Updated on 04/25/2025

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Rancher training

3 days (21 hours)

Presentation

Rancher Labs is a software company working on operating system-level virtualization tools, more commonly known as Linux Containers.Founded in 2014, Rancher Labs has introduced two main tools:

Rancher, a container management platform for Docker container systems, and RancherOS, a Linux operating system distribution simplified to host these same containers.

As with all our training courses, this one will cover the latest version of the tool, i.e. Rancher 2.8 (on 16/04/2024, date of writing).

Objectives

- Be able to administer k8s clusters with rancher
- Deploying applications via rancher
- Exposing applications via rancher

Target audience

- Developers
- Architects
- System administrators
- DevOps

Prerequisites

- Knowledge of Kubernetes or have taken our Kubernetes training course

- How to create and run Docker containers
- Basic knowledge of a Unix system

Technical requirements

- Kubernetes installed
- A 64-bit x86 Linux operating system

Rancher training program

RKE, RKE2, RKE Government and K3s: The evolution of Rancher's Kubernetes distributions

- RKE: The distribution company that started it all
- K3s: The lightweight Kubernetes distribution
- RKE2: The New Generation

Understanding how K3s and RKE2 work

- Installing and configuring K3s
- Installing and configuring RKE2
- The RKE2 start-up process explained
- Joining an RKE2 cluster as a Worker Node

Rancher Manager: Administration and configuration

- Hub & Spoke strategy
- Regional strategy
- Regional vs. Hub & Spoke: comparing the two strategies
- Which strategy should you choose?

Installing and configuring Rancher Manager

- Installing Rancher Manager
- Rancher Manager configuration
- Using Rancher Dashboard
- Configuring Rancher Manager authentication

Deploying and managing workloads with Rancher Manager

- Creating a Namespace
- Register secrets, self-signed certificates and insecure registers

- Creating a Deployment
- Examine and debug K8s workloads with Rancher Manager
- Deployment example: Harbor Container Registry and Gitea

Deploying and managing services with Rancher Manager

- Clusters and NodePorts
- Service LoadBalancer, Cloud Providers, Bare Metal and ServiceLB (Klipper)
- Creating an Ingress Service
- Exposing services with Ingress
- Network Policies using Rancher

GitOps with Fleet: Rancher meets Continuous Delivery

- GitOps: A philosophy and framework for operational excellence
- Why and when should you choose Fleet?
- Fleet: Boosting Rancher with GitOps
- Fleet Architecture
- Understanding Fleet workflow
- Deploying Applications with Fleet
- Creating a GitRepo Fleet
- Managing Fleet with YAML manifests

Longhorn: The distributed block storage solution for Kubernetes

- What is Longhorn? When to use Longhorn
- Longhorn features and benefits
- Main components: Longhorn Manager and Engine
- Installation and configuration
- Using Longhorn Storage Class
- Data reliability with replication
- Disaster Recovery Volumes
- ReadWriteMany Volumes and NFSv4

Rancher cluster management: expanding the possibilities

- Imported clusters (non-RKE2 self-hosted clusters)
- Rancher-launched clusters (RKE2 self-hosted/Rancher-launched clusters)
- Cloud-managed clusters
- A comparison of functionalities for different types of clusters

Disaster Recovery: Best Practices and Procedures

- What is a Snapshot?
- Best Practices for Cluster Backup and Restore
- Automated backups

- Off-site storage
- Backing up the Management Cluster

Certificate and encryption key rotation

- Certificate rotation
- Encryption key rotation

Rancher Drivers for Clusters and Nodes

- Cluster Drivers
- Node Drivers

Companies concerned

This training course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives with regard to the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.