vmware EDUCATION SERVICES

Kubernetes Foundations

Course Overview

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

Course 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 authoring YAML files and its syntax
- 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 to debug issues with application deployments on Kubernetes
- Apply resource requests, limits, and probes to deployments
- Manage dynamic application configuration using ConfigMaps and Secrets
- Deploy other workloads, including StatefulSets, DaemonSets, Jobs, CronJobs
- Learn about user-facing security best practices using ServiceAccounts, RBAC, and NetworkPolicies

Target Audience

- Anyone involved with using or building a Kubernetes cluster

Prerequisites

- Linux concepts and command line proficiency
- General networking proficiency

Course Delivery Options

- Classroom
- Live Online
- Onsite

Product Alignment

- Any Kubernetes Cluster

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Course Modules

1 Introduction to Containers
- What and Why Containers
- Building images
- Running containers
- Debugging containers
- Registry and image management

2 Kubernetes Fundamentals
- Why Kubernetes?
- YAML
- Pods
- Services
- Deployments

3 Kubernetes Architecture & Troubleshooting
- Cluster architecture
- Cluster components
- Namespaces
- Debugging 101

4 Kubernetes Networking
- Pod networking
- Services deep dive
- Ingress controllers

5 Deployment Management
- Application deployment strategies
- Resource requests, limits, and quotas
- Probes

6 Kubectl and Resource Organization
- kubeconfig
- Namespaces deep dive
- Labels
- Node/Pod affinity
- Taints/Tolerations

7 Stateful Applications
- Persistent storage
- StatefulSets

8 Dynamic Application Configuration
- Docker dynamic configuration
- ConfigMaps
- Secrets

9 Additional Workloads
- Jobs
- CronJobs
- DaemonSets

10 Security
- Service accounts
- Role-Based access control
- Network policies

Contact

If you have questions or need help registering for this course, click here.

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