KUB201 - Kubernetes CKA

Durata: 32 ore

Descrizione: In questo corso imparerai come utilizzare un cluster Kubernetes e come implementare servizi basati su container. Imparerai come installare Kubernetes da zero e creare un cluster applicativo. Imparerai come scrivere file YAML relativi ai vari componenti di Kubernetes. Capirai come utilizzare Pod, Controller, Deployment, ConfigMap, Secrets, Services e Ingress. Scopri come eseguire gli aggiornamenti del cluster, gestire la sicurezza e fare troubleshooting.

Pubblico: amministratori IT, ingegneri, architetti, DevOps

Prerequisiti: competenze di base per l'amministrazione del sistema Linux, competenze relative ai container, costruzione di immagini con Dockerfile (DOC101)

Labs: macchine virtuali con accesso tramite interfaccia web

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

Certificazione collegata: Certified Kubernetes Administrator (CKA)

Struttura del corso:

Kubernetes installation and configuration fundamentals

- Introduction
- Exploring Kubernetes Architecture
- Installing and Configuring Kubernetes
- 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

Managing Kubernetes Controllers and Deployments

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

Configuring and Managing Kubernetes Storage and Scheduling

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

Configuring and Managing Kubernetes Networking, Services, and Ingress

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

Maintaining, Monitoring and, Troubleshooting Kubernetes

- Maintaining Kubernetes Clusters
- Logging and Monitoring in Kubernetes Clusters
- Troubleshooting Kubernetes Clusters

Configuring and Managing Kubernetes Security

- Kubernetes Security Fundamentals
- Managing Certificates and kubeconfig Files
- Managing Role Based Access Controls

Struttura del laboratorio:

Lab 00 - How to connect to lab
Lab 01 - Install Kubernetes
Lab 02 - Work with the cluster
Lab 03 - Imperative and declarative
Lab 04 - API
Lab 05 - API Discovery
Lab 06 - Anatomy API Request
Lab 07 - Namespace
Lab 08 - Labels
Lab 09 - Running Pods
Lab 10 - Running Multi-container Pods
Lab 11 - Pod Lifecycle
Lab 12 - Implementing container probes
Lab 13 - System Pods and Controllers
Lab 14 - Create Deployment
Lab 15 - Create Deployment-Replicaset
Lab 16 - Update a Deployment
Lab 17 - Rolling back Deployment
Lab 18 - Scaling a Deployment
Lab 19 - Creating a Daemonset
Lab 20 - Executing Jobs and CronJobs
Lab 21 - Storage Static Provisioning
Lab 22 - Storage Dynamic Provisioning
Lab 23 - Environment Variables
Lab 24 - Secrets
Lab 25 - Private Container Registry
Lab 26 - ConfigMap
Lab 27 - Scheduling
Lab 28 - Scheduling with Affinity and Antiaffinity
Lab 29 - Node Cordoning
Lab 30 - Calico CNI Plugin
Lab 31 - Configure CoreDNS
Lab 32 - Services
Lab 33 - Service Discovery
Lab 34 - Ingress
Lab 35 - ETCD
Lab 36 - Upgrade Kubernetes
Lab 37 - Logging

