

GitOps with ArgoCD

Duration: 4 days

Prerequisite: Basic Linux, containerization, kubernetes and DevOps Knowledge

Applications Required: Git, Github, ArgoCD, Terraform, Kubernetes

Hands-On Format: 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.

Module 1: Introduction to GitOps and Argo CD

- Understanding GitOps
- Introduction to ArgoCD
- Why GitOps with ArgoCD
- Comparison of different GitOps techniques

Lab: All above topics with demonstration

Module 2 – Getting Ready

- Installing and configuration of Git
- Setting Kubernetes cluster
- Installation of ArgoCD

Lab: All above topics with demonstration

Module 3 – GitOps Workflow and Best Practices

- GitOps Git repository structure
- Manifests, helm charts and Kustomize
- Best practices

Lab: All above topics with demonstration

Module 4 – ArgoCD Indepth

- Architecture
- Demo of simple application deployment in ArgoCD
- Demo of simple application deployment in ArgoCD using Helm chart
- Demo of simple application deployment in ArgoCD using Kustomize
- Passing application information using secrets
- Synchronization and Rollback in ArgoCD

Lab: All above topics with demonstration

Module 5 – ArgoCD Advance features and Integration

- Multi-cluster deployment
- ApplicatioSets
- Demo of simple application deployment in ArgoCD using Helm chart
- Blue Green deployment Implementation
- Canary deployment Implementation

Lab: All above topics with demonstration

Module 6 – ArgoCD CI/CD pipeline

- Sample application preparation
- ArgoCD with GitHub
- CI pipeline with GitHub actions
- ArgoCD for continuous deployment (CD)

Lab: All above topics with demonstration

Module 7 – ArgoCD for custom configuration management

ArgoCD plugins

Introducing Terraform with ArgoCD

Lab: All above topics with demonstration

Module 8 – ArgoCD Resource hooks

Need of Hooks

Using PreSync Hook

Using Sync hook

Using PostSync and SyncFail hook

Using PostDelete hook

Lab: All above topics with demonstration