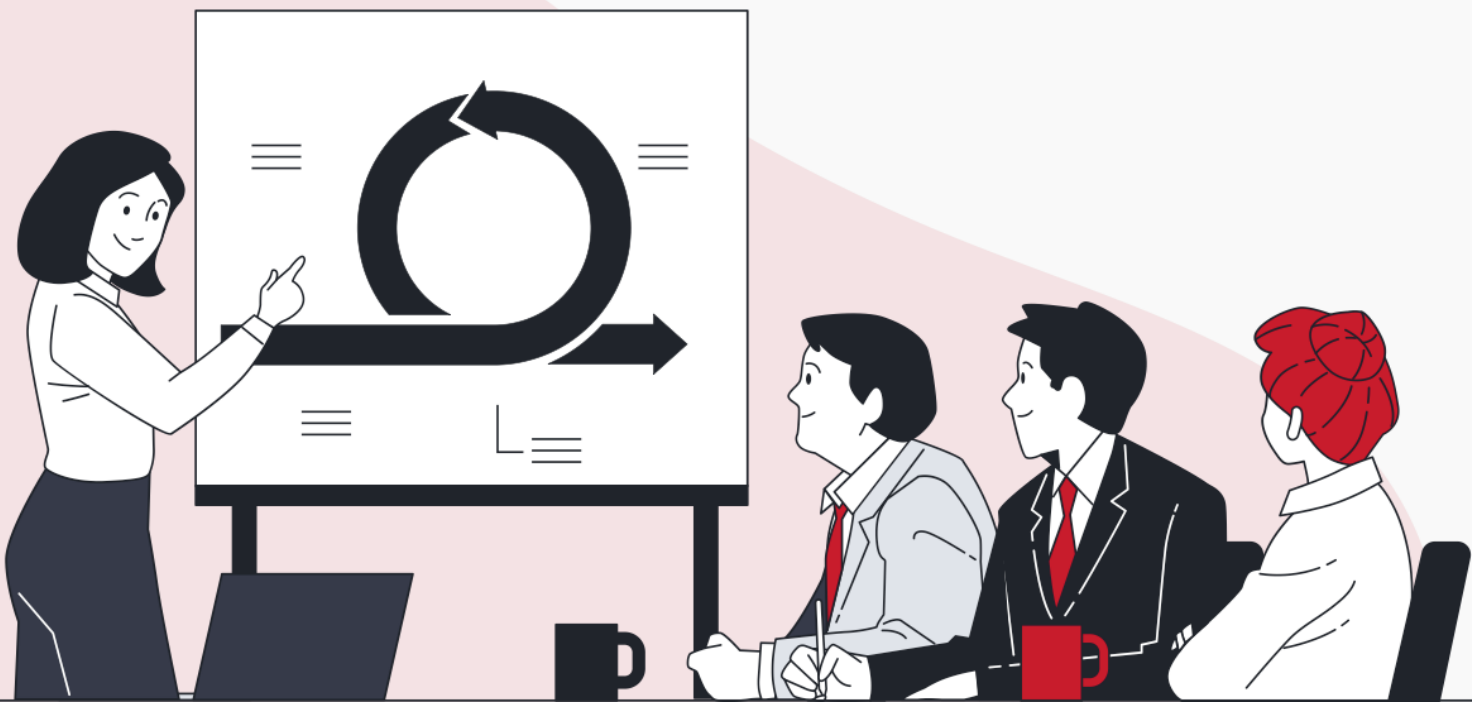


DevOps Advanced

Advanced topics that follow up on the DevOps Masterclass for Seamless Integration of Development and IT Operations

by **weillD**

★ This is an advanced-level course.
Completion of our DevOps Basic course is strongly recommended.



OBJECTIVES_

Why an advanced course on DevOps practices?

Modern DevOps practices go far beyond CI/CD. As systems grow in complexity, mastering the **orchestration of applications, environments, and security at scale** becomes essential.

This Advanced DevOps Workshop is designed to equip participants with the knowledge and hands-on experience needed to **manage modern cloud-native infrastructures** using the latest tools and methodologies.

Participants will gain deep technical skills that can be applied to real-world systems, **enhancing automation, reliability, observability, and security** within their organization's DevOps practices.



CONTENTS_

What topics are covered?

This workshop covers a curated selection of advanced topics at the core of modern platform engineering and DevOps automation.

Templating: Kustomize, Helm

Templating tools such as Kustomize and Helm are used to dynamically **generate Kubernetes manifests and maintain scalable, reusable configurations**.

Kubernetes + GitLab

The integration of Kubernetes with GitLab provides a **seamless development and deployment experience**, setting the foundation for a GitOps workflow.

GitOps: FluxCD

Using FluxCD, participants will learn how to **automate application deployments** to Kubernetes clusters directly from Git repositories.

Kubernetes Operators: Sealed Secrets, cert-manager, Prometheus, Percona

The training also dives into Kubernetes Operators to **extend cluster functionality**, including hands-on usage of tools like Sealed Secrets, cert-manager, Prometheus, and Percona.

- Sealed Secrets: Encrypts Kubernetes secrets for **secure Git storage**.
- Cert-manager: **Automates TLS** certificate management in Kubernetes.
- Prometheus: Open-source **monitoring system for time series data**.
- Percona: Provides **open-source database software** and services (MySQL, PostgreSQL, MongoDB).

Observability: Monitoring, Tracing, Logging con OpenTelemetry

A full observability stack is introduced, using OpenTelemetry to implement distributed tracing, metrics collection, and log aggregation for **production-grade monitoring and diagnostics**.

Serverless: Deploy with Knative

Knative is presented as a solution for **deploying serverless workloads** on Kubernetes.

Security: OIDC, Network Policies, PSS, Falco, OPA

Security is another critical pillar of the course, ensuring that all aspects of software development and operations are **protected from vulnerabilities and threats**.

- **OIDC authentication** ensures secure user verification.
- Network policies **control traffic flow** within the cluster.
- Pod Security Standards (PSS) **define security best practices** for pods.
- Falco provides **advanced runtime security monitoring**.
- Open Policy Agent (OPA) enables **flexible policy enforcement**.

Extra topics:

IaC: Pulumi

Participants will explore how to **manage cloud infrastructure programmatically** using Pulumi, leveraging familiar programming languages to define and deploy resources.

Multi-cluster management: Rancher

The course includes hands-on experience with Rancher to **centrally manage, secure, and operate multiple Kubernetes clusters** across environments.

Disaster Recovery: Velero

Learners will configure Velero to **back up and restore Kubernetes resources and persistent volumes**, ensuring robust disaster recovery capabilities.

Dynamic Admission Controllers

The workshop introduces dynamic admission controllers to **enforce custom policies during object creation or modification** within Kubernetes clusters.

Cost Management: Kubecost

Participants will use Kubecost to **monitor resource consumption** and gain visibility into cluster costs, enabling smarter infrastructure budgeting and scaling decisions.

IN PRACTICE_

How does the course work?

🕒 **12 intensive days**
(or 4 slots of 3 days each / 3 slots of 4 days each)

👥 **Maximum 7 participants per session**
(ensuring personalized attention)

The curriculum blends theory with hands-on practice. Participants will:

- Use **Kustomize and Helm** to configure and deploy Kubernetes resources from the sample project
- Install and interact with Kubernetes Operators like **Sealed Secrets and nginx-ingress**
- Set up a full **GitLab-based development** environment, including pipelines and environments
- Implement GitOps deployments using **FluxCD**

The hands-on component is centered on a **multi-service demo application, hosted on GitLab**, where each service is implemented in a different programming language to reflect real-world polyglot architectures.

Who Should Attend

This workshop is designed for **DevOps engineers with prior experience in containerization and Kubernetes** who want to take their skills to the next level.

It's ideal for those seeking to **implement** GitOps, **improve** cluster observability, **enforce** security policies, and **manage** production-ready systems at scale.

RESOURCES AND CONTACTS_

To learn more

 [Welld DevOps book](#)



Let's get in touch!



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