ProTech Professional Technical Services, Inc.

KUB201 v1.26 Kubernetes Administration

Course Summary

Description

This course is designed for system administrators, DevOps, system engineers and others who need an introduction to containers and Kubernetes. The course begins with an introduction to containers and container orchestration. Students will then learn about and explore Kubernetes, including launching applications, configuring networking, storage and security, and using Helm to deploy applications. The course includes comprehensive presentation content to introduce new concepts and processes and extensive hands-on experience.

Objectives

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

- Containers and Orchestration Concepts
- An Introduction to Kubernetes
- The Basics of Kubernetes
- Kubernetes Cluster Administration
- Networking, Storage and Security for Kubernetes
- Helm and Helm Charts

Topics

- Course Introduction
- Introduction to Containers and Container Orchestration
- Kubernetes Administration
- Application Management in Kubernetes with Kustomize
- Application Management in Kubernetes with Helm
- Ingress Networking with an Ingress Controller in Kubernetes
- Storage in Kubernetes
- Resource Usage Control in Kubernetes
- Role Based Access Controls In Kubernetes

Audience

This course is designed for system administrators and others who want to administer Kubernetes.

Prerequisites

Attendees should have familiarity with the Command Line, Linux System Administration skills and attention to details. SUSE Certified Administrator (SCA) in Enterprise Linux or SUSE Certified Linux Engineer (SCE) in Enterprise Linux certification or level of experience recommended.

Duration

Two days

Course Outline

KUB201 v1.2 Kubernetes Administration

Course Outline

I. Course Introduction
 A. Understand the Course

II. Introduction to Containers and Container Orchestration
 A. Understand Container Concepts
 B. Understand a Microservice Architecture
 C.   Understand Kubernetes
 D.   Understand SUSE Rancher Kubernetes Offerings

III. Kubernetes Administration
 A.   Understand Basic Kubernetes Commands
 B.   Work with Namespaces
 C.   Understand Kubernetes Manifests
 D.   Understand Multi-pod Deployment
 E.   Work with Deployments
 F.   Configure Networking for Applications
 G.   Use Environment Variables with Applications
 H.   Use ConfigMaps
 I.   Work with Secrets in Kubernetes
 J.   Work with Labels and Selectors
 K.   Configure Node Affinity in Kubernetes
 L.   Scale Out Applications

IV. Application Management in Kubernetes with Kustomize
 A.   Understand Kustomize Concepts
 B.   Manage Applications with Kustomize

V. Application Management in Kubernetes with Helm
 A.   Understand Basic Helm Concepts
 B.   Manage Applications with Helm

VI. Ingress Networking with an Ingress Controller in Kubernetes
 A.   Understand Ingress Networking for Applications
 B.   Work with the Nginx Ingress Controller

VII. Storage in Kubernetes
 A.   Understand Kubernetes Storage Concepts
 B.   Work with Persistent Storage in Storage Classes

VIII. Resource Usage Control in Kubernetes
 A.   Understand Resource Usage Control in Kubernetes
 B.   Work with LimitRanges
 C.   Work with Resource Quotas

IX. Role Based Access Controls In Kubernetes
 A.   Understand Role Based Access Controls
 B.   Authenticate to a Kubernetes Cluster
 C.   Configure RBAC in Kubernetes