

DevOps Connect

in association with

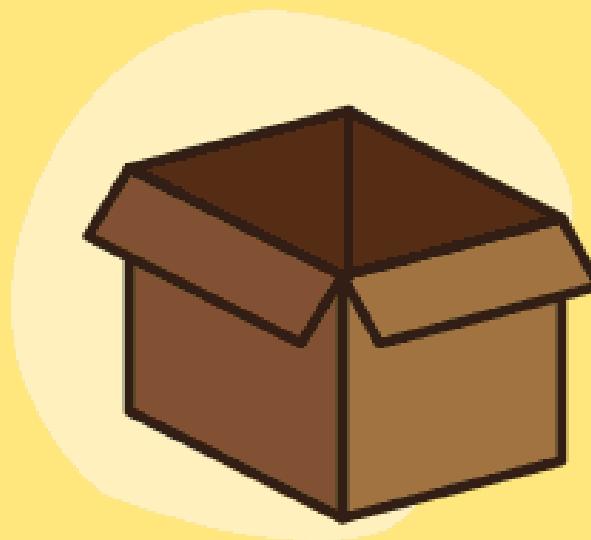


**PVG's COET & M
Department of Computer Engineering**

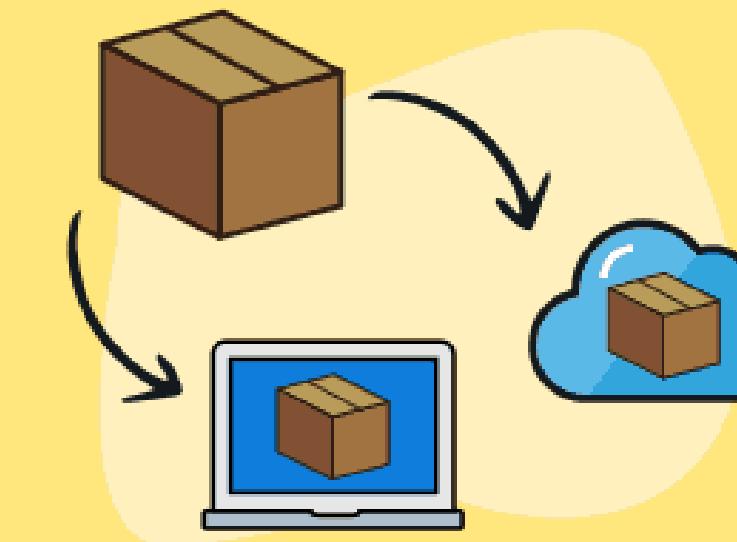
Kubernetes or K8s

Container + Orchestration

Why Do you need containers



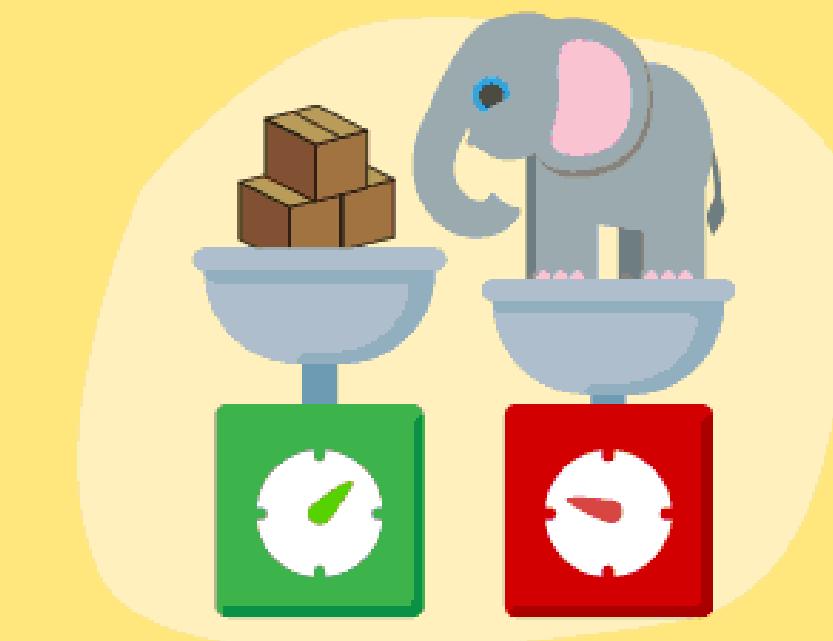
Everything contained
in a single package



Runs anywhere: laptop,
data center or cloud



Applications are isolated
on the operating system



Uses fewer resources
than a virtual machine

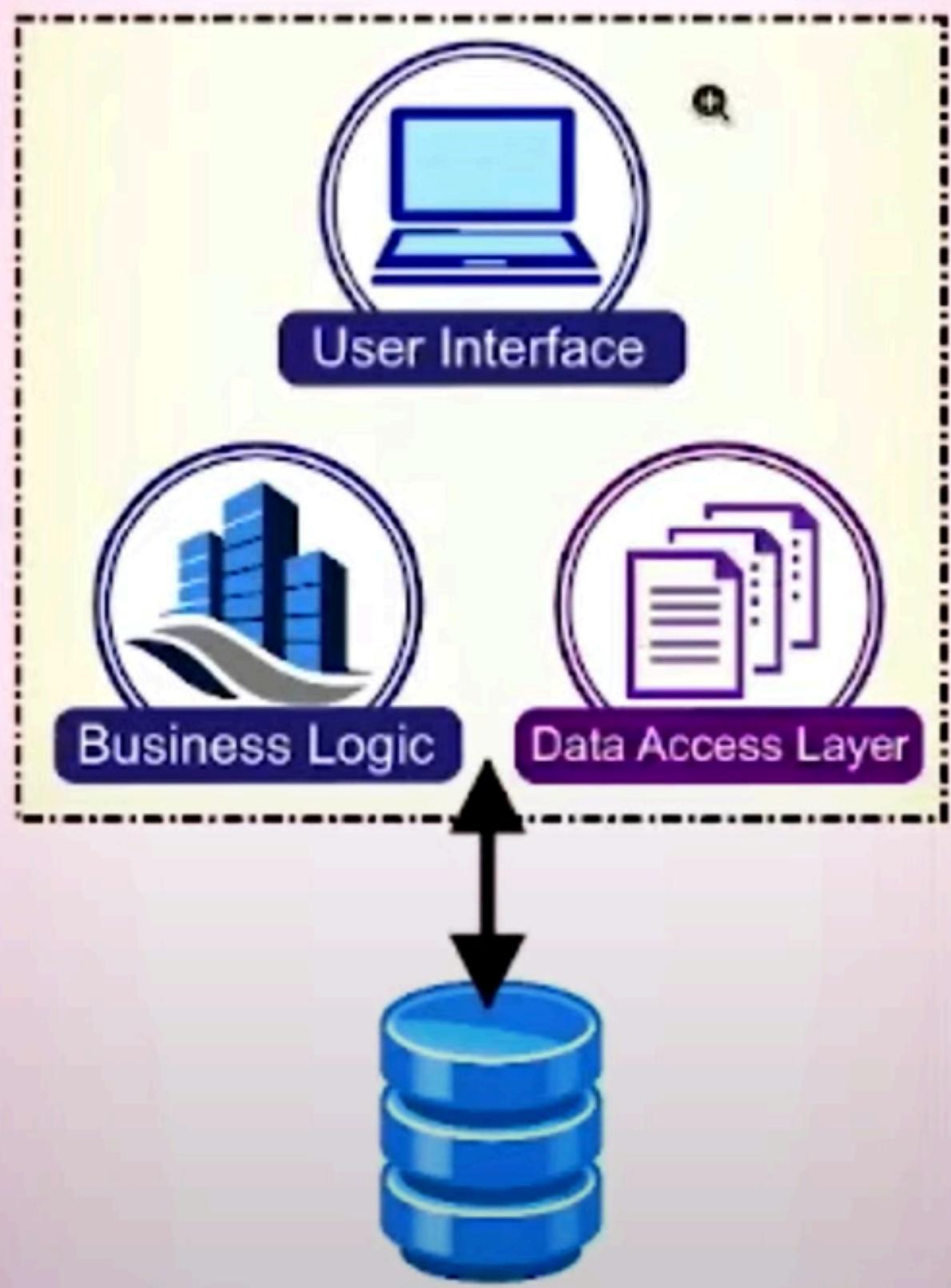


SwiftOnSecurity
@SwiftOnSecurity

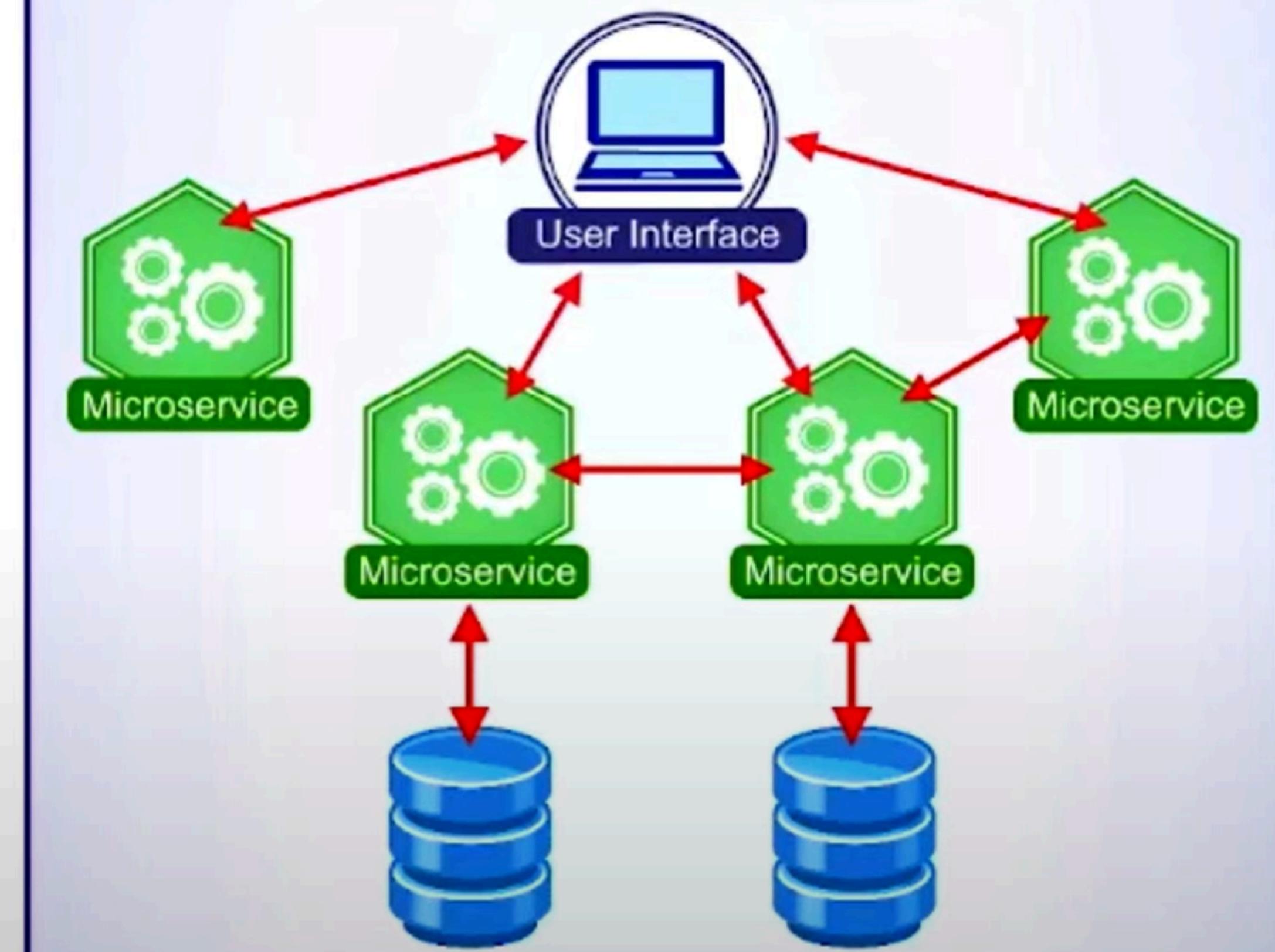
One time I tried to explain Kubernetes
to someone.

Then we both didn't understand it.

Monolith Architecture



Microservices Architecture



Monolithic Application

Recruitment Website
Job Applicants
Job Vacancies
Recruiters

Transition to Microservices

Recruitment Website

Recruiters

Job Applicants

Job Vacancies

Docker

Create containers for your application



Kubernetes

Launch your containerised application in K8s

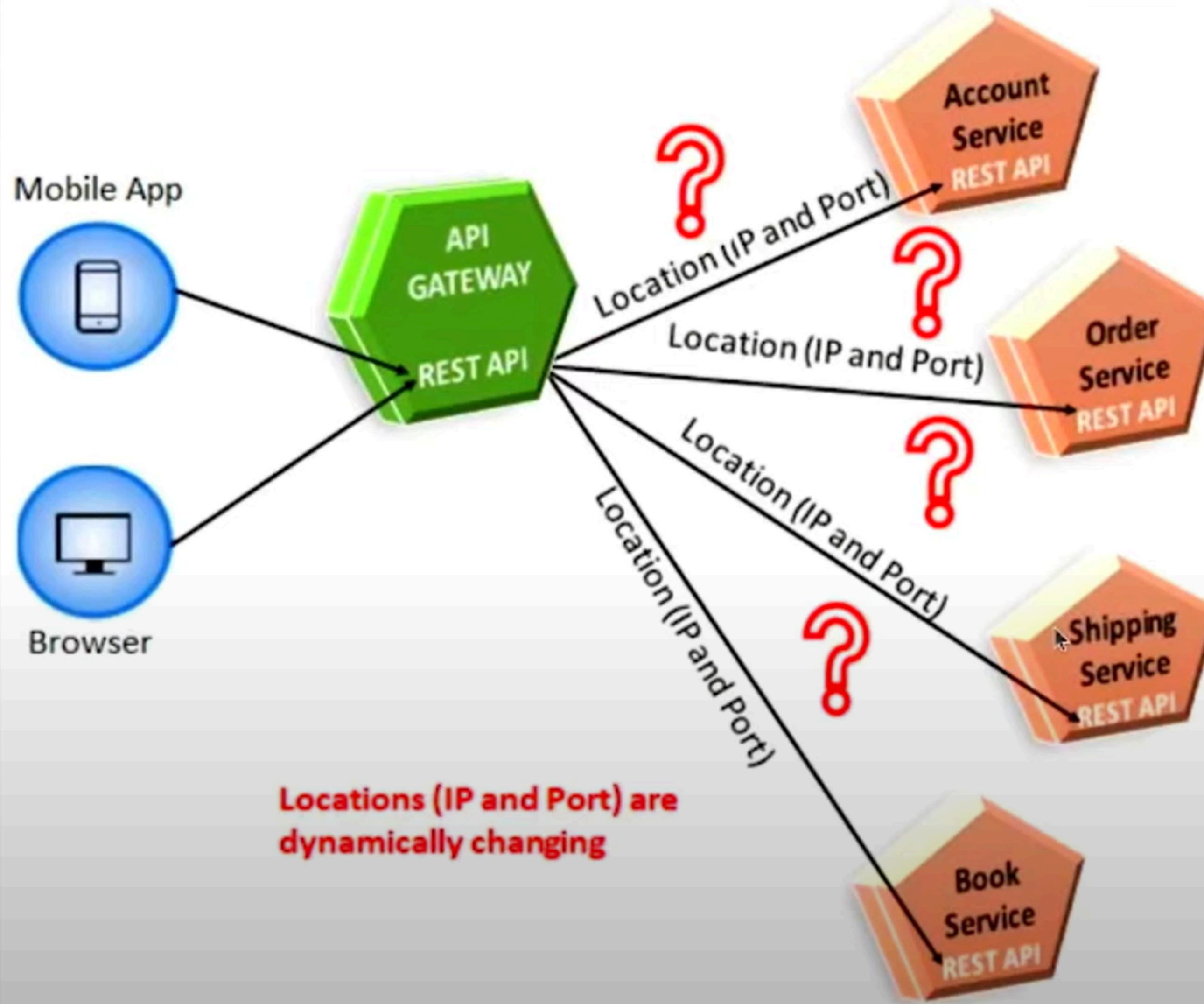


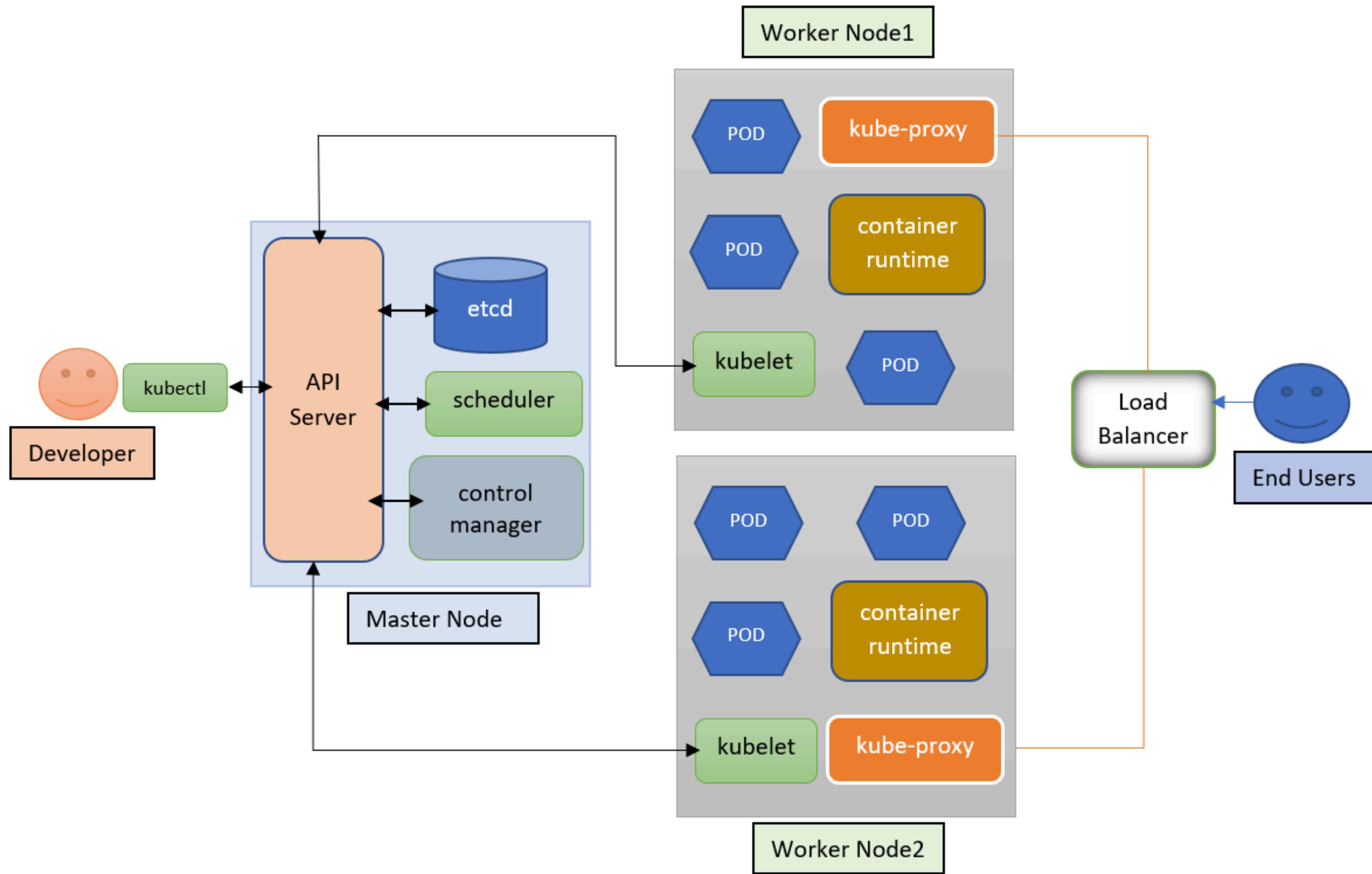
KUBERNETES

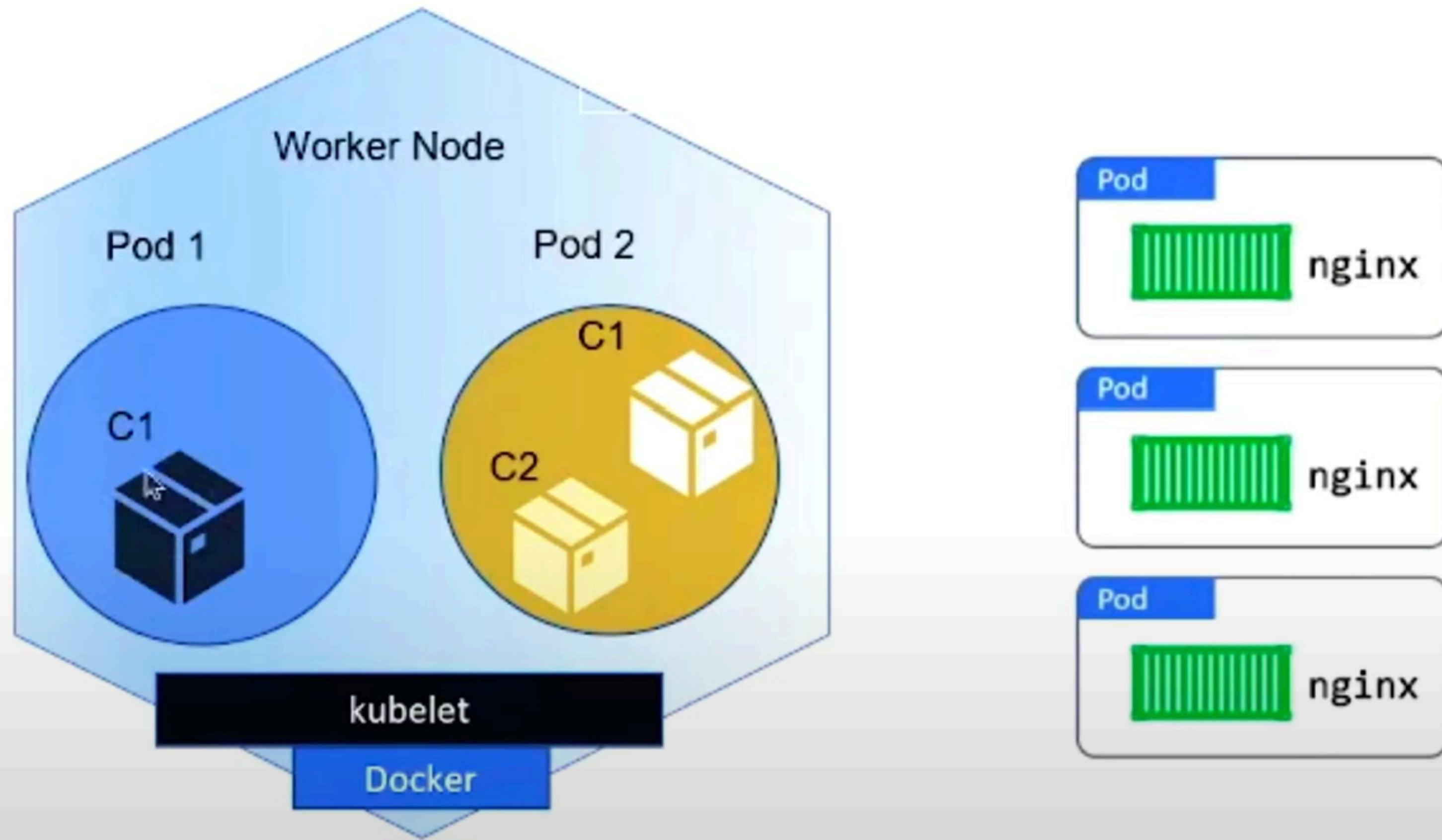
- **K8S is a Production-Grade Container Orchestration Platform**
- **K8S is an open-source software (OSS)**
- **K8S is used to manage containers of our application**
- **K8S will take care of container deployment, scaling, de-scaling, and container load balancing**
- **K8S is not a replacement for Docker**
- **K8S is the replacement for "Docker Swarm"**
- **K8S was developed by Google and donated to CNCF in 2014**
- **CNCF means Cloud Native Computing Foundation**
- **K8S s/w developed by using GO Lang**
- **K8S v1.0 released to market in the year of 2015**

KUBERNETES FEATURES

- 1) Automated Scheduling**
- 2) Self Healing Capabilities**
- 3) Automated Rollouts and Rollbacks**
- 4) Load Balancing**
- 5) Service Discovery**
- 6) Storage Orchestration**
- 7) Secret and configuration management**







etcd: Consistent and highly-available key-value store; stores configuration data and the state of the cluster.

kube-apiserver: Exposes the Kubernetes API; accepts and processes RESTful API requests.

kube-scheduler: Assigns nodes to newly created pods; considers factors like resource requirements and constraints.

kube-controller-manager: Runs controller processes to regulate state; examples include Node controller, Replication controller, Endpoint controller.

cloud-controller-manager: Extends functionality based on the cloud provider; manages cloud-specific features like load balancers