



Enterprise Computing Solutions - Education Services

## TRAINING OFFERING

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CODE:	LENGTH:	PRICE:
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:                 | 2. Containers:                          | 3. Kubernetes Overview: | 4. Beyond Kubernetes Basics:             |
| • Introductions and objectives          | • What and Why containers               | • Kubernetes project    | • Kubernetes objects                     |
| 5. Kubernetes Networking:               | • Building images                       | • Plugin interfaces     | • YAML                                   |
| • Networking within a pod               | • Running containers                    | • Building Kubernetes   | • Pods, replicas, and deployments        |
| • Pod-to-Pod Networking                 | • Registry and image management         | • Kubectl CLI           | • Services                               |
| • Services to Pods                      | 6. Stateful Applications in Kubernetes: |                         | • Deployment management                  |
| • ClusterIP, NodePort, and LoadBalancer | • Stateless versus Stateful             |                         | • Rolling updates                        |
| • Ingress controllers                   | • Volumes                               |                         | • Controlling deployments                |
| • Service Discovery via DNS             | • Persistent volumes claims             |                         | • Pod and container configurations       |
|   | • 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.](#)