Enterprise Computing Solutions - Education Services

# TRAINING OFFERING

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# Kubernetes Fundamentals and Cluster Operations

| CODE: | LENGTH: | PRICE: |
|---|---|---|
| VMW_KFCO | 32 Hours (4 days) | kr35,000.00 |

## Description

This four-day course is the first step in learning about Containers and Kubernetes Fundamentals and Cluster Operations. Through a series of lectures and lab exercises, the fundamental concepts of containers and Kubernetes are presented and put to practice by containerizing and deploying a two-tier application into Kubernetes.

## Objectives

By the end of the course, you should be able to meet the following objectives:
• Build, test, and publish Docker container images
• Become familiar with YAML files that define Kubernetes objects
• Understand Kubernetes core user-facing concepts, including pods, services, and deployments
• Use kubectl, the Kubernetes CLI, and become familiar with its commands and options
• Understand the architecture of Kubernetes (Control plane and its components, worker nodes, and kubelet)
• Learn how to troubleshoot issues with deployments on Kubernetes
• Apply resource requests, limits, and probes to deployments
• Manage dynamic application configuration using ConfigMaps and Secrets
• Deploy other workloads, including DaemonSets, Jobs, and CronJobs
• Learn about user-facing security using SecurityContext, RBAC, and NetworkPolicies

## Audience

Anyone who is preparing to build and run Kubernetes clusters

## Prerequisites

• Linux concepts and command line proficiency
• General networking proficiency

## Programme

1. Course Introduction:
• Introductions and objectives
2. Containers:
• What and Why containers
• Building images
• Running containers
• Registry and image management
3. Kubernetes Overview:
• Kubernetes project
• Plugin interfaces
• Building Kubernetes
• Kubectl CLI
4. Beyond Kubernetes Basics:
• Kubernetes objects
• YAML
• Pods, replicas, and deployments
• Services
• Deployment management
• Rolling updates

• Controlling deployments
• Pod and container configurations
5. Kubernetes Networking:
• Networking within a pod
• Pod-to-Pod Networking
• Services to Pods
• ClusterIP, NodePort, and LoadBalancer
• Ingress controllers
• Service Discovery via DNS
6. Stateful Applications in Kubernetes:
• Stateless versus Stateful
• Volumes
• Persistent volumes claims
• StorageClasses
• StatefulSets
7. Additional Kubernetes Considerations:
• Dynamic configuration
• ConfigMaps
• Secrets
• Jobs, CronJobs
8. Security:
• Network policy
• Applying a NetworkPolicy
• SecurityContext
• runAsUser/Group
• Service accounts
• Role-based access control
9. Logging and Monitoring:
• Logging for various objects
• Sidecar logging
• Node logging
• Audit logging
• Monitoring architecture
• Monitoring solutions
• Octant
• VMware vRealize® Operations Manager™
10. Cluster Operations:
• Onboarding new applications
• Backups
• Upgrading
• Drain and cordon commands
• Impact of an upgrade to running applications
• Troubleshooting commands
• VMware Tanzu™ portfolio overview

## Session Dates

På begäran, kontakta oss

## Ytterligare information

Denna utbildning finns också som utbildning på plats. Kontakta oss för mer information.