

**LINUX Basics:**

- Unix and linux difference
- Linux File system structure
- Basic linux/unix commands
- Changing file permissions and ownership
- Types of links soft and hard link
- Filter commands
- Simple filter and advance filter commands
- Start and stop services
- Find and kill the process with id and name
- Package installation using RPM and YUM

**Introduction to Devops**

- Define Devops
- What is Devops
- SDLC models,Lean,ITIL,Agile
- Why Devops?
- History of Devops
- Devops Stakeholders
- Devops Goals
- Important terminology
- Devops perspective
- Devops and Agile
- Devops Tools
- Configuration management
- Continuous Integration and Deployment

**Introduction to Cloud computing**

- What is cloud computing
- Characteristics of cloud computing
- Cloud implementation models
- Cloud service models
- Advantages of cloud computing
- Concerns of cloud computing

**GIT: Version Control**

- Introduction
  - What is Git
  - About Version Control System and Types
  - Difference between CVCS and DVCS
  - A short history of GIT
  - GIT Basics
  - GIT Command Line
- Installing Git

- Installing on Linux
  - Installing on Windows
  - Initial setup
- Git Essentials
  - Creating repository
  - Cloning, check-in and committing
  - Fetch pull and remote
  - Branching
  - Creating the Branches, switching the branches, merging the branches.

### **Chef for configuration management**

- Overview of Chef
  - Common Chef Terminology (Server, Workstation, Client, Repository etc.)
  - Servers and Nodes
  - Chef Configuration Concepts
- Workstation Setup
  - How to configure knife
  - Execute some commands to test connection between knife and workstation
- Organization Setup
  - Create organization
  - Add yourself and node to organization
- Test Node Setup
  - Create a server and add to organization
  - Check node details using knife
- Node Objects and Search
  - How to Add Run list to Node
  - Check node Details
- Environments
  - How to create Environments
  - Add servers to environments
- Roles
  - Create roles
  - Add Roles to organization
- Attributes
  - Understanding of Attributes
  - Creating Custom Attributes
  - Defining in Cookbooks
- Data bags
  - Understanding the data bags
  - Creating and managing the data bags
  - Creating the data bags using CLI and Chef Console
  - Sample data bags for Creating Users.

**AWS:**

- Creating AWS account
- Free tier Eligible services
- Understanding AWS Regions and availability zones
- EC2 ( Elastic Cloud Comput)
  - About EC2 and types , Pricing
  - EIP ( Elastic IP address), Allocating, associating , releasing
  - Launch windows and Linux Instances in AWS
  - Connecting windows and Linux instances from windows desktop and Linux machines
- S3 ( Simple Storage Service)
  - About AWS Storage services, EBS and S3
  - Creating S3 Buckets and putting objects in bucket
  - Discussion about Bucket Properties
  - S3 Pricing
  - About S3 glacier
- EBS ( Elastic Block Storage)
  - Types of EBS Volumes
  - Creation, attaching and Detaching volumes
- ELB ( Elastic Load Balancer)
  - Understanding the load balancing
  - Configuring ELB and adding the webserver under ELB
- Auto Scaling
  - Types of Scaling ( Horizontal and Vertical)
  - Configuring Launch Configuration
  - Creating and defining the auto scaling group policy
- IAM ( Identity Access Management)
  - Understanding of AWS Security using IAM
  - Definition of Roles, policies and Groups
  - Creating IAM Users and managing password policies
- RDS ( Relational Database server)
  - About RDS and available RDS Engines in AWS
  - Configuring MYSQL RDS service
  - Connecting EC2 Instance to RDS Instance

**Puppet for configuration management**

- What is Puppet?
  - How puppet works
  - Puppet Architecture
  - Master and Agents
  - Puppet terminology and about Manifests
- Installation and Configuration

- Installing Puppet
  - Configuring Puppet Master and Agent
  - Connecting Agents
- Puppet Master
  - Puppet configuration files
- Puppet Language Basics
  - The declarative language
  - Resources
  - Using Basic resources like file,exec,package service
  - Resource Collectors
  - Virtual Resources
  - Exported Resources
  - Manifests
  - Modules and Classes
  - Class Parameters
  - Defined Type
- Templates
  - Static Contents Explosion
  - Using Dynamic Content with Templates
  - Templates Overview
  - ERB
- Example Code Manifests/Modules
  - NTP Module
  - Users Module
  - SSH
  - Sudo
- Puppet Forge
  - Understanding the Puppet Forge
  - Module structure
  - Install LAMP with preexisting modules
  - Installing Apache Tomcat with Puppet Modules

## **Jenkins – Continuous Integration**

- Introduction.
  - Understanding continuous integration
  - Introduction about Jenkins
  - Build Cycle
  - Jenkins Architecture
- Installation
  - Obtaining and installing Jenkins
  - Installing and configuring Jenkins using WAR and RPM
  - Java installation and configuration
  - Maven Installation
  - Exploring Jenkins Dashboard.

- Jobs
  - Creating Jobs
  - Running the Jobs
  - Setting up the global environments for Jobs
  - Adding and updating Plugins
  - Disabling and deleting jobs
- Build Deployments
  - Understanding Deployment.
  - Tomcat installation and configuration
- Securing Jenkins
  - Authentication
  - Jenkins Plugin
  - Authorization
  - Confidentiality
  - Creating users
  - Best Practices for Jenkins

### **Docker- Containers.**

- Introduction
  - What is a Docker
  - Use case of Docker
  - Platforms for Docker
  - Dockers vs. Virtualization
- Architecture
  - Docker Architecture.
  - Understanding the Docker components
- Installation
  - Installing Docker on Linux.
  - Understanding Installation of Docker on windows.
  - Some Docker commands.
  - Provisioning
- Docker Hub.
  - Downloading Docker images.
  - Uploading the images in Docker Registry and AWS ECS
  - Understanding the containers
  - Running commands in container.
  - Running multiple containers.
- Custom images
  - Creating a custom image.
  - Running a container from the custom image.
  - Publishing the custom image.
- Docker Networking
  - Accessing containers
  - Linking containers

- Exposing container ports
- Container Routing
- Docker Compose
  - Installing The Docker compose
  - Terminology in Docker compose
  - Build word press site using Docker compose

## **VAGRANT**

- Introduction
  - Why and what is Vagrant
  - Uses of Vagrant in an environment
  - Alternatives of Vagrant
  - Vagrant versions
- Installation and Configuration
  - Installing Virtual box
  - How to install Vagrant on Windows and Linux
  - Configuring Vagrant
- Provisioning with Vagrant
  - Creating first VM with Vagrant
  - Operations on the VM
  - Connecting to the VM
  - Add required Images to Vagrant
  - Creating network and port forwarding using Vagrant

## **NEW RELIC**

- Introduction
  - About Monitoring tools
  - About New Relic
  - Installing and Configuring New Relic
  - Application Monitoring using New Relic
  - Server Monitoring using New Relic
  - Alerts policies

## **ELK**

- Introduction
- What is ELK?
- ELK Installation
- ElasticSearch
- Logstash
- Configuring Logstash and Kibana