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Learning Style: On Demand

Technology: Linux Foundation

Difficulty: Beginner

Course Duration: 40 Hours

GitOps: Continuous Delivery on Kubernetes with Flux (LFS269)



About This Course:

This course will give you in-depth knowledge on how to implement Flux CD and GitOps practices to set up a Continuous Delivery pipeline on your Kubernetes environments, and provide a sense of operational control via git-based workflows like branching models and pull requests.

Course Objectives:

- This course provides a foundational deep dive into GitOps principles and practices, and how to implement them using Flux CD. Flux CD uses a reconciliation approach to keep Kubernetes clusters in sync using Git repositories as the source of truth. This course helps you build essential Git and Kubernetes knowledge for a GitOps practitioner by setting up Flux v2 on an existing Kubernetes cluster, automating the deployment of Kubernetes manifests with Flux, and incorporating Kustomize and Helm to create customizable deployments. It teaches you to set up notifications and monitoring with Prometheus, Grafana and Slack, integrate Flux with Tekton-based workflows to set up CI/CD pipelines, build release strategies, including canary, A/B testing, and blue/green, deploying to multi-cluster and multi-tenant environments, integrate GitOps with service meshes such as Linkerd, and Istio, securing GitOps workflows with Flux, and much more

Audience:

- This course is for software developers interested in learning how to deploy their cloud native applications using familiar GitHub-based workflows and GitOps practices; quality assurance engineers interested in setting up continuous delivery pipelines, and implementing canary analysis, A/B testing, etc. on Kubernetes; site reliability engineers interested in automating deployment workflows and setting up multi-tenant, multi-cluster GitOps-based Continuous Delivery workflows and incorporating them with existing Continuous Integration and monitoring setups; and anyone looking to understand the landscape of GitOps and learn how to choose and implement the right tools.

Prerequisites:

To make the most out of this course, you will need to have:

- Familiarity with Kubernetes (pods, ReplicaSets, deployments, services, namespaces, kubectl and YAML specs, CRDs, controllers/operators), Helm and Kustomize

- Familiarity with git (branching, merging, remotes, pull requests, branching models, protected branches, code reviews)

- Basic familiarity with Continuous Integration/Continuous Delivery (building pipelines, setting up automated builds, tests, building artifacts and images, etc.)

Course Outline:

- Chapter 1. Course Introduction
- Chapter 2. Introduction to Flux CD
- Chapter 3. Setting up a Learning Environment
- Chapter 4. Kubernetes Essentials for a GitOps Practitioner
- Chapter 5. Essentials of Git Workflows
- Chapter 6. Deploying Your Application on Kubernetes with Flux
- Chapter 7. Kustomizing Kubernetes Deployments
- Chapter 8. Integrating with Helm