Kubernetes (K8s)

(Container Orchestration System)

April 2018

- Container Needs?
- What is Kubernetes ?
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Container Needs

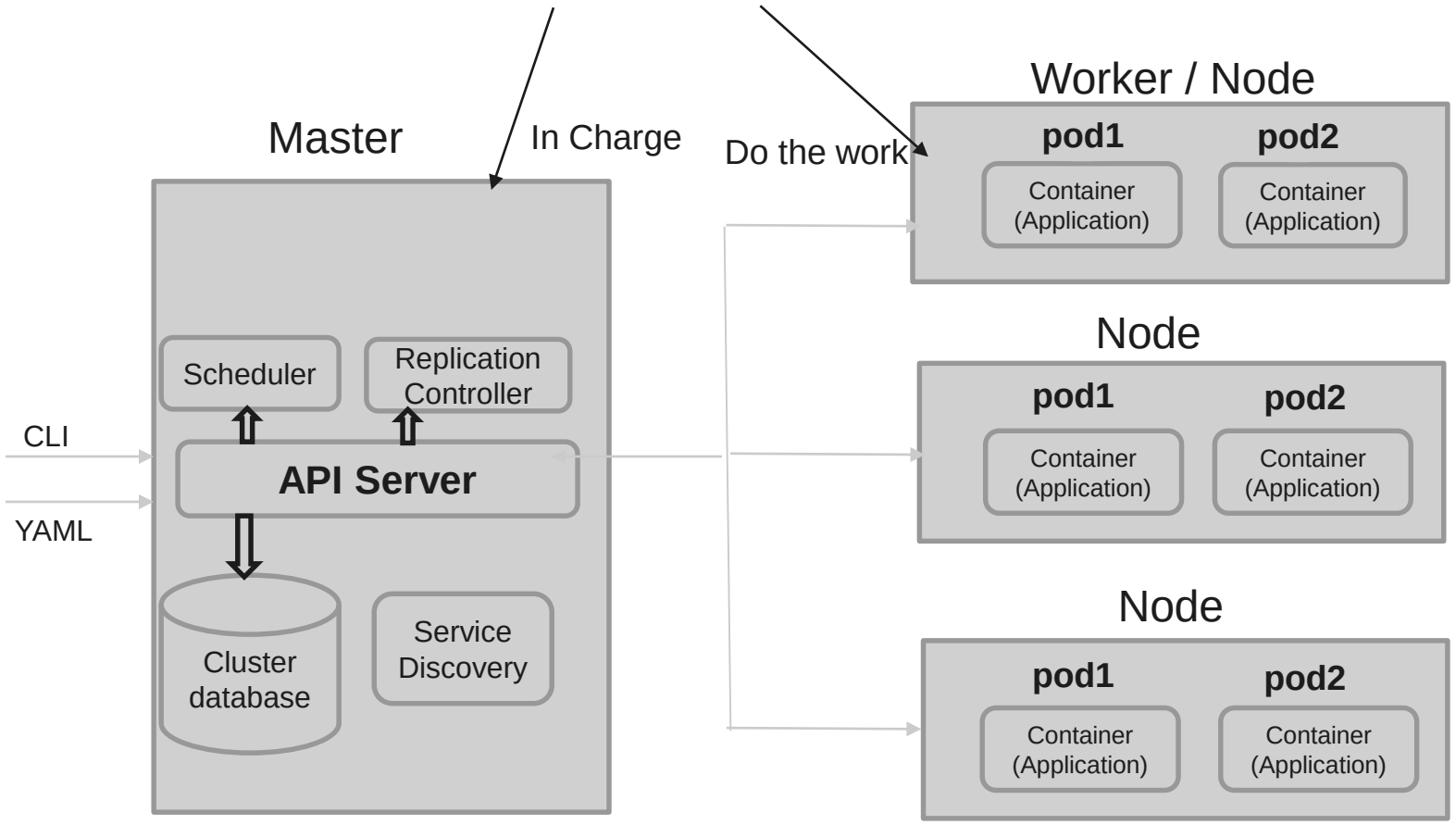
- **Health checks** – up and running? How to restart?
- **Discovery** – access containers
- **Communication** – containers talk to each other
- **Security** – sensitive data, authorization
- **Isolation** – keep jobs separate
- **Scheduling** – when should my jobs run? Lifecycle?
- **Scalability** –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

The Home Depot Hackathon Experience

- 8 Teams Participated in the Event
- Event timing 9 AM- 3:30 PM, each team placed in a separate conference room.
- Idea: Micro Services Orchestrations with Kubernetes on GCP
  - 2 Micro Services Apps Account and Customer services
  - Containerized these services using Docker
  - Created new GCP account and 3 node clustered environment in GKE (Googles Kubernetes Engine)
  - Deployed containerized services in GKE and Executed it.
  - Accomplished: Services Discovery, Self Healing, Scalability etc..
- Each team to Demo their project at 4 PM in front of THD Merch IT team.
- Results was announced few days later and the award was presented by Merch IT VP.

Thank You