

OpenStack, Ansible and Kubernetes

Duration: 60 Hours

OpenStack

Lab Architecture: Single Node OpenStack Cluster

Module 1 – Introduction to OpenStack

OpenStack Overview and History
OpenStack Infrastructure-as-a-Service Cloud User Perspective
High level Overview of OpenStack Architecture
Architecting & Implementing OpenStack Deployment

Module 2 – Horizon Dashboard and OpenStackClient CLI

OpenStack Dashboard and Command Line Clients
Lab: Using Horizon
Lab: Using OpenStack Client

Module 3 – Keystone – Identity Management

Understanding Keystone
Lab: Using Keystone with Horizon Dashboard
Lab: Keystone on Command Line

Module 4 – Glance – Image Management

Inside of Glance
Lab: Managing Images in Horizon Dashboard
Lab: Managing Images on Command Line

Module 5 – Nova – Compute Service

Compute Service Introduction
Virtual Server Instances – A Deep Dive
Lab: Nova in Horizon Dashboard
Lab: Nova on Command Line

Module 6 – Cinder – Block Storage

Understanding Block Storage
Lab: Volume Management in Dashboard
Lab: Managing Volumes on Command Line

Module 7 – Neutron - Networking

OpenStack Network Service
Virtual Network Resources
Lab: Network Management in Horizon
Lab: CLI of OpenStack Networking

Ansible

Lab Requirement: Koenig-DC (CentOS 9)

Module 1 – Introduction to Configuration Management with Ansible

Introduction to Ansible
Configuration Management
How Ansible Works

Module 2 – Ansible Deployment

Lab: Installation and Configuration
Understanding Ansible Configuration File
Lab: Create Ansible Configuration File
Understanding Ansible Inventory
Lab: Creating Ansible Inventory

Module 3 – Working with Ansible

Understanding Ansible Modules
Lab: Ad-Hoc Remote Executions
Understanding Playbook Structure
Lab: Creating Playbook and Testing Syntax
Variables in Ansible
Lab: Working with Variables in Playbook
Understanding Facts
Lab: Using Facts in Playbook
Understanding Notify and Handlers
Lab: Notify and Handlers
Ansible Roles
Lab: Play with Roles

Kubernetes

Lab Architecture: Koenig DC (CentOS 9)

Prerequisite: Docker Knowledge

Module 1 – Introduction to K8s

Introduction to Container Orchestration
Introduction to Kubernetes
Understanding Kubernetes Architecture

Module 2 – Creating Kubernetes Resources

Understanding Pods
Lab: Deploying Applications as a Pod
Managing Labels and Selector
Lab: Managing Labels and Selector
Understanding ReplicaSet
Lab: Deploying ReplicaSet
Understanding Services – Cluster IP, NodePort and LoadBalancer
Lab: Creating and Managing Services – ClusterIP and NodePort
Understanding Deployment
Lab: Managing Deployment