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IT Consulting | Training | Staffing

## DevOPS



### Tools:

- ❖ Ansible
- ❖ Jenkins & Maven
- ❖ Docker & Kubernetes
- ❖ Linux
- ❖ Chef
- ❖ Vagrant
- ❖ Elastic search
- ❖ Kibana
- ❖ Logstash
- ❖ Nagios
- ❖ Git
- ❖ AWS

### Why DevOps:

- ❖ Business Perspective
- ❖ IT Perspective
- ❖ Developer Perspective
- ❖ Tester Perspective
- ❖ Operations Perspective

### What is DevOps:

- ❖ Definition
- ❖ Stakeholders of DevOps



## **What is SDLC:**

- ❖ Phases of SDLC
- ❖ Role Of Dev in SDLC
- ❖ Role of Ops in SDLC

## **Linux Essentials:**

### **Introduction to DevOps Automation**

- ❖ Introduction
- ❖ Tools
- ❖ DevOps Technology Categories
- ❖ Collaboration
- ❖ Planning
- ❖ Issue Tracking
- ❖ Configuration Management
- ❖ Source Control
- ❖ Dev Environments
- ❖ Continuous Integration
- ❖ Continuous Testing
- ❖ Continuous Deployment
- ❖ Monitoring

## **Linux Essentials**

- ❖ Working at the Command Line
- ❖ Linux commands
- ❖ Bash scripting
- ❖ Accessing Servers with ssh

## **Virtualization**

- ❖ Introduction
- ❖ What is Virtualization
- ❖ Server Virtualization
- ❖ Desktop Virtualization
- ❖ Application Virtualization

## **DevOps Tools**



## **1. Source Code Management**

What is Version Control System?

### **Git:**

- ❖ Installation
- ❖ Configuration
- ❖ Basic Commands
- ❖ Branches
- ❖ Repositories and Tracking

## **2. Automate Build Process (CI)**

### **Maven:**

- ❖ Introduction, Maven Structure
- ❖ Maven Dependencies
- ❖ Maven Repositories
- ❖ Maven Plugins
- ❖ Integrated Maven Build

### **Jenkins:**

1. What is Jenkins?

2. Installation and configuration

- ❖ Prerequisites
- ❖ Download and installation
- ❖ Configuration.

3. Managing Jenkins

- ❖ Securing Jenkins, Managing Credentials, Plugin Management
- ❖ Jenkins Backup, Create a Build Slave

4. Creating Application Builds

- ❖ Manual compilation with Maven
- ❖ Manually Testing, Packaging and Running the App
- ❖ Creating a Jenkins Job and configuring a Git Repo



- ❖ Compiling in Jenkins
- ❖ App Packaging in Jenkins
- ❖ Archiving artifacts
- ❖ Cleaning up Past Builds
- ❖ Build time trend
- ❖ The Jenkins Dashboard
- ❖ Troubleshooting build failures
- ❖ Build linking upstream and downstream

## 5. Plugins

- ❖ Introduction
- ❖ Plugin Architecture
- ❖ Extension Points
- ❖ Getting Plugins
- ❖ Useful Plugins Overview
- ❖ Build Tool Plugins
- ❖ Installing a plugin
- ❖ Plugin configuration
- ❖ Security Overview

## 6. Continuous Testing and Continuous Integration and Testing

- ❖ Adding steps to Freestyle Project
- ❖ Creating a Pipeline job to execute Maven
- ❖ Archiving in a Pipeline
- ❖ Checking out git repository in pipeline
- ❖ The Master Agent Model
- ❖ Allocating a node and workspace in Pipeline
- ❖ High level progress with Pipeline stages
- ❖ Triggering Automated Builds
- ❖ Configuring an Email Server
- ❖ Notifications when a build fails
- ❖ Executing unit tests
- ❖ Executing selenium tests

## 7. Finding and Managing Plugins

- ❖ The need for plugins
- ❖ Integrated Code Coverage
- ❖ Assessing a plugin
- ❖ Testing Plugins and Plugin Types



- ❖ BlueOcean UI Plugin

## 8. Building Continuous Delivery Pipeline

- ❖ Continuous Delivery
- ❖ Backup and Restore
- ❖ A Second Node Allocation
- ❖ Adding an Agent Node
- ❖ Setup parallel integration testing in a pipeline
- ❖ Executing and Monitoring Parallel pipelines
- ❖ Setup Deployment to staging
- ❖ Executing a Deployment pipeline
- ❖ Checkin pipeline script to Git

## **3. Configuration / Provisioning**

### **CHEF:**

#### Introduction to Chef

- ❖ What is Chef
- ❖ Common Chef Terminology
- ❖ Chef Server and Workstation
- ❖ Chef-Repo
- ❖ Chef-Client
- ❖ Server and Nodes
- ❖ Chef Configuration Concepts

#### Building Web Server Cookbook

- ❖ Getting Setup
- ❖ Starting the Apache Recipe
- ❖ Adding Platform Support to the Cookbook
- ❖ Adding Local Chef-Repo to Github
- ❖ Install and configure Chef Reporting
- ❖ Node Object and Search
- ❖ What is Node Object
- ❖ Node Attributes with Knife

#### Data-Bags

- ❖ What are Data Bags?
- ❖ Building a recipe to deploy local user accounts From Data Bags



- ❖ Chef Environments
- ❖ What are Environments and why do they matter
- ❖ Creating and Configuring Environments
- ❖ Deploying to Different Environments
- ❖ Viewing and Environments with Knife

## Roles

- ❖ What are Roles
- ❖ Creating A web server Role
- ❖ Creating Db Server Role
- ❖ Creating a Base Role

## Extending Chef

- ❖ Knife plugins

## **Vagrant:**

### Introduction

- ❖ What is Vagrant
- ❖ Virtualization Overview

### Setting Up Vagrant

- ❖ Virtual Box Installation
- ❖ Vagrant Installation
- ❖ Vagrant without Virtual Box

### Using Vagrant

- ❖ Vagrant Machine
- ❖ Vagrant Files
- ❖ Boxes
- ❖ Running Vagrant Machines
- ❖ SSH to Vagrant Machine
- ❖ Synced Folders
- ❖ Networking Basics
- ❖ Environment Management

### Automated Provisioning

- ❖ Provisioning



- ❖ Installing Apache /Shell Script
- ❖ Installing Apache /Chef

## Networking

- ❖ Private Networking
- ❖ Public Networking

## **Ansible:**

### Introduction

- ❖ What is Ansible
- ❖ Change Management
- ❖ Provisioning
- ❖ Automation
- ❖ Orchestration
- ❖ Why use Ansible
- ❖ YAML
- ❖ Built in Security
- ❖ Extendable
- ❖ Conclusion

### Architecture and Process Flow

- ❖ Architecture Introduction
- ❖ System Requirement
- ❖ Components Overview
- ❖ Process of Execution & flow
- ❖ Conclusion

### Creating Environment

- ❖ Introduction
- ❖ Installing Ansible
- ❖ Testing with First Ansible Commands

### Ansible Inventory and Configuration

- ❖ Introduction to Inventory & Configuration
- ❖ Inventory Fundamentals
- ❖ Scaling out with Multiple Files
- ❖ Ansible Configuration Basics



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- ❖ Working with python based systems

#### Ansible Modules

- ❖ Introduction
- ❖ Ansible Modules Fundamentals
- ❖ Module Docs
- ❖ Yum Module
- ❖ Setup Module

#### Plays and PlayBooks

- ❖ Introduction
- ❖ Plays PlayBooks basics
- ❖ Basic Play book
- ❖ Playbook Logic & More
- ❖ Advance Playbook usage

#### Roles

- ❖ Introduction to Roles
- ❖ Role Basics
- ❖ Creating Role
- ❖ Ansible Galaxy

## 4. Containerization

### Docker:

#### Introduction

#### Installing Docker

- ❖ Installing Docker on Windows
- ❖ Installing Docker on Linux

#### Working with Containers

- ❖ What is container
- ❖ Docker run command
- ❖ Theory of pulling and Running Containers
- ❖ Working with images
- ❖ Container Life cycle





## **Kubernetes & Micro services:**

- ❖ What is kubernetes
- ❖ Installations and configuration master and nodes
- ❖ Master components
- ❖ Pods, pod lifecycle
- ❖ Services
- ❖ Replica controller
- ❖ deployment

## **5. Monitoring**

### **Nagios:**

- ❖ Installation of Nagios
- ❖ Configuring Nagios
- ❖ Monitoring with Nagios
- ❖ Triggering Alerts

### **Elasticsearch+logstash+Kibana:**

- ❖ Installation of ELK stack
- ❖ Configuring the ELK Stack
- ❖ Monitoring logs with ELK

## **6. Cloud Platforms**

### **AWS:**

- ❖ Environment setup in AWS
- ❖ Cloud Deployment Scenarios in AWS
- ❖ Continuous Delivery in AWS

For any further details please email to [info@testalogix.com](mailto:info@testalogix.com)