



DevOps

DEV425: Docker and Kubernetes Core Concepts

\$3,295.00

- 4 Days
- Taught by Dan Wahlin
- Learn to integrate, manage, scale and monitor containers
- Attend in person or online virtually

Upcoming Dates

May 11 - May 14

Course Description

Containers have revolutionized the process of developing and deploying applications. They offer many benefits including consistency between environments, predictable deployments, application scaling, management of microservices, and more. While this all sounds great in theory, how do you integrate containers into your existing business processes and reap the benefits they offer? How do you manage containers in production, scale and monitor them, and fix issues that come up?

The **Docker and Kubernetes course** provides a hands-on look at containers and the role they can play in your development and deployment environments and workflows. You'll learn about the many benefits containers provide, how you can use containers in your environment to work with web servers, databases (and more), key Docker tools and commands that you need to learn to use Docker effectively, how to work with images and containers, as well as how to get a fully functional container environment up and running.

After learning the ins-and-outs of containers, the course provides information on how Kubernetes can be used to orchestrate containers. This includes providing a look at the different components that Kubernetes provides (pods, deployments/replicasets, services and more), how to deploy containers, troubleshoot pods, and working with Kubernetes in the cloud.

If you've heard about Docker and Kubernetes and been wondering how to get started using them then this course is for you!

This course is taught by Dan Wahlin – a member of the Docker Captains group.

Course Outline

1. Getting Started with Docker

Application Deployment
Shipping with Containers
Getting Started with Docker
Benefits to Developers and DevOps
Overview of Images and Containers
Layered File System
Containers vs Virtual Machines
Docker and Microservices

2. Docker Images and Containers

Container Registries
Working with Images
Working with Containers

Getting Started with a Custom Dockerfile

Building an Image

Updating an Image

Pushing an Image to a Registry

3. Containers and Volumes

Components Overview

Source Code and Containers

Introduction to Volumes

Creating a Volume

Inspecting Volumes

Defining a volume in a Dockerfile

Local Source Code and Containers

4. Orchestrating Containers with Docker Compose

Container Orchestration

Getting Started with Docker Compose

The docker-compose.yml File

Docker Compose Commands

5. Introduction to Kubernetes

Why Kubernetes?

The Big Picture

The Master Node

Worker Nodes and Pods

Services, ReplicaSets, and Deployments

Files and kubectl Commands

The Web UI Dashboard

6. Working with Pods

The Role of Pods

Getting a Pod Up and Running Quickly

Defining a Pod with YAML

Labels

Multi-Container Pods

Pod Health

Troubleshooting Pods and Containers

7. ReplicaSets and Deployments

The Role of ReplicaSets

Defining ReplicaSets

Working with ReplicaSets

The Role of Deployments

Defining Deployments

Working with Deployments

8. Working with Services

The Role of Services

Service Types

Creating a Service

Service Discovery Process

Port Forwarding

9. Updates and Rollbacks

Updating Pods

Zero-Downtime Deployments

Blue-Green Deployments

Rolling Updates

Rolling Back Deployments

10. Storage, ConfigMaps, and Secrets

Volumes and Mounts

PersistentVolumes and PersistentVolumeClaims

StorageClasses

ConfigMaps

Secrets

11. Kubernetes in the Cloud with AKS

Introduction to Azure Kubernetes Service (AKS)

Azure CLI

Creating an AKS Cluster

Additional Tools

Helm

Draft

Azure Dev Spaces

Audience

DevOps, IT admins, or developers looking to get started using Docker and Kubernetes.

Prerequisites

- Comfortable using command-line tools and virtual machines
- General familiarity with software development
- General familiarity with software deployment

What You Will Learn

- The role of containers
- Key Docker tools and commands
- How to create custom Docker images and run containers
- How and when to use volumes
- Container orchestration with Docker Compose
- The role of Kubernetes
- Key Kubernetes architecture, commands, and concepts
- Pods, replicaset, deployments, services
- Kubernetes and the cloud