KOENIG SOLUTIONS · COURSE OUTLINE

Prometheus and Kubernetes

Learn to deploy and operate the Prometheus Operator on Kubernetes to monitor services, containers and cluster components, and configure alerting.

11
MODULES

29
TOPICS

COURSE OVERVIEW

This course examines the relationship between Prometheus and Kubernetes and the architecture of monitoring on the platform. It covers the Prometheus Operator, from its motivation and architecture through downloading kube-prometheus, deploying the operator and verifying the deployment, including a look at how custom resources become statefulsets and how targets are discovered and relabeled. It then addresses monitoring of service endpoints, container metrics, resource states and cluster components such as the Kubernetes API server and Kubelet. The course closes with configuring alerting rules and Alertmanager, and operational concerns including debugging, persistence, running in or outside a cluster, and Horizontal Pod Autoscaler integration.

WHO THIS COURSE IS FOR

- **Kubernetes Administrators**
- **Site Reliability Engineers**
- **DevOps Engineers**
- **Platform Engineers**
- **Monitoring Engineers**

LEARNING OBJECTIVES

- Explain the Prometheus and Kubernetes monitoring architecture
- Describe the motivation and architecture of the Prometheus Operator
- Deploy the Prometheus Operator and verify the deployment
- Analyse how custom resources translate into statefulsets
- Configure target discovery and relabeling
- Implement monitoring for service endpoints and container metrics
- Monitor resource states and cluster components such as the API server
- Configure alerting rules and deploy Alertmanager

COURSE SYLLABUS

11 Modules, 29 Topics

01

Training Overview

TOPICS

Introduction · Prerequisites

02

Prometheus and Kubernetes Overview

TOPICS

Historical Relationship · Monitoring Architecture

03

Prometheus Operator Introduction

TOPICS

Prometheus Operator Motivation · Operator Architecture

04

Installing the Prometheus Operator

TOPICS

Downloading kube-prometheus · Deploying the Operator · Verifying the Deployment

05

A Look Under the Hood

TOPICS

From Custom Resource to Statefulset · Discovering and Relabeling Targets

06

Monitoring Service Endpoints

TOPICS

Overview · Deploying the Demo Service · Monitoring the Demo Service

07

Monitoring Container Metrics

TOPICS

Collecting Container Metrics · Using Container Metrics

08

Monitoring Resource States

TOPICS

Overview · Using Resource State Metrics

09

Monitoring Cluster Components

TOPICS

Overview · Kubernetes API Server Metrics · Kubelet Metrics

10

Alerting

TOPICS

Overview · Configuring Rules · Deploying and Using Alertmanager · Configuring Alertmanager

11

Operational Concerns

TOPICS

Debugging the Operator · Persistence · Running In or Outside a Cluster · Horizontal Pod Autoscaler Integration

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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