

Kubernetes I - Introduction to Infrastructure

Course code: KUBERNETES_INTRO

The course is an introduction to the Kubernetes infrastructure. Kubernetes, abbreviated K8s, is now referred to as the cloud operating system and is a modern way of running applications that run in container mode. During the course we will introduce and explain the basic philosophy of container operation, orchestration and automation. We will show you how to get a very robust infrastructure that offers high availability, load balancing and a lot of other necessary things. Finally, participants will also learn to use the Helm tool to comfortably deploy applications to a K8s cluster. The course is intended for administrators who plan or already use K8s to run applications and want to better understand the capabilities of this infrastructure and its principles.

Affiliate	Duration	Course price	ITB
Praha	3	24 000 Kč	30
Brno	3	24 000 Kč	30
Bratislava	3	960 €	30

The prices are without VAT.

Course terms

Date	Duration	Course price	Type	Course language	Location
03.02.2025	3	24 000 Kč	Presence	CZ/SK	Gopas Praha Prezenční
24.02.2025	3	24 000 Kč	Presence	CZ/SK	Gopas Brno Prezenční
12.03.2025	3	960 €	Presence	CZ/SK	Gopas Bratislava Prezenční
05.05.2025	3	24 000 Kč	Presence	CZ/SK	Gopas Praha Prezenční
09.06.2025	3	960 €	Online	CZ/SK	Gopas Bratislava Online
09.06.2025	3	24 000 Kč	Online	CZ/SK	Gopas Praha Online
11.06.2025	3	24 000 Kč	Presence	CZ/SK	Gopas Brno Prezenční

The prices are without VAT.

Required entry skills

- Basic knowledge of infrastructure technologies
- Networking (basic concepts such as IP address, routing, gateway, VPN)
- data storage (block and file storage, FC, iSCSI and NFS protocols)
- Basic knowledge of Docker or other container runtime
- Work in Linux command line

Teaching methods

- Expert interpretation 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 discussed material.

Course outline

Introduction to Kubernetes

- Operation of applications in containers (basic principles and options)
- CNCF organization and CRI, CNI, CSI standards
- Why Kubernetes is needed
- Kubernetes philosophy, basic rules and options

GOPAS Praha

Kodaňská 1441/46
101 00 Praha 10
Tel.: +420 234 064 900-3
info@gopas.cz

GOPAS Brno

Nové sady 996/25
602 00 Brno
Tel.: +420 542 422 111
info@gopas.cz

GOPAS Bratislava

Dr. Vladimíra Clementisa 10
Bratislava, 821 02
Tel.: +421 248 282 701-2
info@gopas.sk



Copyright © 2020 GOPAS, a.s.,
All rights reserved

Kubernetes I - Introduction to Infrastructure

- Objects in Kubernetes (pod, static pod, service, daemonset, and others)

Kubernetes cluster structure

- Types of nodes in the cluster (master node, worker node)
- Control plane structure (API server, scheduler, etcd, controller, and others)
- Deployment options (cloud, on premise, minikube tools, etc.)

Basics of cluster administration

- Cluster information
- Orientation in the provided API
- Administration of nodes in the cluster (cordon/uncordon, drain, ...)
- Object tagging
- Networking in a cluster
- Persistent data

Application operation in the Kubernetes environment

- Creating a simple pod
- Multi-container pods and when to use them
- Application control using higher-level controllers
- Scaling and zero-downtime upgrade
- Centralized configuration (ConfigMap and its options)

Deploying applications using Helm

- What is Helm and how to use it
- Helm Hub and Repositories
- Helm Charts
- Simple application deployment
- Upgrade/downgrade using Helm

GOPAS Praha

Kodaňská 1441/46
101 00 Praha 10
Tel.: +420 234 064 900-3
info@gopas.cz

GOPAS Brno

Nové sady 996/25
602 00 Brno
Tel.: +420 542 422 111
info@gopas.cz

GOPAS Bratislava

Dr. Vladimíra Clementisa 10
Bratislava, 821 02
Tel.: +421 248 282 701-2
info@gopas.sk



Copyright © 2020 GOPAS, a.s.,
All rights reserved