

KBS-202: Kubernetes Advanced Administration (Helm & Istio)

Course Length: 1 day Helm + 1 day Istio, 2 days altogether

Course Description:

Kubernetes is the leading open-source system for automating deployment, scaling and management of containerized applications.

This course builds on the of Linux container and basic Kubernetes admin. skills participants gained on our Docker and Kubernetes trainings or in practice and enhance their knowledge with more advanced Kubernetes features and extensions such as Helm and Istio.

Structure: 50% theory 50% hands on lab exercises

Target audience: System administrators, developers and devops with Kubernetes admin. skills who want to learn about advanced Kubernetes extensions like Helm and Istio

Prerequisites: Linux container (e.g. Docker) and Kubernetes admin. skills, for instance participation on our Docker and Kubernetes admin. courses

Detailed Course Outline

PART I: Helm Package Manager

Module 1: Introduction to Helm

- What is helm?
- Main Helm Concepts
- Helm Components
- Helm Implementation

Module 2: Installing and securing Helm and Tiller

- Installing Helm client
- Installing Tiller
- Upgrading Tiller
- Deleting or Reinstalling Tiller
- Using RBAC to restrict Helm's scope
- Using TLS/SSL to secure Helm

Module 3: Using Helm

- Generic options
- Working with repositories
- Finding charts
- Installing a release
- Upgrading a release and rollback
- Deleting a release

Module 4: Helm Charts

- Intro to charts
- Chart lifecycle hooks
- Managing charts with Helm

Module 5: Chart Templates

- Getting started
- Templates and Values
- Dependencies and Values
- Functions and Pipelines
- Flow Control
- Variables
- Named Templates

Module 6: Helm plugins

- Overview
- Installing a Plugin
- Building Plugins

PART II: Istio Service Mesh

Module 1: Introduction to Istio

- What is a service mesh?
- The architecture of Istio
- Istio components

Module 2: Installing Istio in Kubernetes

- Prepare the installation
- Quick start with Istio
- Customizing the installation using Helm
- Installing the Istio Sidecar
- Lab 1

Module 3: Istio Traffic Management

- Traffic management concepts
- Request routing
- Handling failures
- Rule configuration
- Lab 2

Module 4: Security

- Security needs
- Authentication
- Authorization
- Configuring security
- Lab 3

Module 5: Policies and telemetry

- Policy types
- Platform support
- Concepts
- Configuration
- Lab 4