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)	£2,590.00

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

Date	Location	Time Zone	Language	Type	Guaranteed	PRICE
16 Sep 2024	Virtual Classroom	BST	English	Instructor Led Online		£2,590.00
02 Dec 2024	Virtual Classroom	GMT	English	Instructor Led Online		£2,590.00

Additional Information

This training is also available as onsite training. Please contact us to find out more.