Podman and OKD Administration 1

Duration: 5 days (8hrs/day)

Prerequisites:

- Basic knowledge of Linux Server Administration.

Lab Requirement: Koenig-DC (https://linuxlab.koenig-solutions.com)

Module 1 – Installation of Podman

Introduction to Podman

Podman Architecture

Installation of Podman

Module 2 – Podman Client Operations

Running a Container

Container Lifecycle

Managing Containers

Executing Commands in Running Containers

Module 3 – Building Custom Images and Quay Registry

Creating Podman Images using Podman Commit

Building a Podmanfile

Tagging an Image Pull and Push Images to Quay.io

Module 4 – Podman Storage

Storage Overview

Creating and Managing Volumes

Using Bind Mounts

Module 5 – Container Networking

Overview of Container Networking

Introduction to Bridge Network Driver
Managing Network Bridges

Introduction to Host Network Driver

Create Containers with None Network Driver

Module 6 – Troubleshoot Multi Containers

Network Connectivity Issues between Multi Containers

Wrong Environment Variable Issue in Containers

Module 7 – Core Concepts

Overview of Container Orchestration

Introduction to Kubernetes

Understanding Kubernetes Architecture

Introduction to OpenShift

Understanding Openshift Architecture

Module 2 – Kubernetes and OpenShift Command Line Interfaces

Methods of Connecting with OpenShift

Working with OpenShift Web Console

Working with OpenShift CLI

Inspect Kubernetes Resources

Module 3 – Working with Resources

Lab: Create Pods

Lab: Image Pull Policy

Working with Labels and Selectors

Lab: Labels and Selectors

Lab: Deploying Replication Controller & Replica Set

Understanding Services – ClusterIP, NodePort & LoadBalancer

Lab: Creating & Managing Service

Understanding Daemon Sets

Lab: Deploying Applications as Daemon Sets

Module 4 - Scheduling

Manual Scheduling of Pods

Lab: Manual Schedudling

NodeSelector

Lab: NodeSelector

Taint and Tolerations

Lab: Taints and Tolerations

Node Affinity

Lab: Node Affinity

Module 5 – Managing Application Configuration

Plain Key Value

Lab: Create Pod with Plain Key Value

ConfigMap

Lab: ConfigMap as Variable

Lab: ConfigMap as Volume

Secrets

Lab: Secret as Variable

Lab: Secret as Volume

Module 7 – Managing Storage

Understanding Volume Management in K8s

Types of Volumes Provisioning

Persistent Volumes

Persistent Volume Claim

Lab: Using PV & PVC to attach Persistent Volume to a Pod as HostPath

Understanding Storage Class

Module 8 – Configure Applications for Reliability

Application Health Probes

Introduction to Readiness Probe

Lab: Working with Readiness Probe

Introduction to Liveness Probe

Lab: Working with Liveness Probe

Managing ResourceQuota for Pod

Lab: Managing Resource Quota

Managing LimitRange

Lab: Managing LimitRange

Module 9 – Managing Application Updates

Container Image Identity and Tags

Lab: Container Image Identity and Tags

Update Application Image and Settings

Lab: Update Application Image and Settings

Reproducible Deployments with OpenShift Image Streams

Lab: Updates with OpenShift Image Change Triggers