Kubernetes training

Sesión 1: Docker

1.1 Introduction

1.1.1 What is Docker?

1.1.2 Differences between containers and virtualmachines

1.1.3 Installing Docker

1.2 Docker CLI commands

1.3 Dockerfile

1.3.1 Main commands

Sesión2: Docker

1.4.1 Create a public Container Registry in Dockerhub

1.4.2 Authenticating to th e Registry

1.4.3 Dockerizing sample JAVA web app with Springboot

1.4.4 Naming and pushing your image

1.4.5 Running your image

Sesión3: Kubernetes

2.1 Introduction

2.2 Cluster Architecture

2.2.1 The ControlPlane

2.2.2 Node Components

2.3 Self-Hosting Kubernetes vs Managed Kubernetes Services

2.4 How to deploy a kubernetes cluster.

2.5 Kubernetes local installation with Minikube.

Sesión4: Kubernetes

Kubernetes Objects

2.7.1 Pods

2.7.2 Service (Cluster ip and Nodeport)

2.7.3 ReplicaSets

2.7.4 Deployments

2.7.5 Statefulsets

2.7.6 Configmaps

2.7.7 Secrets

2.7.8 Ingress

2.7.9 Horizontal Pod Autoscalers

2.7.10 Physical Volumes and claims

Sesión5: Kubernetes

2.8 Managing resources

2.8.1 Kubectl and Dashboard

2.8.1 Understanding Resources

2.8.2 Using Namespaces and ResourceQuotas

2.8.3 Managing the Container LifeCycle

2.8.4 Readiness and Liveness probes

Sesión6:

Kubernetes Workshop I

3.2 Deploy a sample java web app in a new namespace using configmap and secret with kubectl

3.3 Deploy the previous app using helm or kustomize.

3.4 Deployment strategies.

3.5 Kubernetes dashboard installation using helm.

3.6 Set appropiate permissions for dashboard (RBAC)

Sesión7:

Workshop II

4.3 Deploy an statefulset using persistent volumes and claims (database)

4.4 Expose service and configure app from worshop1 to use it.

4.5 Configure autoscaling for app workshop1

4.6 Apply load to the cluster. Jmeter or Locust

Sesión8:

Kubernetes Workshop III

4.7 Configure Ingress.

4.8 Install monitoring and logging. Prometheus and fluentd

4.9 Install Kibana , Elastic search and grafana.

4.10 Cron jobs, deploy containers with access to k8 resources (database backups).

4.11 Init containers example.

Session9:

Kubernetes Workshop IIII

4.12 Infrastructure as a code introduction. Deploy CI/CD tool (jenkins or gitlab)

4.13 Create a pipeline to automatically deploy resources from previous workshops

4.14 Introduction to Gitops practices, fluxcicd.