KOENIG solutions · COURSE OUTLINE

CKA Exam Prep Lab

Learn to install, configure, and troubleshoot Kubernetes clusters, covering workloads, networking, storage, and security.

2 Days	5	28
DURATION	MODULES	TOPICS

COURSE OVERVIEW

The purpose of the Certified Kubernetes Administrator (CKA) exam is to provide assurance that CKAs have the skills, knowledge, and competency to perform the responsibilities of Kubernetes administrators.

WHO THIS COURSE IS FOR

- **Kubernetes Administrators**
- **System Administrators**
- **Cloud Engineers**
- **DevOps Engineers**
- **Site Reliability Engineers**

LEARNING OBJECTIVES

- Install a basic cluster using Kubeadm
- Manage a highly-available Kubernetes cluster
- Implement etcd backup and restore
- Manage Role Based Access Control (RBAC)
- Configure applications using ConfigMaps and Secrets
- Apply rolling updates and rollbacks to deployments
- Configure ClusterIP, NodePort, and LoadBalancer services
- Troubleshoot application, cluster, and networking failures

TRAINING APPROACH

This hands-on class is approximately 80/20 lab to lecture ratio, combining engaging lecture, demos, group activities and discussions with comprehensive machine-based practical programming labs and project work.

COURSE SYLLABUS

5 Modules, 28 Topics

01

Cluster Architecture, Installation & Configuration

TOPICS

- Use Kubeadm to install a basic cluster
- Manage a highly-available Kubernetes cluster
- Provision underlying infrastructure to deploy a Kubernetes cluster
- Perform a version upgrade on a Kubernetes cluster using Kubeadm
- Implement etcd backup and restore
- Manage Role Based Access Control (RBAC)

02

Workloads & Scheduling

TOPICS

- Understand deployments and how to perform rolling update and rollbacks
- Use ConfigMaps and Secrets to configure applications
- Know how to scale applications
- Understand the primitives used to create robust, self-healing, application deployments
- Understand how resource limits can affect Pod Scheduling
- Awareness of manifest management and common templating tools

03

Service & Networking

TOPICS

- Understand host networking configuration on the cluster nodes
- Understand connectivity between Pods
- Understand ClusterIP, NodePort, LoadBalancer service types and endpoints
- Know how to use Ingress controllers and Ingress resources
- Know how to configure and use CoreDNS
- Choose an appropriate container network interface plugin

04

Storage

TOPICS

- Understand storage classes, persistent volumes
- Understand volume mode, access modes and reclaim policies for volumes
- Understand persistent volume claims primitive
- Know how to configure applications with persistent storage

05

Troubleshooting

TOPICS

Evaluate cluster and node logging · Understand how to monitor applications · Manage container stdout & stderr logs · Troubleshoot application failure · Troubleshoot cluster component failure · Troubleshoot networking

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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