Kubernetes III - Deployment of Applications Using HELM

Course code: KUBERNETES_HELM

The course will introduce participants to the Helm tool, which is useful not only for deploying applications to Kubernetes. Helm manages complete application lifecycle management, from deployment, through upgrade / downgrade to application removal, all without having to know the details of Kubernetes. We will look at the basic possibilities of Helmet in the application lifecycle and also explore the possibilities of creating application packages. Let's look at the philosophy and functionality of Helm, what the Helm Hub and repositories are, and how to use it all to effectively manage Kubernetes content.

Required input knowledge

- Basic knowledge of Kubernetes
- Basic knowledge of Docker or another container runtime
- Linux command line operation
- File editing in Linux environment (vim, gedit, ...)
- Knowledge of YAML and JSON formats

Teaching methods

- Expert explanation with practical examples, exercises on computers.
- During the course we will use a real K8s cluster, installed in on-premise mode

Studying materials

- Printed presentations of the subject matter.

Basics

Introduction

- What is Helm and why is it needed?
- Documentation, instructions, sources of information
- Helmet version, history, differences
- Terminology (Helm Hub, Repository, Chart, Deployment, Release, etc.)

Helm installation

- Installation methods
- Integration with Kubernetes cluster
- Functionality verification

Basic use

- Working with repositories
- Plugins and their options
- Search for packages in repositories
- Downloading packages from repositories

Application deployment

- Install the application on Kubernetes
- Analysis of installed applications
- Zero-downtime upgrade / downgrade applications
- Application scaling
- Removing applications from the cluster

Creating a simple package

- Package structure
- Go language template library
- Creating templates
- Rendering templates
- Types of templates in the package

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- Resulting packages, testing and deployment

Auxiliary tools

- Hooks and their use
- Helmet extension using plugins

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