KOENIG SOLUTIONS · COURSE OUTLINE

Istio Service Mesh

Learn to deploy and manage Istio service mesh for traffic management, security and observability in Kubernetes clusters.

2 Days	5	39
DURATION	MODULES	TOPICS

COURSE OVERVIEW

This course covers the shift from monoliths to microservices and the role of a service mesh, followed by installing Istio and Kiali and deploying applications onto the mesh. It then addresses prerequisite concepts such as Kubernetes Services, sidecars and Envoy before moving into traffic management using gateways, virtual services, destination rules, fault injection, timeouts, retries, circuit breaking and A/B testing. It continues with Istio security, including authentication, authorization and certificate management, and concludes with observability through Prometheus, Grafana and Jaeger.

WHO THIS COURSE IS FOR

- **DevOps Engineers**
- **Kubernetes Administrators**
- **Platform Engineers**
- **Site Reliability Engineers**
- **Cloud Architects**

PREREQUISITES

- Kubernetes Knowledge is Required

LEARNING OBJECTIVES

- Explain the differences between monoliths and microservices
- Describe the role of a service mesh and Istio components
- Install Istio, Istioctl and Kiali on a cluster
- Deploy applications onto the Istio mesh
- Configure gateways, virtual services and destination rules
- Apply resiliency patterns such as timeouts, retries and circuit breaking
- Implement authentication, authorization and certificates in Istio
- Interpret metrics and traces using Prometheus, Grafana and Jaeger

TRAINING APPROACH

How the Course Is Taught

> This hands-on class is approximately 80/20 lab to lecture ratio, combining engaging lecture, demos, group activities and discussions with comprehensive machine-based practical programming labs and project work.

COURSE SYLLABUS

5 Modules, 39 Topics

01

Introduction

TOPICS

- Monoliths and Microservices
- Service Mesh
- Istio
- Installing Istio - Introduction
- Installing Istioctl
- Installing Istio on Your Cluster
- Deploying Our First Application on Istio
- Visualizing Service Mesh with Kiali
- Installing Kiali
- Create Traffic Into Your Mesh

02

Pre-requisites

TOPICS

Kubernetes Services · Sidecars · Envoy

03

Traffic Management

TOPICS

- Gateways
- Virtual Services
- Destination Rules
- Demo: Gateways
- **Demo:** Virtual Services
- **Demo:** Destination Rules
- Fault Injections
- Timeouts
- Demo: Timeouts
- Retries
- Circuit Breaking
- **Demo:** Circuit Breaking
- A/B Testing

04

Istio Security

TOPICS

Security in Istio · Istio Security Architecture · Authentication · Demo: Authentication · Authorization · Demo: Authorization · Certification Management · **Demo:** Certificate Management

05

Observability

TOPICS

- Visualizing Metrics with Prometheus and Grafana
- **Demo:** Visualizing Metrics with Prometheus and Grafana
- Distributed Tracing with Jaeger
- **Demo:** Distributed Tracing with Jaeger
- **Demo:** Kiali in Detail

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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