Variations

In this lesson, we'll look at some variations in Kubernetes.

We'll cover the following

- MOMs in Kubernetes
- Frontend integration with Kubernetes
- Docker Swarm and Docker Compose
- Docker vs. virtualization

Kubernetes offers a runtime environment for Docker containers and is very flexible.

MOMs in Kubernetes

The example in this chapter uses communication with **REST**. Of course, it is also possible to operate a MOM like Kafka (chapter 7 (https://www.educative.io/collection/page/10370001/5441945024331776/6652565976514560)) in Kubernetes.

However, MOMs store transmitted messages to guarantee delivery. Kafka even saves the complete history. Reliable storage of data in a Kubernetes cluster is feasible, but not easy. Using a MOM other than Kafka does not solve the problem.

All MOMs store messages permanently to guarantee delivery. **For reliable communication with a MOM, Kubernetes has to store the data reliably and scalably**.

Frontend integration with Kubernetes

Kubernetes can be quite easily combined with frontend integration (chapter 3 (https://www.educative.io/collection/page/10370001/5441945024331776/6168726367895552)), since Kubernetes does not make any assumptions about the UI of the applications.

Client-side frontend integration does not place any demands on the backend. For server-side integration, a cache or web server must be hosted in a Docker container.

However, these servers do not store any data permanently, so they can easily be operated in Kubernetes.

Docker Swarm and Docker Compose

Kubernetes offers a very powerful solution and is further developed by many companies in the container area.

However, Kubernetes is **also very complex** due to its many features.

A cluster with Docker Compose and Docker Swarm can be a **simpler** but **less powerful** alternative. However, Docker Swarm and Compose also offer basic features like **service discovery** and **load balancing**.

Docker vs. virtualization

As Kubernetes takes over cluster management, it includes features that virtualization solutions also offer.

This can also lead to **operational concerns**, as reliable cluster operation is a challenge. Another technology in this area is often viewed critically. When deciding against Kubernetes, Docker can still be used without a scheduler.

But then the Kubernetes features for service discovery, load balancing, and routing are missing. They probably have to be implemented by different means.

QUIZ

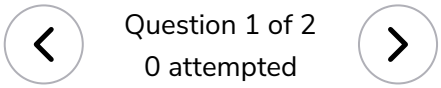
1 What is one way that Kubernetes can store messages for reliable communication with MOMs?

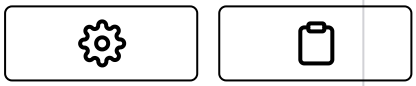
A) With a hard disk

B) With persistent storage volumes

C) With pods

Submit Answer





Reset Quiz

Coming up next, we'll look at some experiments that can be tried with Kubernetes.

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Experiments

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