PERCONA

MongoDB on Kubernetes with Percona Operators Training: Course Overview

This **one-day** training provides a **comprehensive introduction to deploying and managing MongoDB on Kubernetes** using **Percona Operator for MongoDB**. Participants will learn the fundamentals of **containers, Kubernetes architecture, operators, and cluster management**, along with hands-on labs covering deployment, backups, scaling, and monitoring.

Topics covered:

1. Containers and Docker Basics

- Understanding **virtual machines vs. containers**
- Benefits and limitations of **containerization**
- Introduction to **Docker** (images, containers, and management)

2. Kubernetes Fundamentals

- **What is Kubernetes?**
- How Kubernetes **orchestrates containers**
- Core **Kubernetes architecture** (master components, worker nodes, API server, etcd, controllers, and proxies)
- Different **Kubernetes distributions** (open source, cloud-managed, and enterprise solutions)

3. Kubernetes Operators and Percona Operator for MongoDB

- What are **Kubernetes Operators**, and why are they important?
- Installing and managing **Percona Operator for MongoDB**
- Automating **MongoDB cluster creation, scaling, and maintenance**

4. Hands-On Labs

- **Lab 1: Configure and Deploy** – Setting up MongoDB with Kubernetes
- **Lab 2: Logical Backup and Recovery** – Implementing backup strategies
- **Lab 3: Modify Parameters** – Customizing MongoDB configurations

5. Cluster Management and Scaling

- **Upgrading the Operator and CRDs**
- **Scaling MongoDB on Kubernetes:**
  - Horizontal scaling (adding/removing nodes and shards)
  - Vertical scaling (Adjusting CPU, memory, and storage resources)

6. Monitoring and Cross-Site Replication

- **Monitoring MongoDB with Percona Monitoring and Management (PMM)**
- **Cross-site replication strategies** for high availability

By the end of this course, participants will have a solid understanding of Kubernetes Operators, with a specific focus on Percona Operator for MongoDB. They will gain the skills to deploy, manage, and scale MongoDB clusters efficiently within Kubernetes environments using best practices.