

Microservices DevOps with Kubernetes

Course Summary

Description

In this course, you will understand devops, deployment options pros and cons, design and architecture choices, day-to-day maintenance, upgrades, and troubleshooting of both Kubernetes control planes and worker nodes.

Topics

- Introduction
- Adding nodes to the cluster Part 1
- API server availability
- Backing up clusters
- Deploying a sample application
- OpenID Connect
- Resource Limits
- Collecting metrics with Prometheus
- What's next?

Prerequisites

Basic computer skills, internet access, basic analytic or programming skills.

Duration

Three Days

Microservices DevOps with Kubernetes

Course Outline

I. *Introduction*

- A. Pre-requirements
- B. Kubernetes architecture
- C. The Kubernetes API
- D. Other control plane components Part 1
- E. Other control plane components Part 2
- F. Building our own cluster Part 1
- G. Building our own cluster Part 2
- H. Building our own cluster Part 3

II. *Adding nodes to the cluster Part 1*

- A. Adding nodes to the cluster Part 2
- B. The Container Network Interface Part 1
- C. The Container Network Interface Part 2
- D. Interconnecting clusters

III. *API server availability*

- A. Installing a managed cluster
- B. Kubernetes distributions and installers
- C. Upgrading clusters
- D. Static pods

IV. *Backing up clusters*

- A. The Cloud Controller Manager
- B. Healthchecks
- C. Adding health checks to an app

V. *Deploying a sample application*

- A. Accessing logs from the CLI
- B. Centralized logging
- C. Authentication and authorization
- D. The CSR API

VI. *OpenID Connect*

- A. Securing the control plane
- B. Network policies
- C. Pod Security Policies

VII. *Resource Limits*

- A. Defining min, max, and default resources
- B. Namespace quotas
- C. Limiting resources in practice

- D. Checking pod and node resource usage
- E. Cluster sizing
- F. The Horizontal Pod Autoscaler

VIII. *Collecting metrics with Prometheus*

- A. Extending the Kubernetes API
- B. Operators

IX. *What's next?*

- A. Links and resources
- B. Volumes
- C. Managing configuration
- D. Stateful sets
- E. Running a Consul cluster
- F. Local Persistent Volumes
- G. Highly available Persistent Volumes