Introduction to Kubernetes

Course Summary

Description

Kubernetes has emerged as one of the more important cloud technologies in the world, and this course introduces students in a fast paced yet comprehensive way.

Students learn how to build a Kubernetes cluster, and how to deploy and manage applications on it. They also learn the internals of how Kubernetes works, and Kubernetes best-practices.

The course is designed to function as hands on workshop with many demonstrations and labs. The sample application (a set of microservices) is provided in the course github so that students can continue working with real code after the course.

Objectives

After taking this course, students will be able to:

- What a Kubernetes cluster is, and how to deploy and manage them on-premises and in the cloud.
- How Kubernetes fits into the cloud-native ecosystem, and how it interfaces with other important technologies such as Docker.
- The major Kubernetes components that let us deploy and manage applications in a modern cloud-native fashion.
- How to define and manage applications with declarative manifest files that should be version-controlled and treated like code.

Topics

- Pre-requirements
- Running our first containers on Kubernetes
- The Kubernetes dashboard
- Accessing logs from the CLI

Prerequisites

No prior Kubernetes experience is required, but an understanding of containers and the cloud will be helpful.

Duration

Two Days
Introduction to Kubernetes

Course Outline

I. Pre-requisites
   A. Our sample application
   B. Kubernetes concepts
   C. Declarative vs imperative
   D. Kubernetes network model
   E. First contact with kubectl
   F. Setting up Kubernetes

II. Running our first containers on Kubernetes
    A. Exposing containers
    B. Shipping images with a registry
    C. Running our application on Kubernetes

III. The Kubernetes dashboard
     A. Security implications of kubectl apply
     B. Scaling a deployment
     C. Daemon sets
     D. Labels and selectors
     E. Rolling updates

IV. Accessing logs from the CLI
    A. Managing stacks with Helm
    B. Namespaces
    C. Next steps