
Advanced Kubernetes Operations

Duration: 2 Days **Course Code: CN320** **Delivery Method: Company Event**

Overview:

In the Advanced Kubernetes Operations class, operations staff will learn many of the tools and patterns needed to run a Kubernetes cluster in production. This course is targeted at advanced Kubernetes users tasked with operational responsibilities such as logging, monitoring, alerting, continuous and progressive continuous deployments, as well as cluster bootstrapping, maintenance, backups and disaster recovery. Advanced Kubernetes Operations is a pattern driven course, exploring the powerful patterns of Kubernetes Operators and gitops which can be used across a wide variety of toolchains.

Company Events

These events can be delivered exclusively for your company at our locations or yours, specifically for your delegates and your needs. The Company Events can be tailored or standard course deliveries.

Target Audience:

Infrastructure/Deployment Engineers, Cloud Architects

Prerequisites:

Attendees should meet the following prerequisites:

- Familiarity with the Bash shell
 - Filesystem navigation and manipulation
 - Command line text editors like vim or nano
 - Common tooling like curl, wget and ping
 - Familiarity with YAML and JSON notation
 - Mastery of basic to intermediate Kubernetes tools, like pods, controllers, services and persistent storage
 - CN220 - Kubernetes Operations
-

Content:

Kubernetes in production

- What sort of considerations apply to production-grade clusters?

Bootstrapping Kubernetes

- Kubernetes architecture review
- Sizing Kubernetes clusters
- Kubernetes networking requirements review
- Kubernetes high availability
- Stacked versus external Kubernetes masters
- Core Kubernetes networking components
- Bootstrapping Kubernetes with Kubespray

Image Registries

- Popular Image Registries comparison
- DTR vs Harbor architecture
- Security scanning in image registries
- Mitigating man-in-the-middle attacks with content trust
- Supporting continuous integration with webhooks and image promotion

Application Resilience

- Instrumenting Kubernetes applications with healthchecks
- Constraining CPU and memory consumption
- Imposing podDisruptionBudgets to ensure application HA
- Packaging Kubernetes applications with Helm

Logging and Monitoring Kubernetes

- Selecting logging architectures for Kubernetes
- Deploy and configure the EFK logging stack, and use it to browse container logs
- Create Kube-native application monitoring using the Kube operator pattern
- Deploy and manage Prometheus, Grafana and Alertmanager via the Prometheus operator
- Use PromQL to query and consume Prometheus metrics in alarms and visualizations

Deployment Strategies in Kubernetes

- Implement a gitops deployment pipeline using Flux
- Implement blue / green deployments using native Kubernetes
- Implement canary deployments using Istio

Backups and Disaster Recovery

- Create and schedule Kube backups using Velero
- Form a disaster recovery plan for your Kube cluster
- Perform a cluster upgrade after backing up and preparing for disaster

Additional Information:

Lab requirements:

Laptop with WiFi connectivity Attendees should have the latest Chrome or Firefox installed, and a free account at strigo.io.

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

info@globalknowledge.co.uk

www.globalknowledge.com/en-gb/

Global Knowledge, Mulberry Business Park, Fishponds Road, Wokingham Berkshire RG41 2GY UK