Introduction

Introduction

Course overview

- Through this course you can understand the basic concept of Kubernetes
- Also we will be doing some hands-on coding exercise which can help you to understand Kubernetes better.

Kubernetes Overview

- Kubernetes is also know as ("K8s" or "Kube") was built by google based on their experience running containers in real time.
- What does it mean K8s ? [K8s is derived by replacing the eight letters of ubernete]
- Also, its an open source product & its arguably one of the best and most popular container orchestration technology out their.
- To understand Kubernetes we must first understand 2 things [Container + Orchestration]

Lets start with Container :

- We are familiar with container already which we were dealing with last couple of days.
- Right now the popular technology out there is Docker which help us to simplify hosting applications in container model.
- In Nutshell, the real use case of Docker is to install & run software without worrying about setup or dependencies.

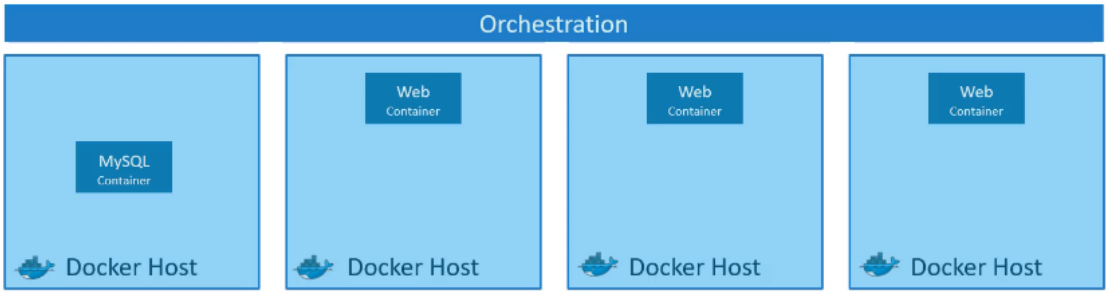
Container Orchestration

- We know how our application is packaged into a docker container but what's next ?
- how do you run in at production ?
- What if your application relies on other containers such as databases, messaging services or other backend services?
- How you are going to scale up and scale down your application according to the incoming work load?

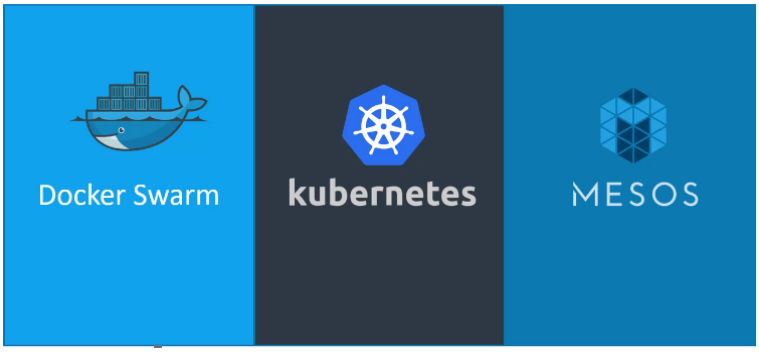
> 💡 **To enable all this functionalities you need a platform which has these capabilities.**

> 💡 **The platform need to orchestrate the connectivity between containers.**

> 💡 **Also, It should be able to automatically scale up and scale down based on load.**



- This whole process of automatically deploy and managing containers is known as container orchestration.
- There are many tools available in this segment.
- Docker swarm is native docker feature which will help for container orchestation.
- Kuberenetes is from Google.
- Mesos from Apache.
- Every tool has its own advantage and disadvantage, Kubernetes is standing out among them since because it is widely accepted.
- Kubernetes is bit difficult to setup and get started but provides lot of options to customize deployments and supports deployments of complex architecture.

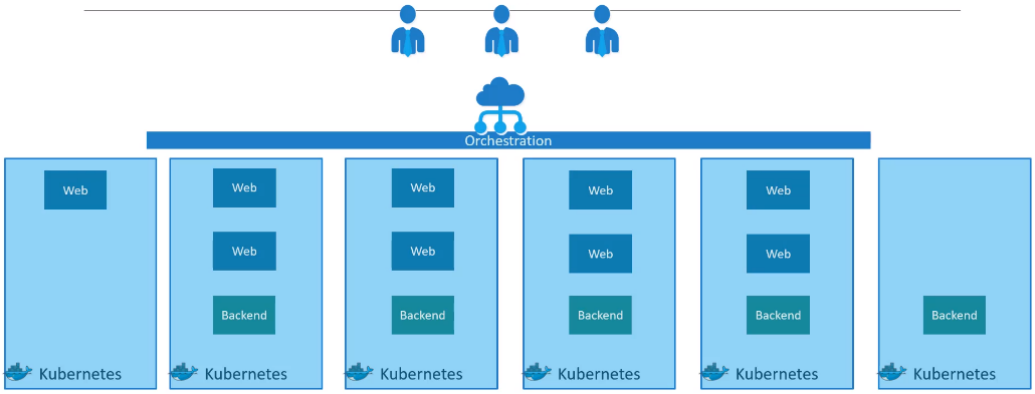


- Kubernetes is also now supported on all public cloud platforms like AWS, GCP & AZURE.

Advantages of Kubernetes

- There are various advantages in using Kubernetes.
- Your application is highly available as hardware failure do no bring your application down because we have multiple instances of your application running on different nodes.

- The user traffic is load balanced across multiple containers. [When demand increases deploy more instances of the application seamlessly in matter of seconds]
- When we run out of hardware resources can scale up or down the underlying nodes without disturbing running application.



- To do all such thing we need flexible and easy to manage tool and that going to be Kubernetes.
- In Nutshell, Kubernetes is an container orchestration tool [which helps to orchestrate 100s & 1000s of container deployment and managing all those in an easy way..]