand the infrastructure layouts and its challenges
·Network Concepts at Enterprise Scale

Module 2: Version Control System, GIT/GIT Hub

·Introduction to VCS
·Type of VCS Tools and working Style
·GIT Work Flow
·Working Locally with GIT
·Working Remotely with GITHUB
·Branching and Merging
·Resolve merge Conflict
·GIT reset and Stash operation
·How to setup Git on Premises Hardware
·Use Case In Devops Environment

Module 3: Jenkins

·Introduction to Jenkins
·Install and setup Jenkins
·Plugin Managemnent
·Introduction about Maven project
·Setup Jenkins with Maven Project
·Project Test and Auto deployment on Application Server
·Build Pipeline View Project
·Configure Remote tasks Using Jenkins
·Jenkins Slave Node Configuration
·Generate Reports & Enable Mail Notification
·Intregation With Ansible & Docker & GIT Server

DEVOPS TOOLS

COURSE DURATION
– 90 HOURS

Module 4: Docker And Kubernetes

- **Section 1: Dockers & Containers Introduction**

  - ➤ Dockers & Containers Evolution
  - ➤ Differences between VM's and Containers
  - ➤ Use Cases of Docker

  - ➤ Benefits of using Containers in Docker
  - ➤ Working with Docker Commands

Section 2: Installation and Architecture of Docker

  - ➤ Installation and configuration of Docker in GCP VM
  - ➤ Learn to installing & configuring Docker on GCP VM instance
  - ➤ Validating the Docker installation

Section 3: Docker Images, Volumes & Networking

  - ➤ Docker Images & Layers
  - ➤ Docker Container Layers
  - ➤ Working with Docker Images
  - ➤ Building own Images using Dockerfile
  - ➤ Working with Docker Volumes & Networking

Section 4: Registries in Docker

  - ➤ Overview of Registries in Docker- Public and Private
  - ➤ Deep Dive into Docker Hub
  - ➤ Other Public and Private Registries

Section 5: Docker - Orchestration

  - ➤ Overview of Docker Compose
  - ➤ Docker Defining and running multi-container applications.
  - ➤ Overview Docker Swarm
  - ➤ Build your own Docker Swarm Cluster
  - ➤ Filtering and Scheduling Containers

DEVOPS TOOLS

COURSE DURATION
– 90 HOURS

Section 6: Kubernetes Introduction

➢ Kubernetes Evolution
➢ What is Kubernetes ?
➢ Use Cases of Kubernetes
➢ Differences between Kubernetes and Docker Swarm

Section 7: Architecture of Kubernetes

➢ Kubernetes Architecture
➢ Kubernetes Master Introduction
➢ Components of Kubernetes Master
➢ Node Components Introduction

Section 8: Installation Kubernetes

➢ Installation & Configuration of Kubernetes locally on VM machine
➢ Creating Kubernetes Cluster in Google Cloud

Section 9: Kubernetes Cluster - Deploying applications

➢ Pods Introduction
➢ Lifecycle of Pods
➢ Working with Pods to manage multiple containers
➢ Deploying Pods via Replication Controllers
➢ Testing resiliency

Section 10 : Services, Labels & Replica Sets

➢ Services Overview
➢ Labels and Selectors
➢ Scale out deployment using Replicas
➢ Horizontal Pod Autoscaling
➢ Load Balancing
➢ Rolling Updates

DEVOPS TOOLS

COURSE DURATION
– 90 HOURS

Section 11 : Managing State with Deployments

➤ Working with StatefulSet
➤ Explain Deployment strategies
➤ Define Pod Management policies
➤ On Delete & Rolling Update Strategies
➤ Explain nodeSelector
➤ Node Affinity/Pod Affinity
➤ About Taints and tolerations

Section 12 : Kubernetes Templating Resources

➤ Creating reusable templates
➤ Helm's templating engine
➤ Understanding the Helm architecture
➤ Managing releases with Helm
➤ Reverting changes with Rollbacks

Section 13 : Kubernetes - Managing state

➤ Manage configurations
➤ Manage secrets
➤ Use Kubernetes Volumes
➤ Creation of Persistent Volumes
➤ Creation of Persistent Volume Claims
➤ Provisioning volumes dynamically
➤ Managing stateful application

Section 14 : Kubernetes - Autoscaling

- ➤ Auto Scaling Introduction
- ➤ The Horizontal Pod Autoscaler
- ➤ The Kubernetes metrics registry
- ➤ Exposing metrics from your apps
- ➤ Installation and configuration Prometheus
- ➤ Understanding custom and external metrics adapters
- ➤ Tuning the Horizontal Pod Autoscaler

Module 5: Ansible

- ·Introduction about Automation
- ·Ansible architecture
- ·Ansible Modules and inventory
- ·Manage tasks by Add-hoc method
- ·How to write Playbooks
- ·Variables And Facts In Playbook
- ·Condition & Loop in playbook
- ·Notify & handler In playbook
- ·Manage Templates file
- ·Roles Structure and Ansible Galaxy Use case
- ·Vault Encryption In ansible for security
- ·Ansible Integration with Aws Cloud
- ·Dynamic inventory Administration
- ·Ansible Tower Management
- ·Manage jobs in Tower
- ·Tower Intregration With Devops Environment