KOENIG
step forward

CI CD with Ansible and Terraform

Duration: 8 Days (8 hours)

Git and GitHub

Module 1 – Git

Introduction to Version Control System
History of Git
Git Basics
States in Git
Installing Git
Configuration of Git
Working with Repositories
Basic Git Commands
Working with Remotes
Tagging
Git Branching

Automation with Ansible

Module 1 – Introduction to Ansible

Evolution of Infrastructure
Overview of Infrastructure as a Code
What is Configuration Management
Ansible Overview
Case Study

Module 2 – Ansible Architecture and Installation

Ansible Architecture and It's Working
Ansible in DevOps
Installation and Configuration
Working with Command Line Tools

Module 3 – Ansible Modules

Overview of Modules
Types of Modules
Core Modules
Extras Modules
Return Values
Ad-Hoc Commands
Case Study

Module 4 – The Playbook Grammar

Introduction to YAML
Playbook YAML Definition
Playbook Terms
Playbook Tasks
Writing Ansible Playbooks

Module 5 – Variables, Conditions, Loops, Handlers and Jinja2 Templates

Hosts and Users
Variables
Loops
Handlers
Jinja2 Templates

Module 6 – AWX Tower

Installing AWX Tower
Features of Ansible Tower
Managing Jobs
Manage and Track Inventory
Remote Command Execution
Case Study

Terraform with Azure

Module 1 - Getting Started & Setting Up Labs

Choosing a right Infrastructure as Code tool
Terraform Overview
Installing Terraform - Windows Users
Difference between Terraform and Ansible
Setting up Azure Account
Introduction to Azure CLI
Authenticate Azure with Terraform
Terraform init, plan and apply

Module 2 – Building Cloud Infrastructure with Terraform

Introduction to Terraform with Azure
Create Resource Group
Terraform Destroy
Azure Virtual Networks
Azure Subnet
Azure Public IP
Azure Network Interface
Create Windows and Linux VM
Azure Storage
Security Groups Load
Balancers
Understanding Terraform State files
Understanding Desired & Current States
Terraform Provider Versioning
Types of Terraform Providers
Methods to define Terraform provider Version

Module 3 - Read, Generate, Modify Configurations

Understanding Attributes and Output Values in Terraform
Referencing Cross-Account Resource Attributes Terraform
Variables
Methods to Define Variables
Data Types for Variables
Fetching Data from Maps and List in Variable
Count and Count Index
For_each

Create multiple VMs with Terraform
Conditional Expressions
Local Values
Splat Expressions
Terraform Functions
Lookup Function
Element Function
Zipmap Function
Data Sources
Terraform Format
Validating Terraform
Terraform Graph
Saving Terraform Plan to File

Module 4 - Terraform Provisioners

Understanding Provisioners in Terraform
Types of Provisioners
Implementing remote-exec provisioners
Implementing local-exec provisioners

Module 5 - Terraform Modules & Workspaces

Understanding DRY principle
Variables and Terraform Modules
Terraform Registry
Terraform Workspace
Implementing Terraform Workspace

CI/CD Tool - Jenkins

Module 1 – Introduction to Jenkins

Introduction to Jenkins
Jenkins Installation
Introduction to Jenkins UI
Create First Job
Add Parameters to your Job

Module 2 – Add SSH Node Credentials in Jenkins

Install SSH Plugin in Jenkins
Add Credentials of Node
Integrate Node SSH Server with Jenkins

Module 3 – Build Job on Remote Machine

Deploy Web Server Automatically through Jenkins

Module 4 – Jenkins Security

Enable/Disable Login in Jenkins
Allow Users to Sign up
Create Users Manually in the Jenkins DB Create and
Manage Roles for Jenkins Users

Module 5 – Jenkins Email Integration

Install a Mail Plugin
Integration Jenkins and G-mail

Add notifications to your jobs

Module 6 – Jenkins Ansible Integration

Store Playbooks, Inventory and Configuration Files on GitHub
Automatically Pull Code from GitHub then Run on Ansible Server

Module 7 – CICD with Jenkins and Terraform

Store Terraform Files, Playbooks, Inventory and Configuration Files on GitHub
Automatically Deploy VMs With the Help of Terraform and Once Machine is Deployed then Run Ansible to Configure Playbooks