



**Enterprise Computing Solutions - Education Services**

## **TRAINING OFFERING**

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<b>CODE:</b>	<b>LENGTH:</b>	<b>PRICE:</b>
VMW_KFCO	32 Hours (4 days)	€1,600.00

## 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

On request. Please [Contact Us](#)

## Additional Information

[This training is also available as onsite training. Please contact us to find out more.](#)