

Kubernetes in practice

Altkom Akademia's author training



Purpose of the training

The course is intended for everyone who would like to learn practical use of Kubernetes ,especially for the people who wish to expand their knowledge related to Docker container orchestration and developers interested in implementing and administering Kubernetes cluster.



Benefits of completing the training

The following course allows Clients to improve their current skills or start their adventure with developing and managing distributed systems. The Kubernetes course focuses on practical skills, thanks to which people who complete it will be able to make use of opportunities offered by the technology on their own. The knowledge provided is also another perfect step in working with Docker containers, as Kubernetes uses their functionality.

Benefits from participation for an employee

During this course the participants will learn:

- how to install and launch Kubernetes cluster
- how to launch applications on cluster
- how to monitor the functioning of particular cluster objects
- how to match appropriate objects to applications' needs and specifics
- how to expand the cluster with another nodes
- how to scale applications on clusters , restore previous versions, view update history
- how to share applications' functioning on a cluster within the network
- how to store data generated by applications functioning on a cluster



Expected Listener Preparation

Knowledge of basic Docker functionalities, an ability to work in Linux terminal and basic knowledge of network and computer systems' functioning.



Training Language

- Training: English
- Materials: English



Training Includes

- 3 days of work with a trainer (21h)
- Access to training and supplementary materials
- Trainer's supervision
- Contact with community



Duration

3 days / 21 hours

Training agenda

Introduction

- cluster's architecture
- main components and their tasks
- the way of implementing applications, the role of containers in maintaining cluster's state

Structure of Kubernetes cluster

- Control Plane implementation
- Worker Nodes implementation

Working with Kubernetes

- kubectl command
- context configuration and switching between them
- dividing the cluster - namespaces

Basic objects

- Pod
- Namespace
- Job

- CronJob
- ConfigMap
- Secrets

Controllers

- ReplicaSet
- Deployment
- DaemonSet
- StatefulSet

Scaling applications in the cluster

- RollingUpdate - up-down scaling
- Restoring the previous version of the application
- vertical scaling

Kubernetes network

- coreDNS role
- putting the application outside the cluster
- Service object and its types

Data storage

- emptyDir
- hostPath
- PersistentVolume
- PersistentVolumeClaim
- StorageClass, Storage Class Interface,

Dashboard - access to cluster via www

- Installing dashboard

The elements of cluster security - basic information

- Network Policy
- RBAC
- Role, ClusterRole and RoleBinding