ProTech Professional Technical Services, Inc.

KUB211 v1.24 Rancher Kubernetes Engine 2 Deployment

Course Summary

Description

This course covers the deployment of Rancher Kubernetes Engine 2 (RKE2). You will start by learning the basics of installing RKE2, and then progress to installing a highly available RKE2 cluster. Next, you will delve into installing additional clusters with different configurations, Including custom Kubernetes Addons as an auto deployed service, advanced networking such as the Multus CNI plugin, and CIS hardening. Additionally, you will learn how to install a cluster in an air-gapped environment. After performing the different cluster installations, you will backup and restore an RKE2 cluster. Finally, you will learn how to upgrade both standard and air-gapped RKE2 clusters.

Objectives

At the end of this course, students will be able to:

- Deployment of RKE2 clusters, both standard highly available clusters and those with custom K8s addons, advanced networking and with CIS hardening
- Deployment of RKE2 clusters in an air-gapped environment
- Backing up and restoring RKE2 clusters
- Upgrading RKE2 clusters

Topics

- Course Overview
- Overview of the RKE2 Deployment Process
- Install RKE2 Clusters
- Install RKE2 Clusters with Auto Deployed Services

- Install RKE2 Clusters with Advanced Networking
- Install CIS Hardened RKE2 Clusters
- Install Air-gapped RKE2 Clusters
- Overview of etcd and RKE2 Backup and Recovery
- Upgrade RKE2 Clusters

Audience

This course is designed for system administrators and others that are interested in deploying RKE2 clusters.

Prerequisites

Attendees should have experience with Kubernetes administration and experience with SUSE Linux Enterprise deployment and administration.

Duration

Two days

Course Outline

I.   *Course Overview*

II. *Overview of the RKE2 Deployment Process*
   A. Introduction to RKE2
   B. Requirements for RKE2 Deployment
   C. RKE2 Architecture and Design Concepts

III. *Install RKE2 Clusters*
   A. Overview of RKE2 Installation Methods
   B. Overview of RKE2 Manual Installation
   C. Overview of RKE2 Installation with the Installer Script
   D. Overview of the RKE2 Configuration Options
   E. Multi-node and Highly Available RKE2 Clusters
   F. Install RKE2

IV. *Install RKE2 Clusters with Auto Deployed Services*
   A. Understand Kubernetes Addons
   B. Understand Helm Integration in RKE2
   C. Configure Deployment of Addons During the RKE2 Cluster Install

V.   *Install RKE2 Clusters with Advanced Networking*
   A. Understand Cluster Networking Options in RKE2
   B. Configure Cluster Networking in RKE2
   C. Configure RKE2 to Provide Multiple Network Interfaces to Pods

VI. *Install CIS Hardened RKE2 Clusters*
   A. Understand the CIS Benchmark and Cluster Hardening
   B. Install RKE2 with Hardening for the CIS Benchmark

VII. *Install Air-gapped RKE2 Clusters*
   A. Understand Air-gapped RKE2 Cluster Installation Concepts
   B. Install RKE2 in an Air-gapped Environment

VIII. *Overview of etcd and RKE2 Backup and Recovery*
   A. Overview of etcd
   B. Understand Basic etcd Concepts
   C. Understand RKE2 Backup and Recovery Concepts Back Up and RKE2 Cluster
   D. Restore an RLE2 Cluster

IX. *Upgrade RKE2 Clusters*
   A. Overview of the RKE2 Cluster Upgrade Process
   B. Upgrade RKE2 Clusters
   C. Upgrade RKE2 Clusters in an Air-gapped Environment