

KUB202-Kubernetes-CKAD

Durata: 24 ore

Descrizione: in questo corso imparerai come utilizzare un cluster Kubernetes e come implementare i servizi basati sui container.

Imparerai come progettare e deployare applicazioni cloud native su Kubernetes da zero e realizzare un cluster applicativo.

Imparerai come scrivere i file YAML relativi ai vari componenti di Kubernetes.

Capirai come utilizzare Pod, Controller, Deployment, ConfigMap, Secrets, Services.

Imparerai come eseguire gli aggiornamenti dell'applicazione, gestire le risorse, la sicurezza e fare troubleshooting.

Pubblico: sviluppatori, architetti, DevOps

Prerequisiti: competenze basilari di sviluppo software, concetti relativi ai microservizi, competenze relative ai container, costruzione di immagini con Dockerfile (DOC101)

Labs: macchine virtuali con accesso tramite interfaccia web

Versione software: Kubernetes 1.31.1 (released: 2024-09-11)

Certificazione collegata: Certified Kubernetes Application Developer (CKAD)

Struttura del corso:

Kubernetes

- Introduction
- Exploring Kubernetes Architecture
- Working with Your Kubernetes Cluster

Managing kubernetes API server and pods

- Using the Kubernetes API
- Managing Objects with Labels, Annotations, and Namespaces
- Running and Managing Pods
- Using Label Selectors

Managing Pods and Deployments

- Using Controllers to Deploy Applications and Deployment Basics
- Maintaining Applications with Deployments

Design Cloud Native Applications with Kubernetes

- Traditional Applications: Considerations
- Decoupled Resources
- Managing Resource Usage
- Design Patterns:
 - Multi-Container Pods
 - Sidecar Containers
 - Adapter Container
 - Ambassador

Configuring and Managing Kubernetes Storage

- Configuring and Managing Storage in Kubernetes
- Configuration as Data
- Environment Variables, Secrets and ConfigMaps

Networking, Services, and Ingress

- Kubernetes Networking Fundamentals
- Configuring and Managing Application Access with Services
- Configuring and Managing Application Access with Ingress

Monitoring and, Troubleshooting Kubernetes

- Logging and Monitoring in Kubernetes Clusters
- Troubleshooting Kubernetes Clusters

Configuring and Managing Kubernetes Security

- Kubernetes Security Fundamentals
- Managing Role Based Access Controls

Labs Outline:

Lab 00 - How to connect to lab

Lab 01 - Work with the cluster

Lab 02 - Imperative and declarative

Lab 03 - API

Lab 04 - API Discovery Lab 05 - Namespace

Lab 06 - Labels

Lab 07 - Running Pods Lab 08 - Running Multi-container Pods

Lab 09 - Pod Lifecycle

Lab 10 - Implementing container probes

Lab 11 - System Pods and Controllers

Lab 12 - Create Deployment

Lab 13 - Create Deployment-Replicaset

Lab 14 - Update a Deployment

Lab 15 - Rolling back a Deployment

Lab 16 - Scaling a Deployment

Lab 17 - Sidecar Container

Lab 18 - Adapter Container

Lab 19 - Init containers

Lab 20 - Executing Jobs and CronJobs

Lab 21 - Storage Static Provisioning

Lab 22 - Environment Variables

Lab 23 - Secrets

Lab 24 - Private Container Registry

Lab 25 - ConfigMap

Lab 26 - Services

Lab 27 - Service Discovery

Lab 28 - Ingress

Lab 29 - Logging

Lab 30 - Troubleshooting Workloads

Lab 31 - Authentications

Lab 32 - Manage Authorizations

Lab 33 - Create a certificate for a new user

Lab 34 - kubeconfig and context

Lab 35 - RBAC