En-lighten Technology Ltd

Packaging and Deploying Applications on Kubernetes with Helm

Overview

Helm is a package manager for Kubernetes. It simplifies the packaging, release, versioning, upgrade and rollback of deployments for Kubernetes. In this hands-on course attendees will gain knowledge of what Helm is and how to use it as well as practical experience through a number of exercises on how to use helm for deploying applications on Kubernetes.

Attendees will learn how to

- Package and deploy applications on Kubernetes using Helm
- Generate helm charts
- Release and deploy charts
- Upgrade Helm charts
- Package charts to share

Audience and Recommended Background

This course is for developers who wish to learn how to package and deploy their applications to Kubernetes using Helm. It is assumed that the attendees have a working knowledge of Docker and creating Docker images. Knowledge of Kubernetes is beneficial but a short overview is provided at the start of the course.

Course Duration: 1 day

Course Content

An Overview of Kubernetes and Helm

- What is Kubernetes
- Kubernetes concepts
    - Pods
    - Replication controllers
    - Replica sets
    - Deployments
    - Services
    - Jobs
    - Volumes
- Kubernetes architecture
- The Purpose of Helm
- The Kubernetes Helm architecture

Up and Running with Helm

- Building and publishing Docker images
- Installing Helm and Tiller
- Using Helm

    - Packages, repositories and releases
    - Simple Helm commands
- Creating a Helm chart
- Deploying application to Kubernetes
- Updating the application

Helm Charts

- Chart file structure
- The Chart.yaml file
- Versioning charts
- Dependencies and dependency management
- Chart repositories
- Signing charts
- Chart tests
- Deploying to Kubernetes
- Upgrading applications

Developing Templates

- Introduction to Helm chart templates
- Built-in objects
- Values files
- Template functions and pipelines
- Flow control
- Variables
- Named templates
- Debugging templates

Best Practices

- General conventions
- Values
- Templates
- Requirements
- Labels and Annotations
- Pods and Pod Templates

Helm Charts and ADP

- What is ADP?
- Deploying applications to ADP