



DEVOPS COURSE CONTENT

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 webservers 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