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
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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

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