

Kubernetes

Course Summary

Description

Kubernetes is an open-source system for automating deployment, scaling, and management of containerized applications. It groups containers that make up an application into logical units for easy management and discovery. Kubernetes builds upon 15 years of experience of running production workloads at Google, combined with best-of-breed ideas and practices from the community.

This course introduces the students to containers in general, then continues with Kubernetes, its architecture, its use in production, and its best practices.

Objectives

After taking this course, students will:

- Learn one of the hottest software deployment environments
- Be able to orchestrate Docker containers with Kubernetes
- Master practical Kubernetes applications

Topics

- Container Fundamentals (prerequisite, will be covered if needed)
- Kubernetes Specific Curriculum
- Overview of the following concepts for Kubernetes
- Datastores and Kubernetes

Audience

This course is designed for Developers and Architects.

Prerequisites

- Comfortable with command-line operations
- Familiar with software development

Duration

Three Days

Kubernetes

Course Outline

- I. Container Fundamentals (prerequisite, will be covered if needed)*
 - A. Docker Overview
 - B. Docker Operations
 - C. Docker use cases
 - D. CLI tools
 - E. Health checks
 - F. Labs

- II. Kubernetes Specific Curriculum*
 - A. Container Review
 - B. Orchestration
 - C. Kubernetes Architecture
 - D. Pods and Configs
 - E. Deployments and Replica Sets
 - F. Autoscaling
 - G. Services and Networking
 - H. Managing State
 - I. Labs

- III. Overview of the following concepts for Kubernetes*
 - A. Kubernetes Design Patterns and Stateful Sets
 - B. Inside Services and Load Balancing
 - C. DNS and Service Discovery
 - D. Kubernetes in the Cloud and SDN
 - E. Labs

- IV. Datastores and Kubernetes*
 - A. Storing the state of an application
 - B. NoSQL overview
 - C. etcd, a distributed key-value store
 1. Setup, administration, deployment
 - D. etcd, the primary Kubernetes datastore
 1. etcd security and backup