

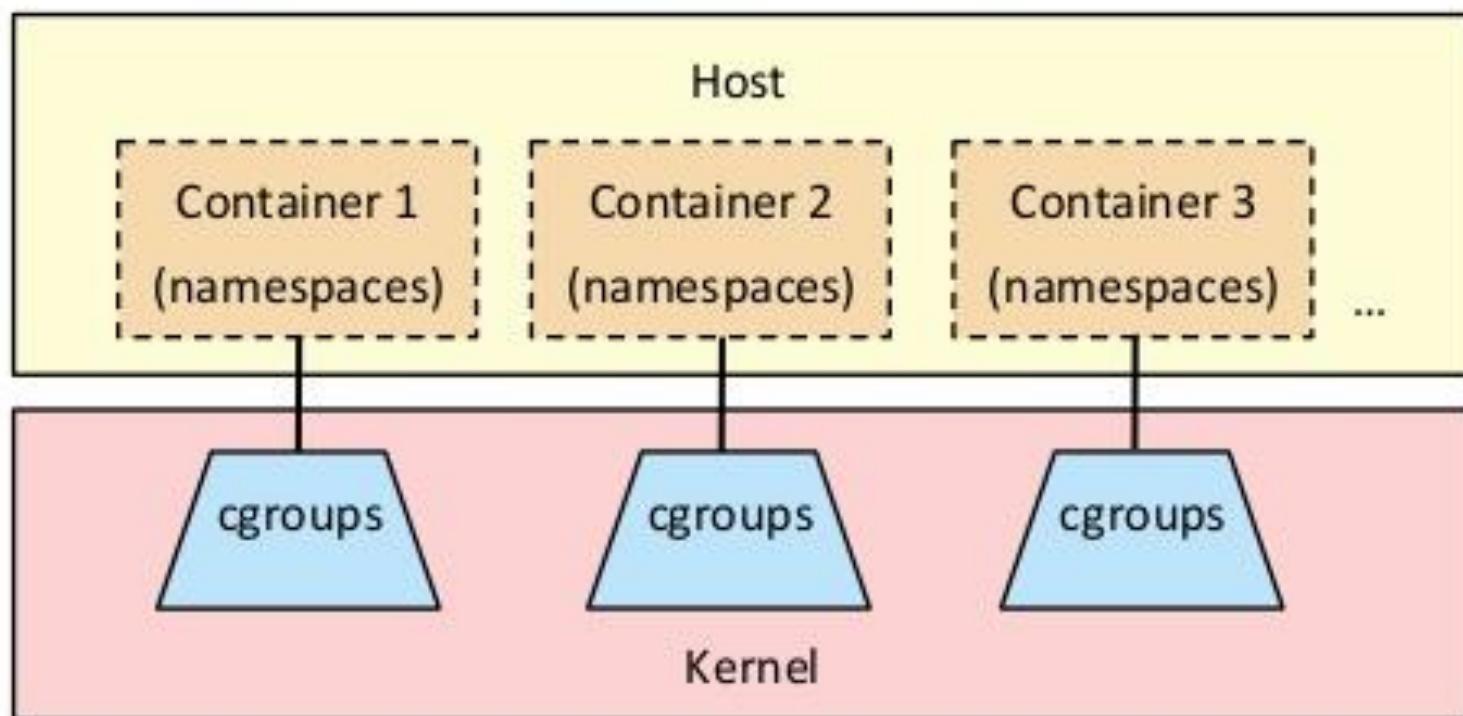
Production-Grade
Container Orchestration

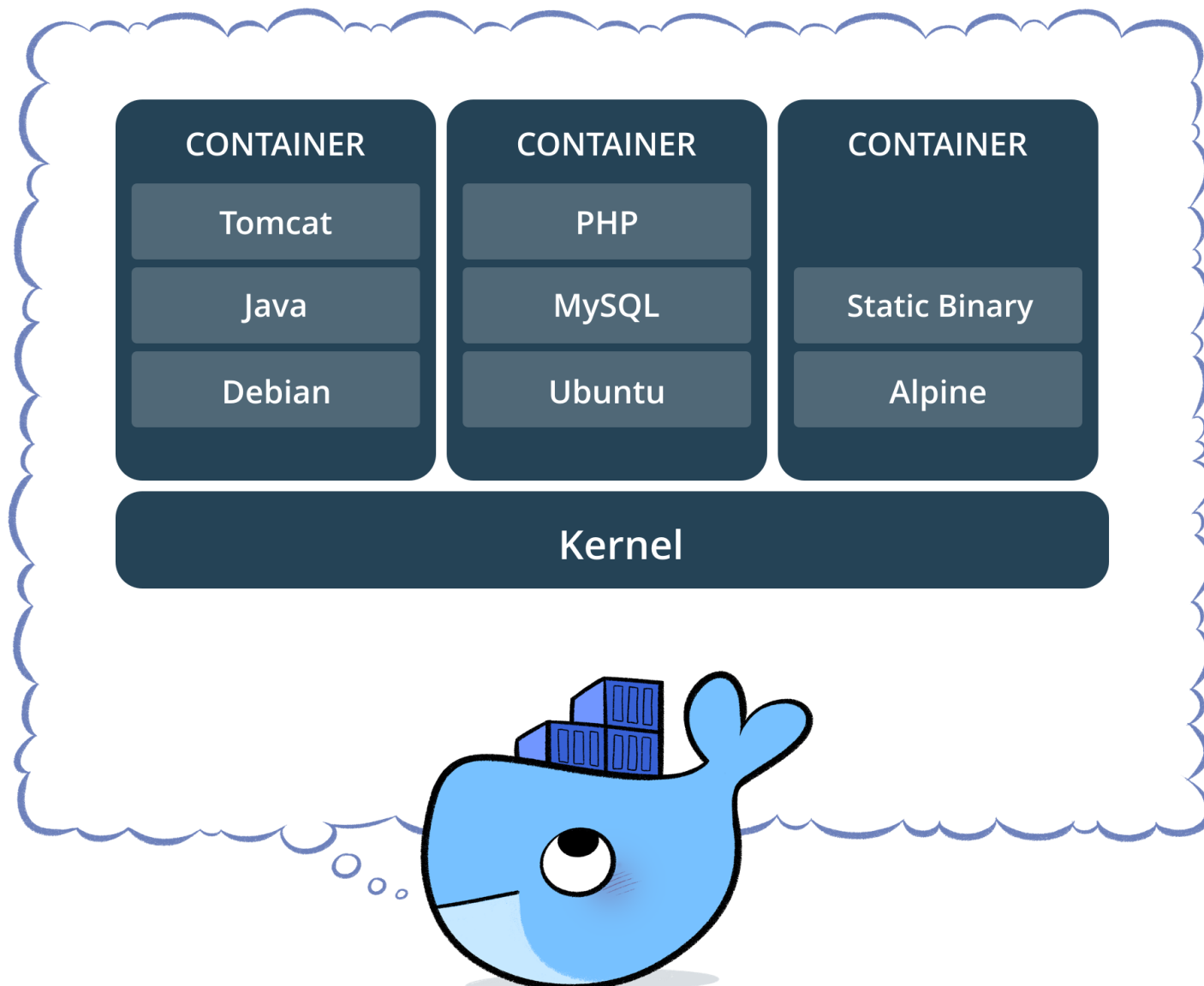


kubernetes

Linux Containers

Container = combination of namespaces & cgroups

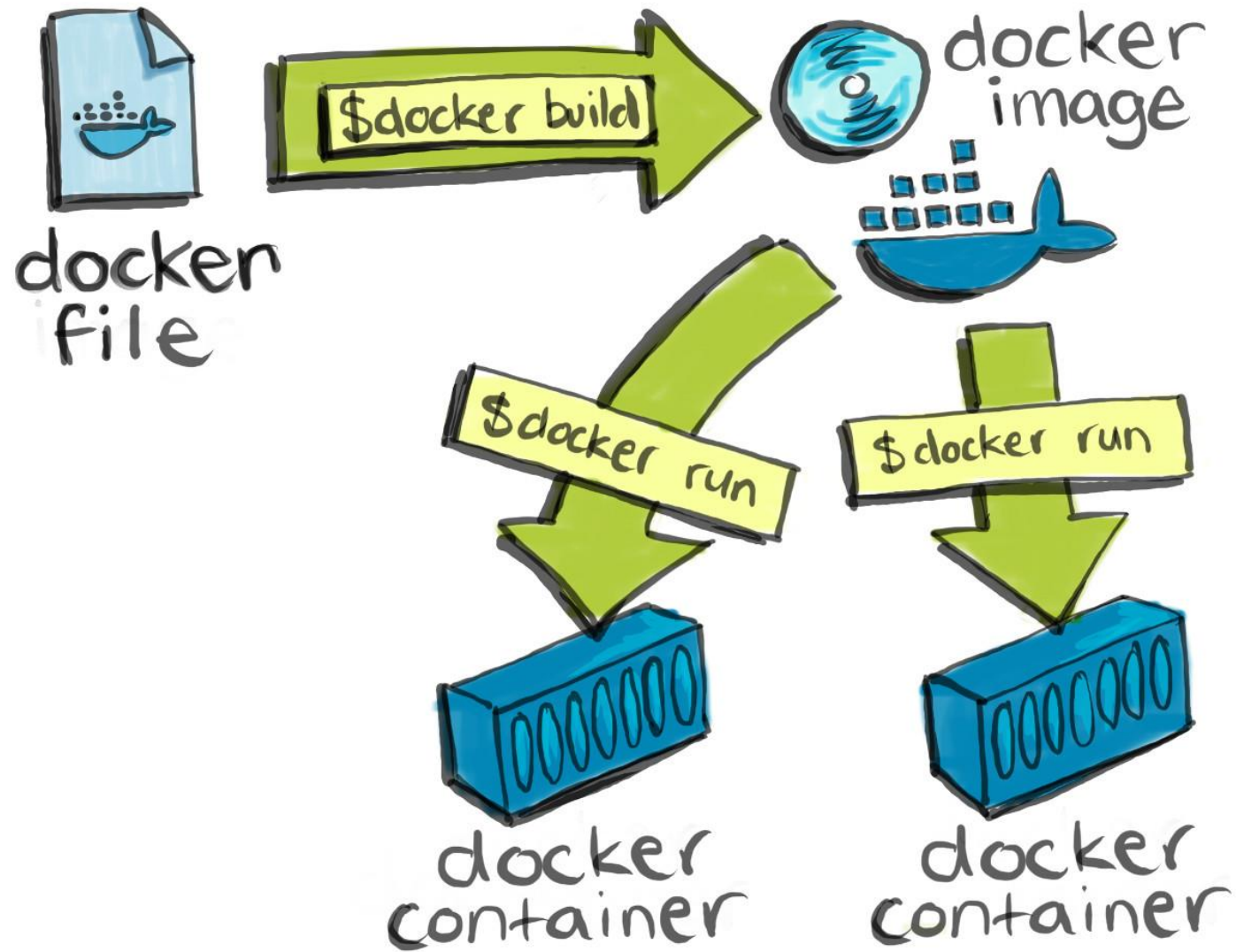




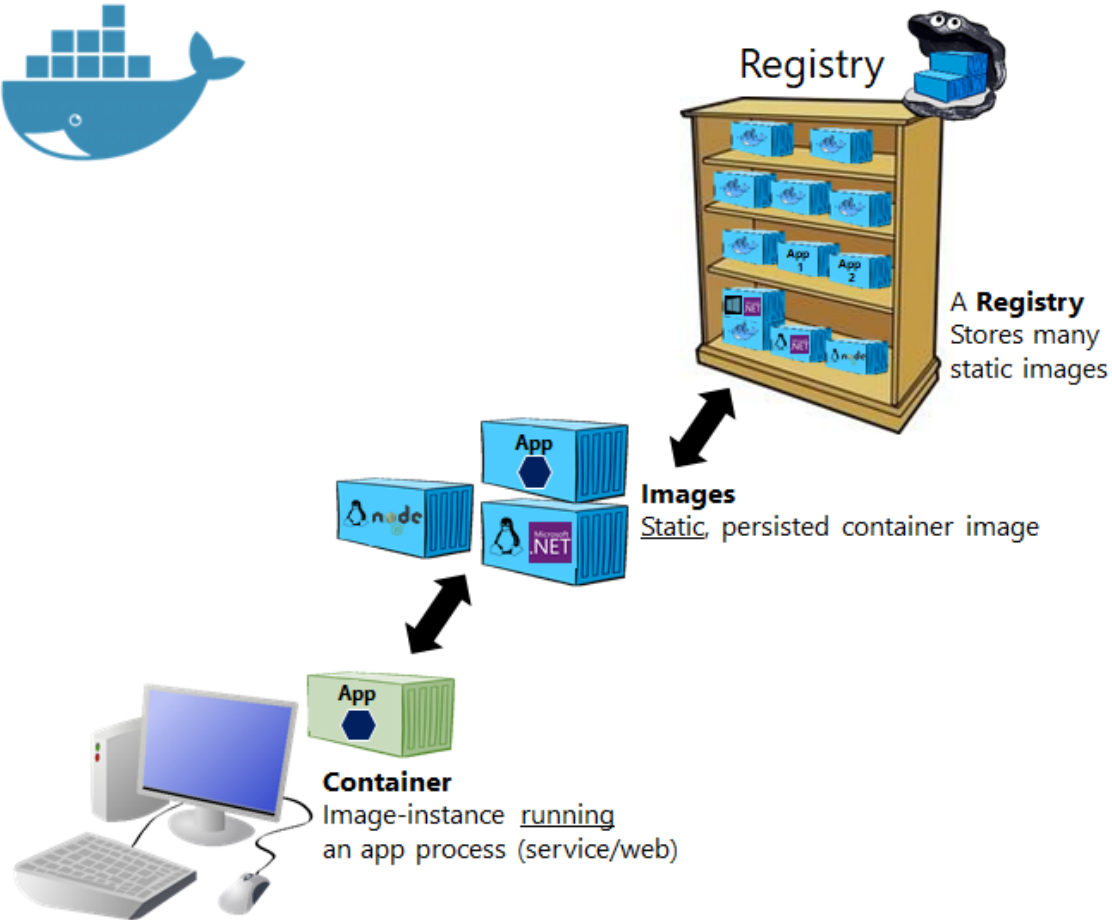
```
jenkins@jenkinsVM:~$ docker run --name mongo-local-v40 -d -p 27017:27017 mongo:4.0
```

sVM:~\$ docker ps

IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
mongo:4.0	"docker-entrypoint.s."	2 minutes ago	Up 2 minutes	0.0.0.0:27017->27017/tcp	mongo-local-v40



Basic taxonomy in Docker



Hosted Docker Registry

Docker Trusted Registry on-prem.

On-premises

('n' private organizations)

Docker Hub Registry

Docker Trusted Registry on-cloud

Azure Container Registry

AWS Container Registry

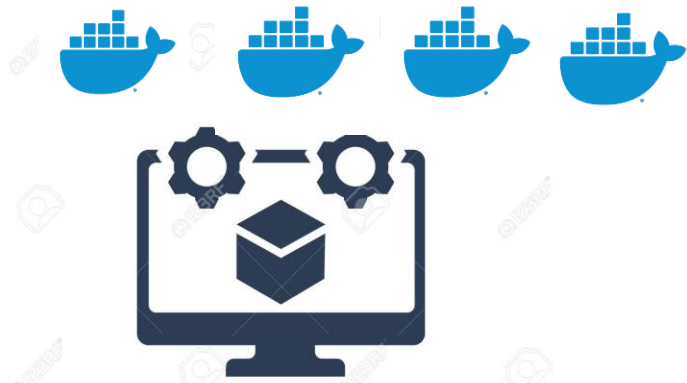
Google Container Registry

Quay Registry

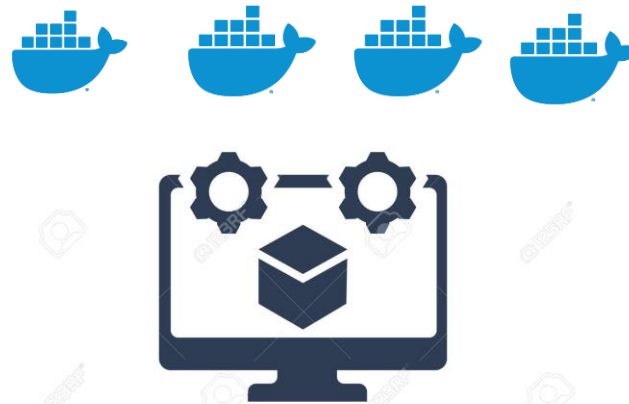
Other Cloud

Public Cloud

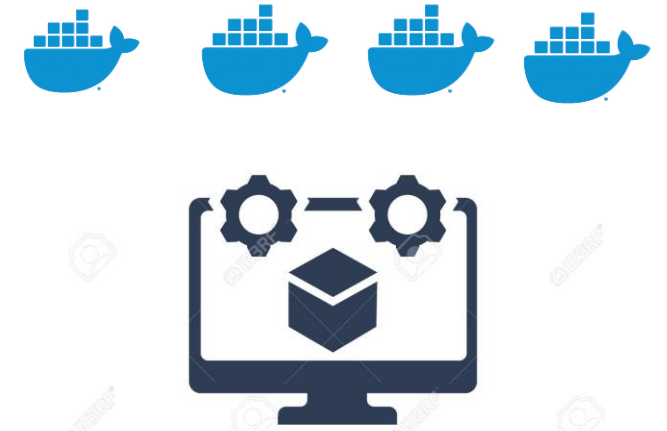
(specific vendors)



VIRTUAL MACHINE
TECHNOLOGY



VIRTUAL MACHINE
TECHNOLOGY

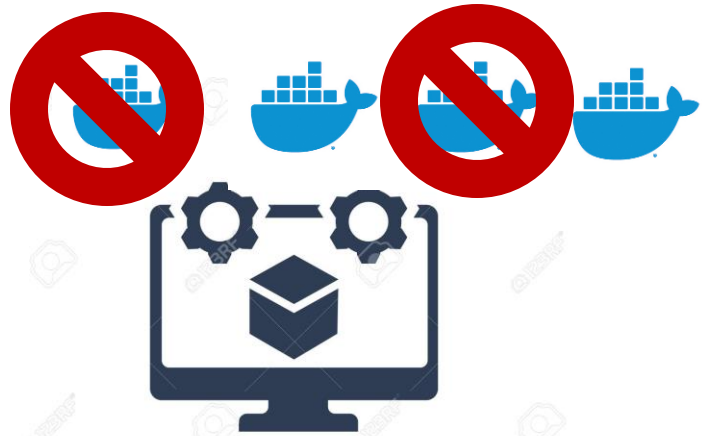


VIRTUAL MACHINE
TECHNOLOGY

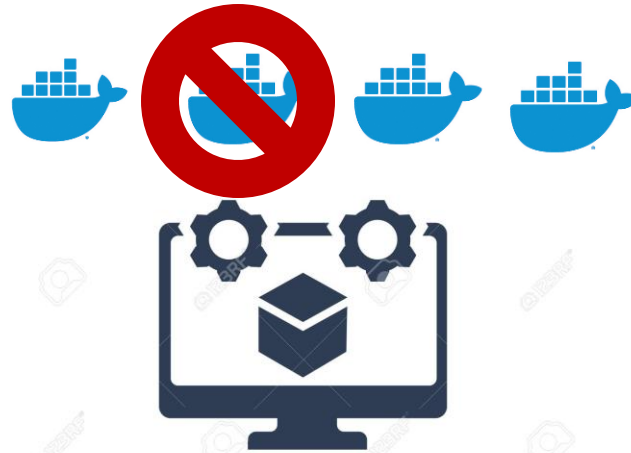
ssh

docker run ?

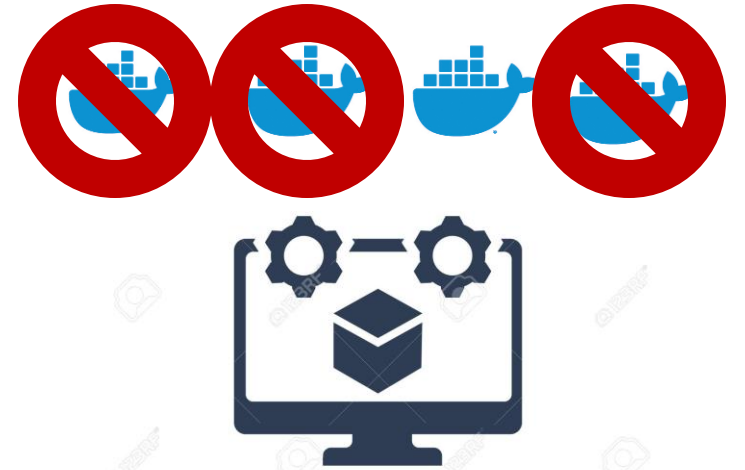




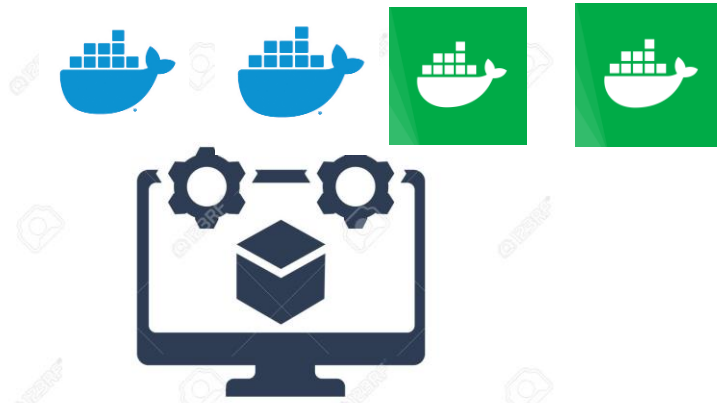
VIRTUAL MACHINE
TECHNOLOGY



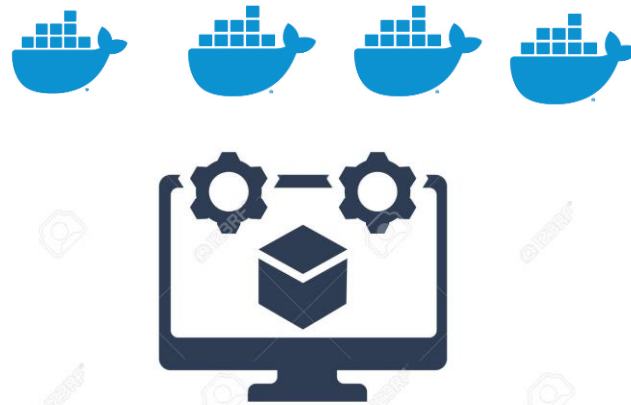
VIRTUAL MACHINE
TECHNOLOGY



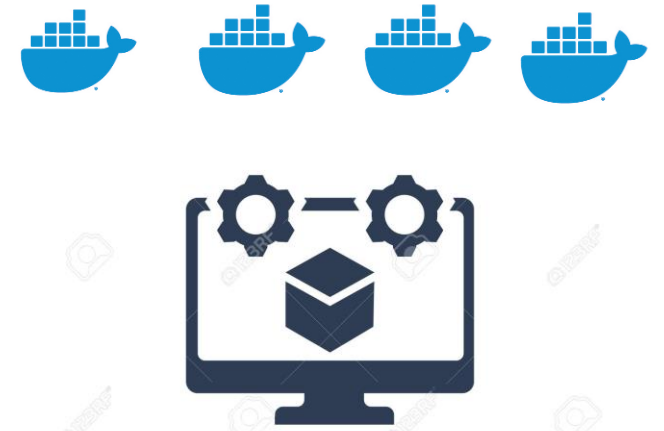
VIRTUAL MACHINE
TECHNOLOGY



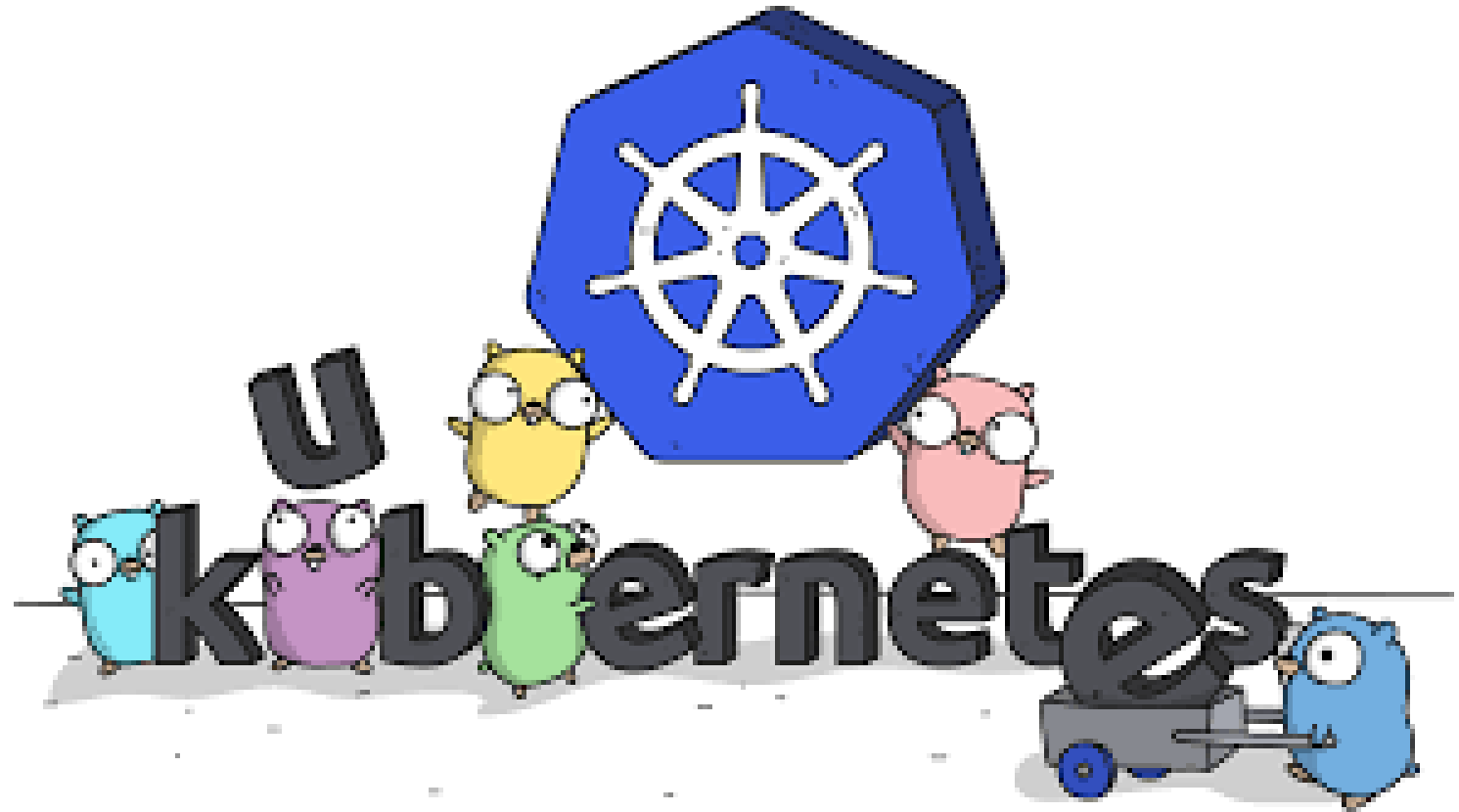
VIRTUAL MACHINE
TECHNOLOGY



VIRTUAL MACHINE
TECHNOLOGY



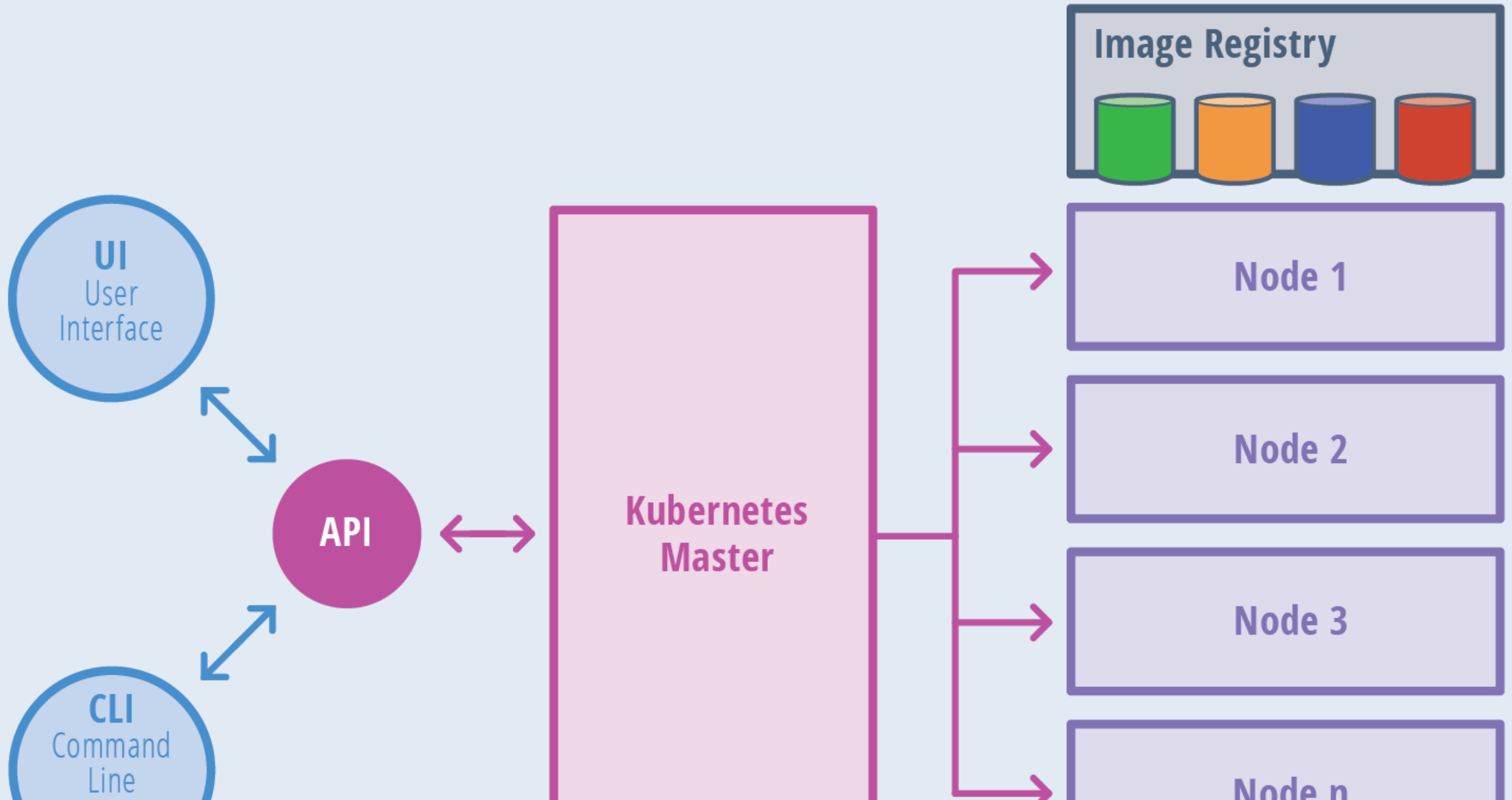
VIRTUAL MACHINE
TECHNOLOGY



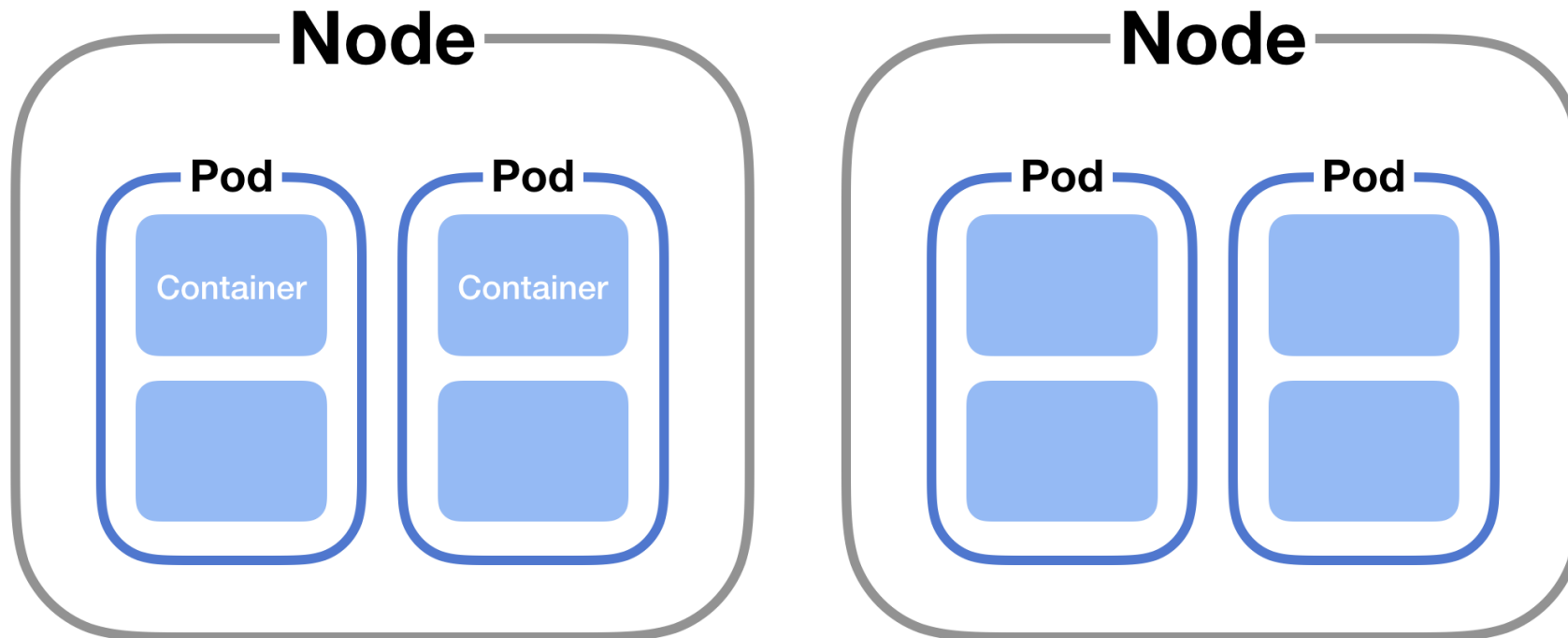
- Service discovery and load balancing
- Storage orchestration
- Automated rollouts and rollbacks
- Automatic bin packing
- Self-healing
- Secret and configuration management



Kubernetes Architecture



Cluster



Deployment

“I want three of my
Node.js app Pods running”

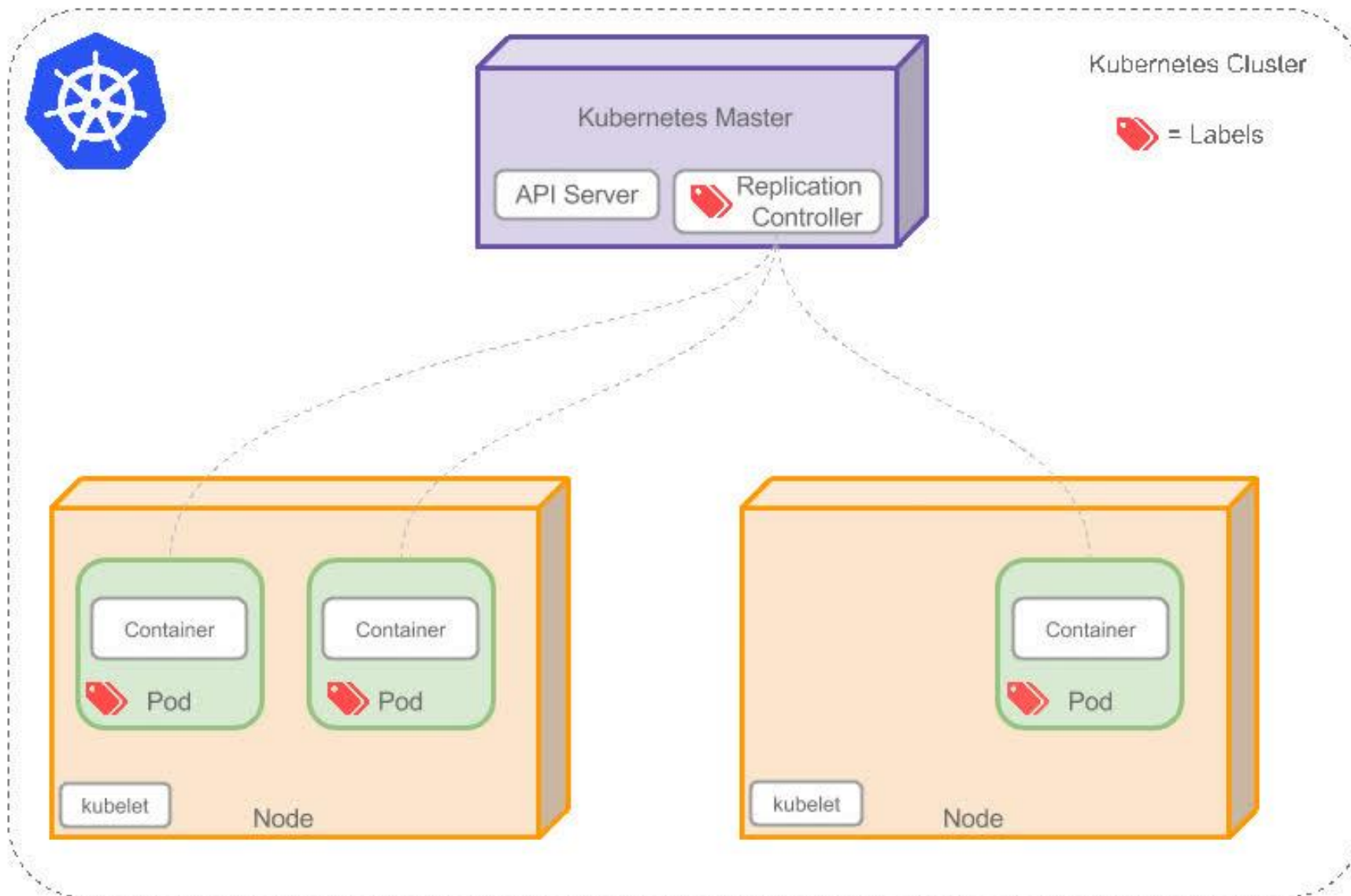
AKA ReplicaSet

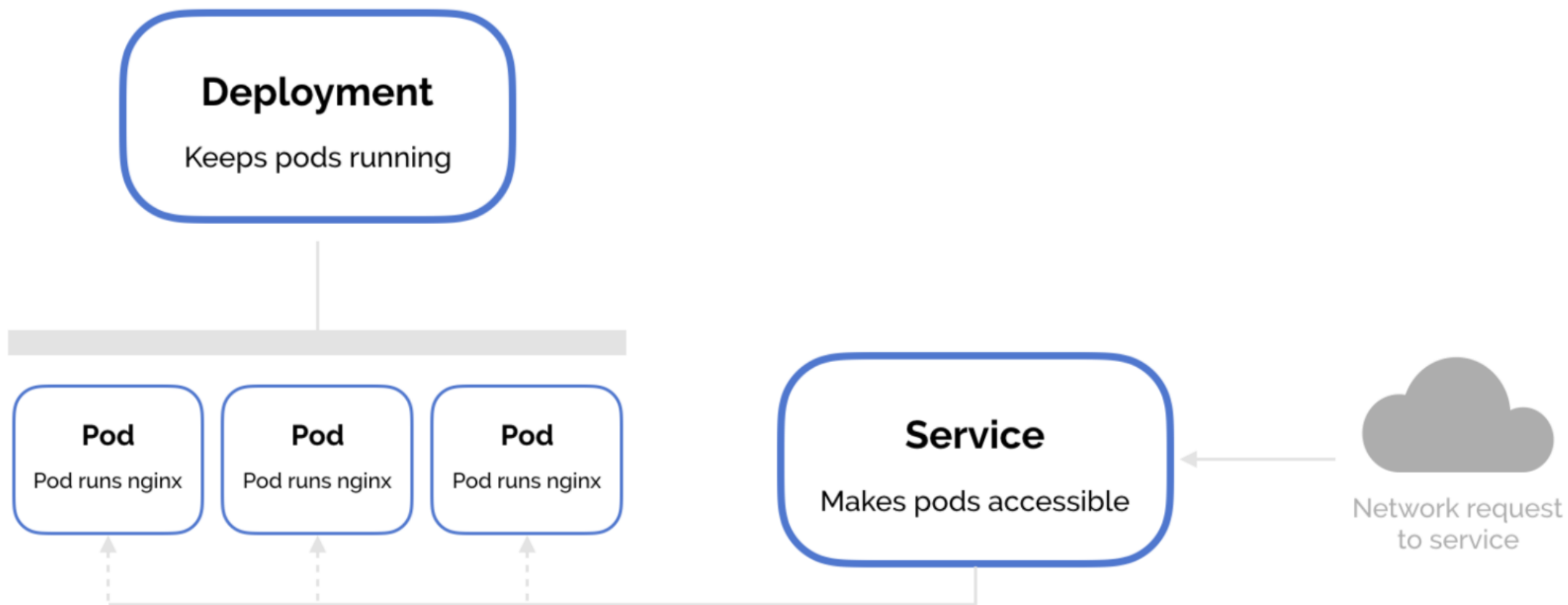


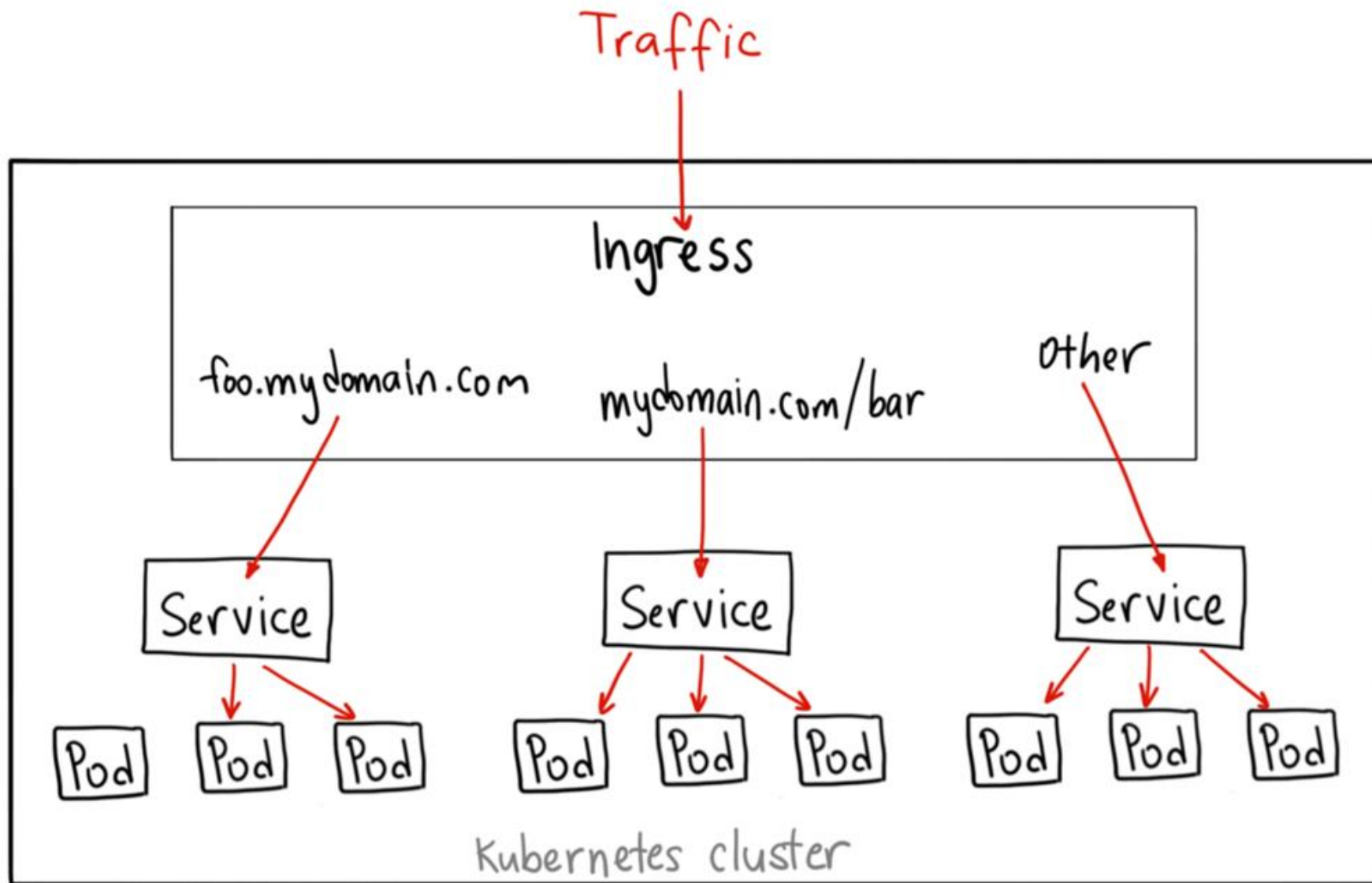
Node.js
app

Node.js
app

Node.js
app









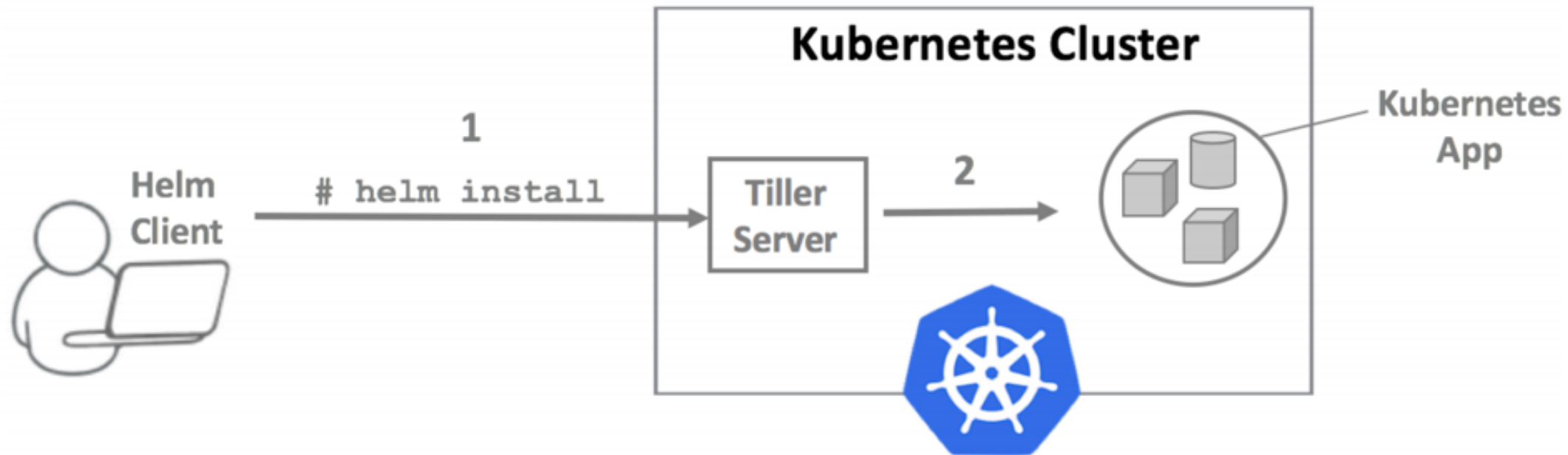


Helm Features

- Click to add Install software.
- Automatically install software dependencies.
- Upgrade software.
- Configure software deployments.
- Fetch software packages from repositories.
- text

Helm Components

- A command line tool, helm, which provides the user interface to all Helm functionality.
- A companion server component, tiller, that runs on your Kubernetes cluster, listens for commands from helm, and handles the configuration and deployment of software releases on the cluster.
- The Helm packaging format, called *charts*.
- An [official curated charts repository](#) with prepackaged charts for popular open-source software projects.



```
kubectl create serviceaccount --namespace kube-system tiller
```

```
kubectl create clusterrolebinding tiller-cluster-rule --clusterrole=cluster-admin --  
serviceaccount=kube-system:tiller
```

```
helm init --service-account tiller
```


NEW

Helm 3

