2: Deploy containers in Kubernetes

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What did we do last session?

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- Setup 3 microservices in spring boot
- Configure maven pom structure using parent and children
- Show how JHipster can generate projects for you

To watch the previous session go to
https://www.youtube.com/watch?v=tyrQFcXfCO4

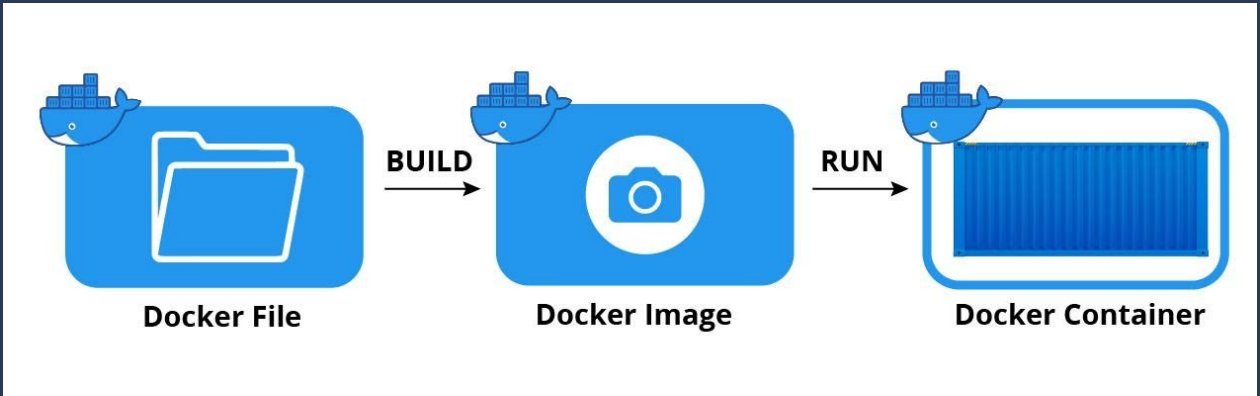
2: Deploy containers in kubernetes

Today we will

- Create and run docker images for our 3 microservices
- Setup a local kubernetes cluster using minikube
- Deploy our docker containers in our local kubernetes cluster
- Push our docker containers to AWS Elastic Container Registry (ECR)
- Deploy our docker containers to AWS Elastic Kubernetes Service (EKS)

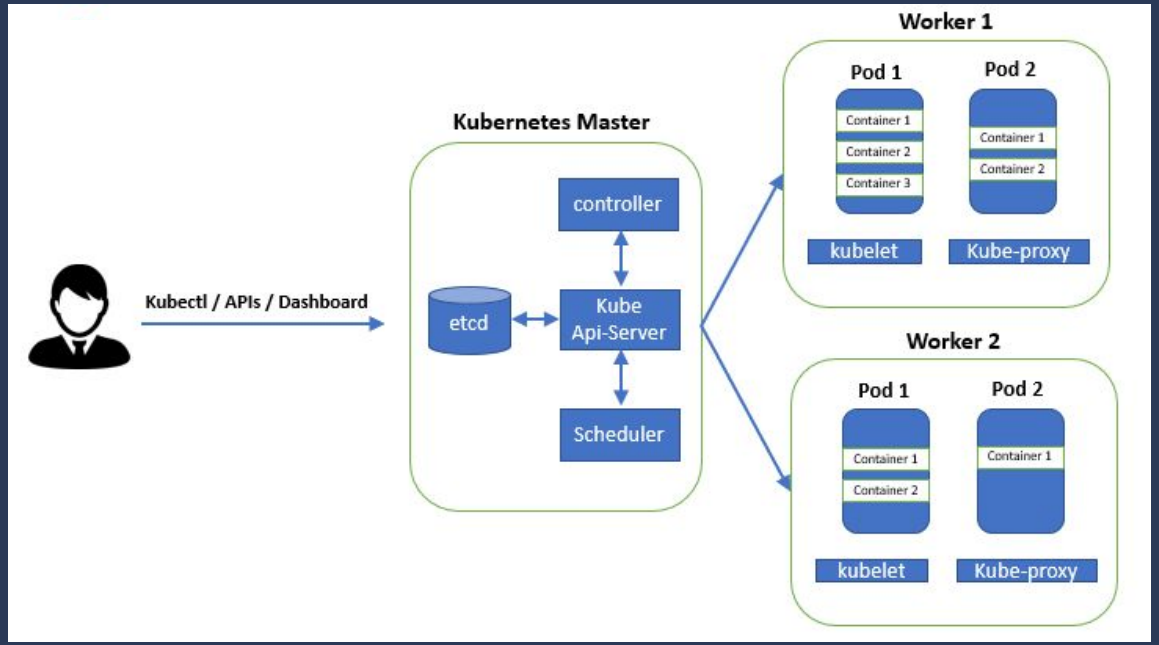
What is docker?

Docker is an open source containerization platform. It enables developers to package applications into containers—standardized executable components combining application source code with the operating system (OS) libraries and dependencies required to run that code in any environment



What is Kubernetes?

- Kubernetes is container orchestration used to run containers at scale
- Can be run anywhere. In any cloud, on-prem and even on your laptop
- Comes with service discovery, load balancing, self-healing and much more out of the box



Kubernetes concepts

- **Pod**
  Pods are the smallest, most basic deployable objects in Kubernetes. A Pod represents a single instance of a running process in your cluster. Pods contain one or more containers, such as Docker containers

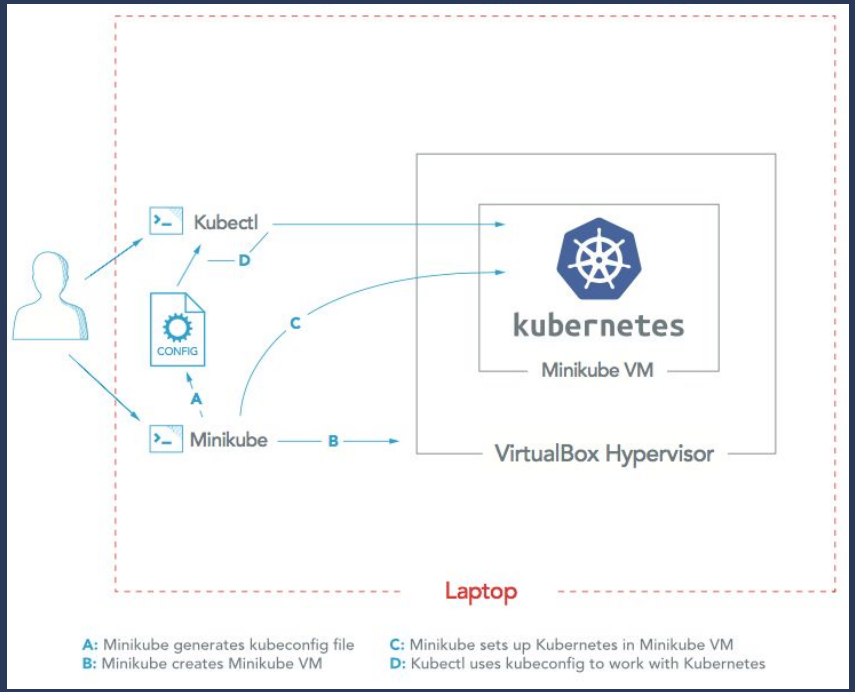
- **Service**
  In Kubernetes, a Service is an abstraction which defines a logical set of Pods and a policy by which to access them. The set of Pods targeted by a Service is usually determined by a selector.

- **Ingress**
  Kubernetes Ingress is an API object that provides routing rules to manage external users' access to the services in a Kubernetes cluster. With Ingress, you can easily set up rules for routing traffic without creating a bunch of Load Balancers or exposing each service on the node

- **Kubectl** (Kubernetes command-line tool)
  allows you to run commands against Kubernetes clusters. You can use kubectl to deploy applications, inspect and manage cluster resources, and view logs

What is minikube?

- Minikube runs a single-node Kubernetes cluster on your personal computer
- Works on Mac, Windows & Linux OS
- Lets you perform local development and test your kubernetes configuration



What is AWS Elastic Kubernetes Service (EKS) ?

- EKS is a service provided by AWS so you do not have to host Kubernetes on your own servers.
- Integrated with many other AWS services like IAM, VPC, CloudTrail and more