

Phase 2: Orchestration - Kubernetes Basics & Advanced

Objective:

In Phase 2, you will build upon your containerization knowledge by orchestrating your application using Kubernetes. The goal is to deploy a scalable and highly available application.

Tasks:

1. Kubernetes Cluster Setup:

- Set up a Kubernetes cluster using Minikube or k3s.
- Deploy your Dockerized web application as a Kubernetes Pod.

2. Basic Kubernetes Resources:

- Create a Deployment and ReplicaSet for managing the application.
- Expose the application externally using a Kubernetes Service.
- Implement Horizontal Pod Autoscaling (HPA) based on CPU usage.

3. Advanced Kubernetes Concepts:

- Use ConfigMaps and Secrets to manage configuration.
- Set up Kubernetes CronJobs to automate periodic tasks.
- Implement Liveness and Readiness Probes for monitoring application health.

Deliverables:

- Kubernetes manifests for Deployment, Service, HPA, ConfigMaps, Secrets, and CronJobs.
 - Documentation on setting up the Kubernetes cluster and deploying the application.
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