Kubernetes (K8s)

(Container Orchestration System)

March 2018

Container Needs?

What is Kubernetes ?

Kubernetes Overview

Kubernetes Demo

Kubernetes Commands

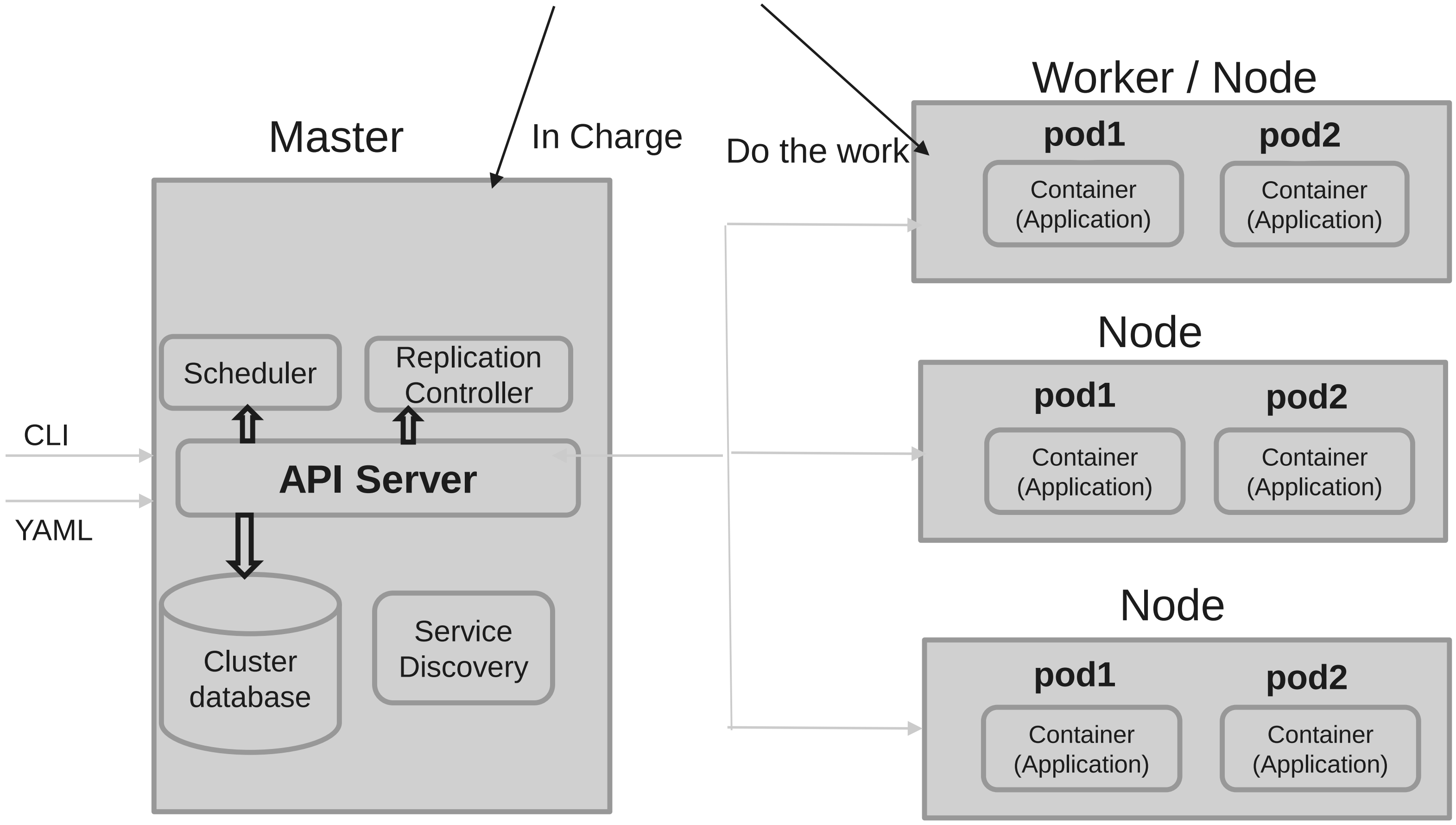
Container Needs

- **Health checks** – up and running? How to restart?
- **Discovery** – access containers
- **Communication** – containers talk to each other
- **Security** – sensitive data, authorization
- **Isolation** – keep jobs separate
- **Scheduling** – when should my jobs run? Lifecycle?
- **Scalability** – make my jobs bigger/smaller
- ****Leads to great complexity**

What is Kubernetes (K8s)?

- **Open-source automated deployment, scaling & management of containerized apps**
  - **Based on Google's infrastructure**
  - **Problem:** How do I manage applications at scale?
    - **The application:** How to build, package, distribute
    - **The infrastructure:** How to make it scalable (efficiently)
    - **The evolution:** How to handle your evolving code
  - **Solution: Use Docker + Kubernetes**
    - **Docker:** Containers
    - **Kubernetes:** Container management
  - **Manage applications, not machines!**

Kubernetes Architecture – Master & Worker Node



Kubernetes Demo

Common Kubernetes Commands..

Kubernetes Local development environment :

```
minikube start
```

```
kubectl config use-context minikube
```

Launch the dashboard:

```
minikube dashboard
```

Deploy a docker application to the kubernetes cluster through command line:

```
kubectl run myspringdemo --image=ganeshdockerjava/docker-spring-example --port=8000
```

Common Kubernetes Commands

Exposing the application through service using command line:

```
kubectl expose deployment myspringdemo --type=LoadBalancer --name myspringdemoservice
```

To list the service:

```
kubectl get service / svc
```

To describe the service details:

```
Kubectl describe services service-name
```

Delete Deployment and Service:

```
kubectl delete deployment deployment-name
```

```
kubectl delete service service-name
```

Thank You