Kubernetes Administration (LFS458)

Training period: 4days (28hours)
Training location: Customer desired place (On-site)

Covers essential knowledge of configuring and operating Kubernetes, an opensource container orchestration platform.

This course covers core concepts commonly used to create and manage Kubernetes clusters in production environments using independant tools from the Linux Foundation. Build the cluster, determine network configuration, scale the cluster, deploy applications, and configure storage, security, and other objects required for general use.
It provides a variety of opensource based technical training required to manage Kubernetes in a production environment.

Also, this course is an appropriate preparation for the Certified Kubernetes Administrator (CKA) exam.

Educational goals

Learn how to install, configure, and manage Kubernetes in operating system

Trainees

Operators and developers who want to learn basic concepts of Kubernetes and cluster configuration and management skills

Prerequisite knowledge

Understanding of Linux OS / environment, basic commands, and text editors

Educational environment

Cloud Platform provided for each individual during the training period, personal notebook preparation required

Textbooks

Linux Foundation certified textbooks

Training schedule

09:30 ~ 17:30 (4 days/28 hours)

OSC Training Differentiation

Instructor with practical experience

An instructor with practical experience certified by the Linux Foundation explains the core concepts of K8s.

On-site lectures

Instructor visits the customer's desired location (customers' site) and conducts training.

Qualification Acquisition Linked Course

You can prepare for the CNCF's accredited qualification exam*, which has recently become increasingly popular.
*CKA (Certified Kubernetes Admininstrator)

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Curriculum Guide

(7 hours / day, 4 days)

Introduction

- Linux Foundation
- Linux Foundation Training
- Linux Foundation Certifications
- Linux Foundation Digital Badges
- Laboratory Exercises, Solutions and Resources
- E-Learning Course: LFS258
- Platform Details

Basics of Kubernetes

- Define Kubernetes
- Cluster Structure
- Adoption
- Project Governance and CNCF

Installation and Configuration

- Getting Started With Kubernetes
- Minikube
- kubeadm
- More Installation Tools

Kubernetes Architecture

- Kubernetes Architecture
- Networking
- Other Cluster Systems

APIs and Access

- API Access
- Annotations
- Working with A Simple Pod
- kubectl and API
- Swagger and OpenAPI

API Objects

- API Objects
- The v1 Group
- API Resources
- RBAC APIs

Managing State With Deployments

- Deployment Overview
- Managing Deployment States
- Deployments and Replica Sets
- DaemonSets
- Labels

Volumes and Data

- Volumes Overview
- Volumes
- Persistent Volumes
- Rook
- Passing Data To Pods
- ConfigMaps

Services

- Overview
- Accessing Services
- DNS

Helm

- Overview
- Helm
- Using Helm

Ingress

- Overview
- Ingress Controller
- Ingress Rules
- Service Mesh

Scheduling

- Overview
- Scheduler Settings
- Policies
- Affinity Rules
- Taints and Tolerations

Logging and Troubleshooting

- Overview
- Troubleshooting Flow
- Basic Start Sequence
- Monitoring
- Plugins
- Logging
- Troubleshooting Resources

Custom Resource Definition

- Overview
- Custom Resource Definitions
- Aggregated APIs

Security

- Overview
- Accessing the API
- Authentication and Authorization
- Admission Controller
- Pod Policies
- Network Policies

High Availability

- Overview
- Stacked Database
- External Database