

Deploying Apps at Scale

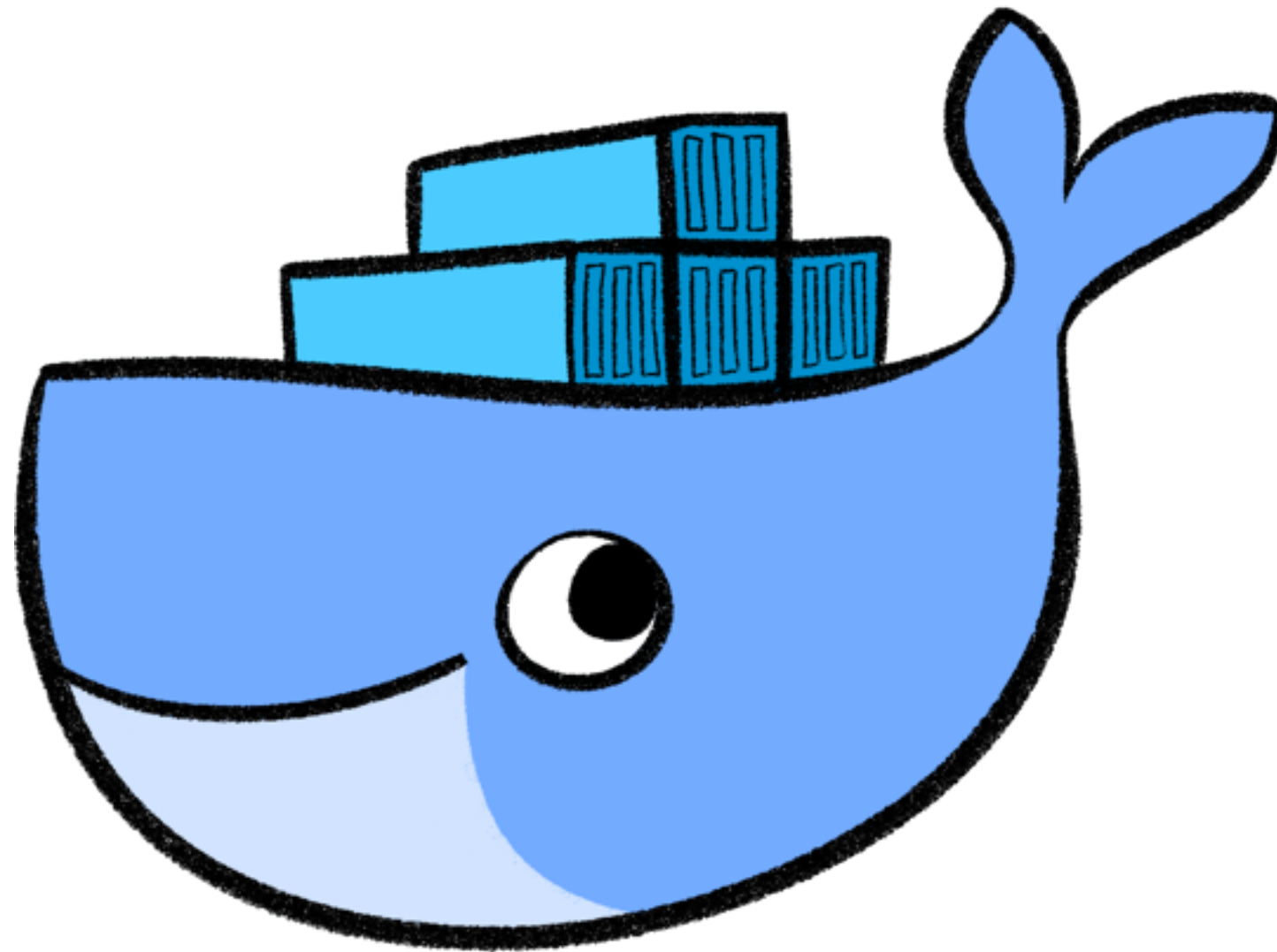
An introduction to Docker and Kubernetes.

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Marist Computer Society

Docker



Docker - Why?

Simplicity

- One file to define everything an app needs to run

Sharing

- A docker image can be moved between and OS that runs Docker

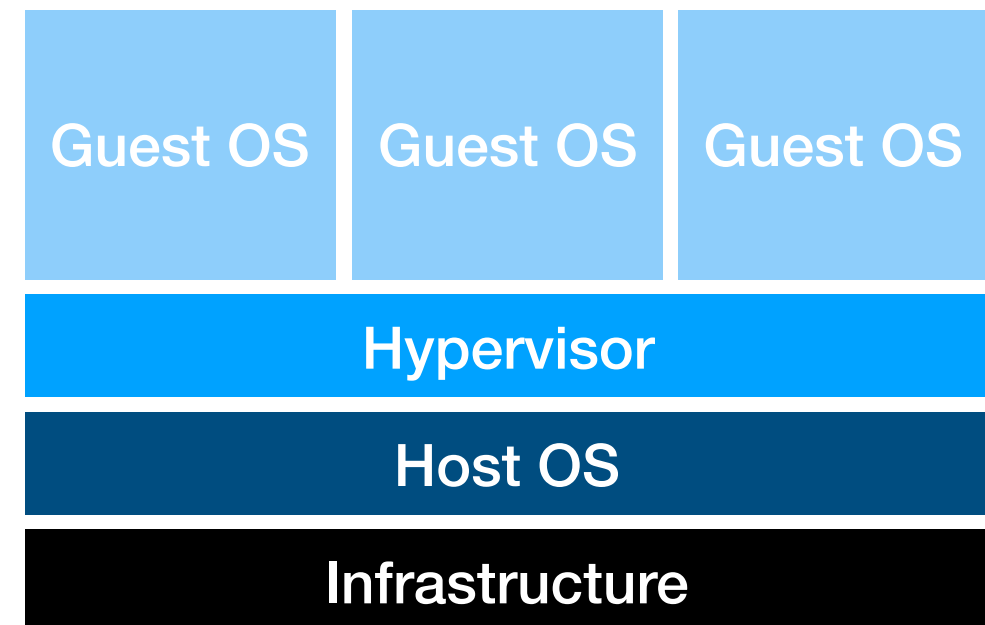
Isolation

- Prevents the accumulation of many bins, libs, etc. on your system
- Is isolated from host Network

Docker - Introduction

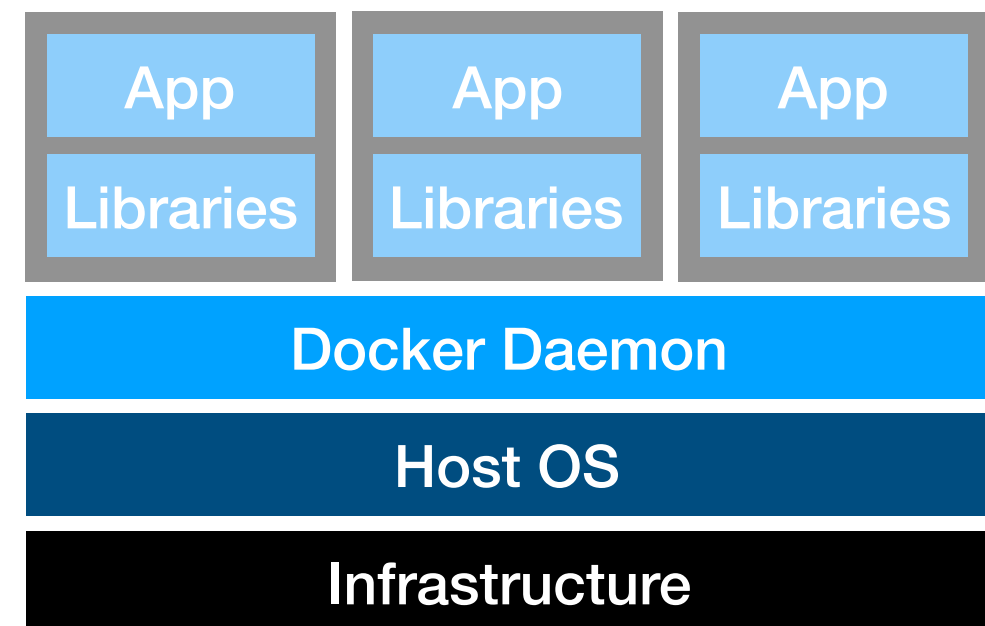
VM

- Runs on top of the hypervisor
- Each VM has its own Kernel
- Overhead is increased due to a full OS being run



Docker

- Each container runs a minimal OS and is isolated from the Host
- Small and quick to deploy or shutdown
- Runs anywhere



Docker - Resources

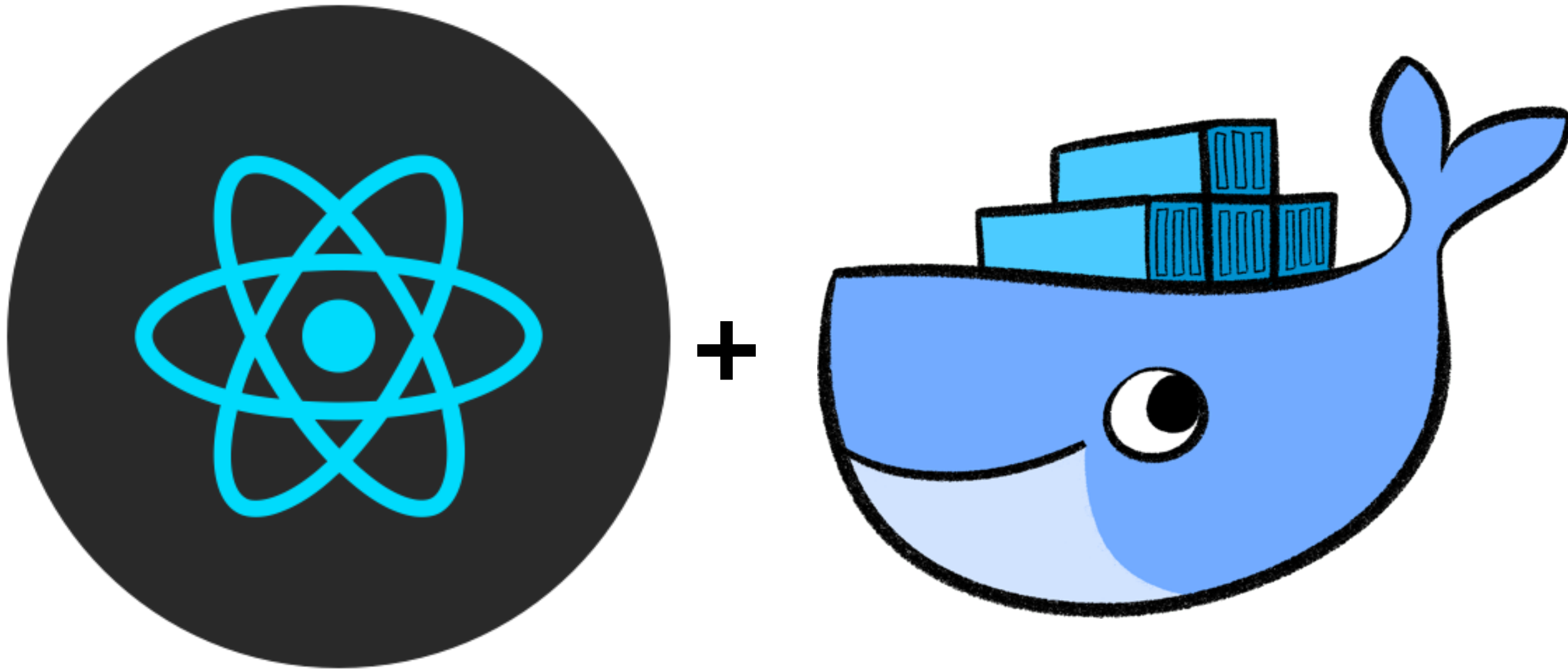
Image

- Runs on top of the hypervisor
- Each VM has its own Kernel
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Container

- Each container runs a minimal OS and is isolated from the Host

Docker - Dockerize and App



Kubernetes



Kubernetes - Introduction/Basic Resources

Cluster

- A collection of 1 or more nodes

Node

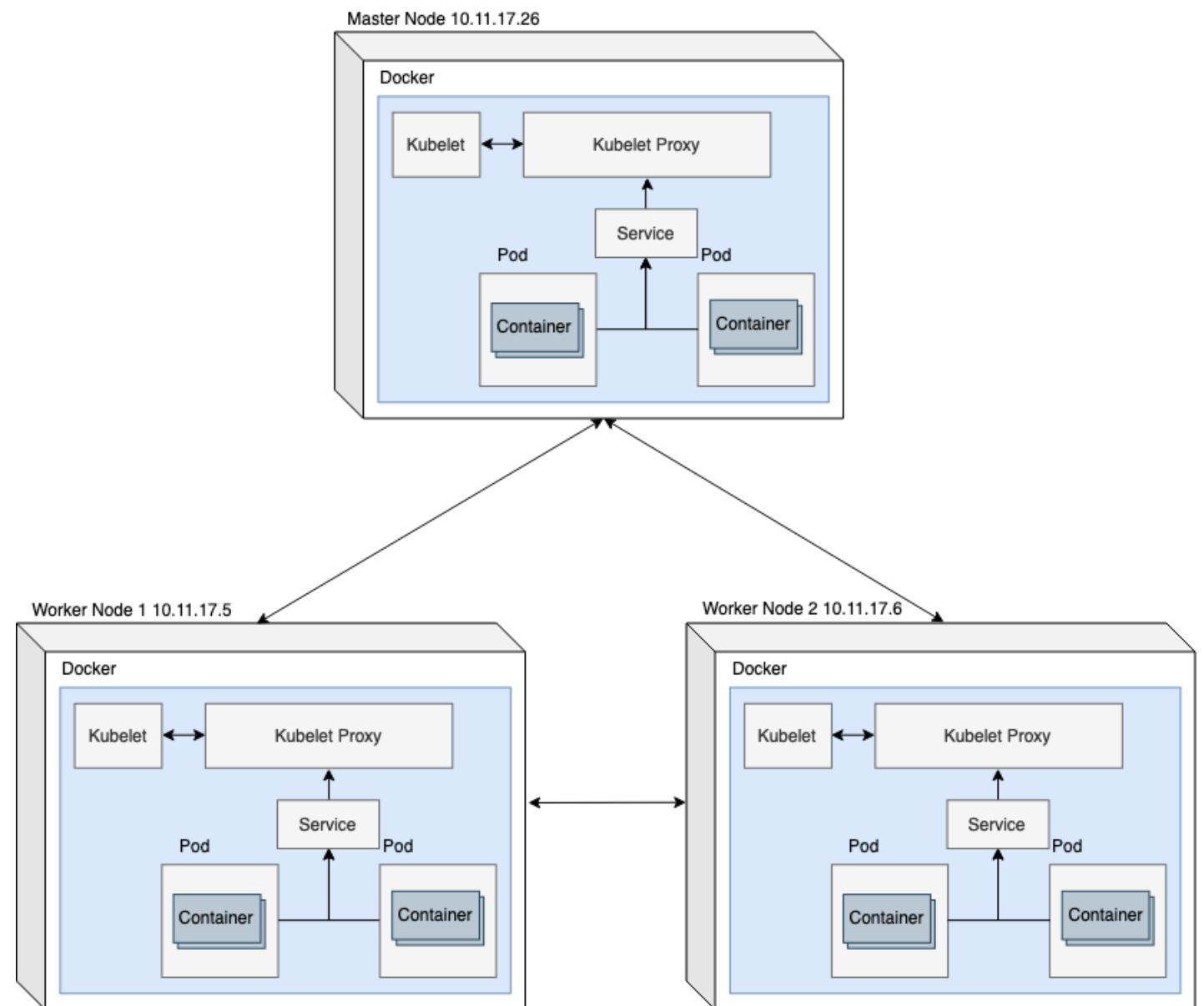
- Each node is a server or VM that has Kubernetes and Docker installed
- The master node controls all pods on all nodes of the cluster

Pod

- A group of one or more containers with shared storage/network

Service

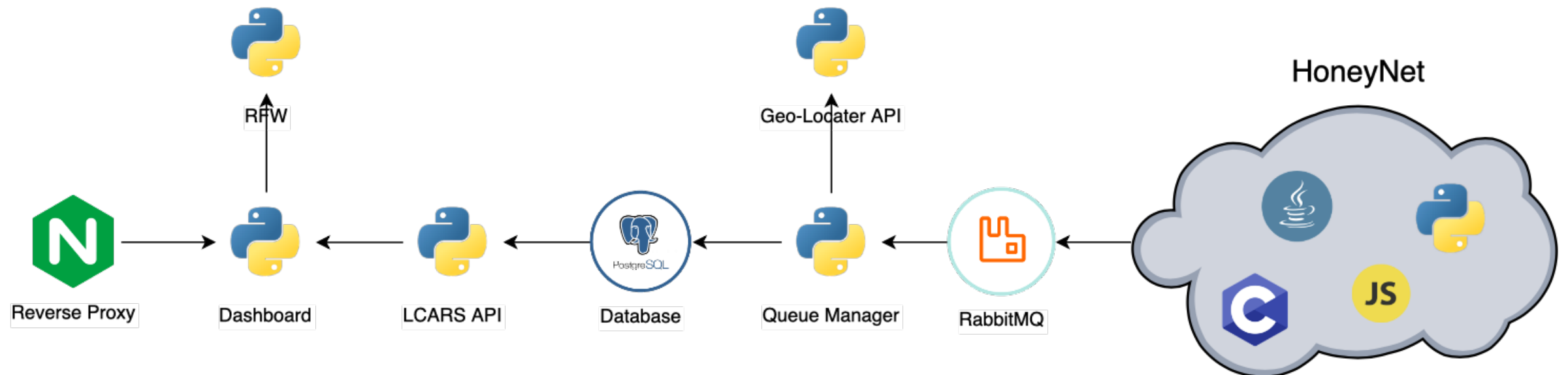
- Exposes an application running on a set of Pods as a network service



Kubernetes - Use Case

LCARS

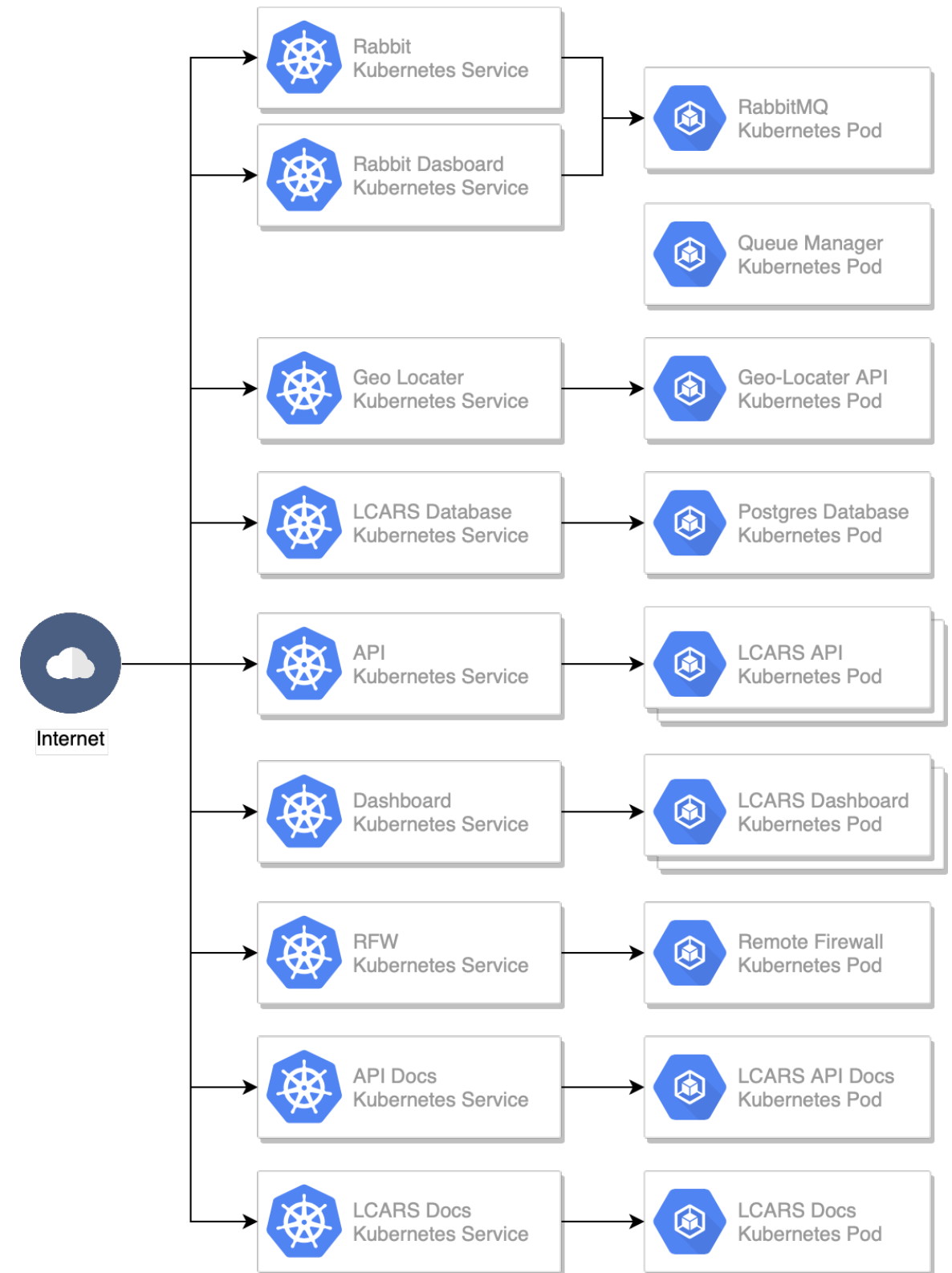
- Comprised of many Micro services
- Needs to be available!
- Adds extra network security
- More than 20 Million attacks



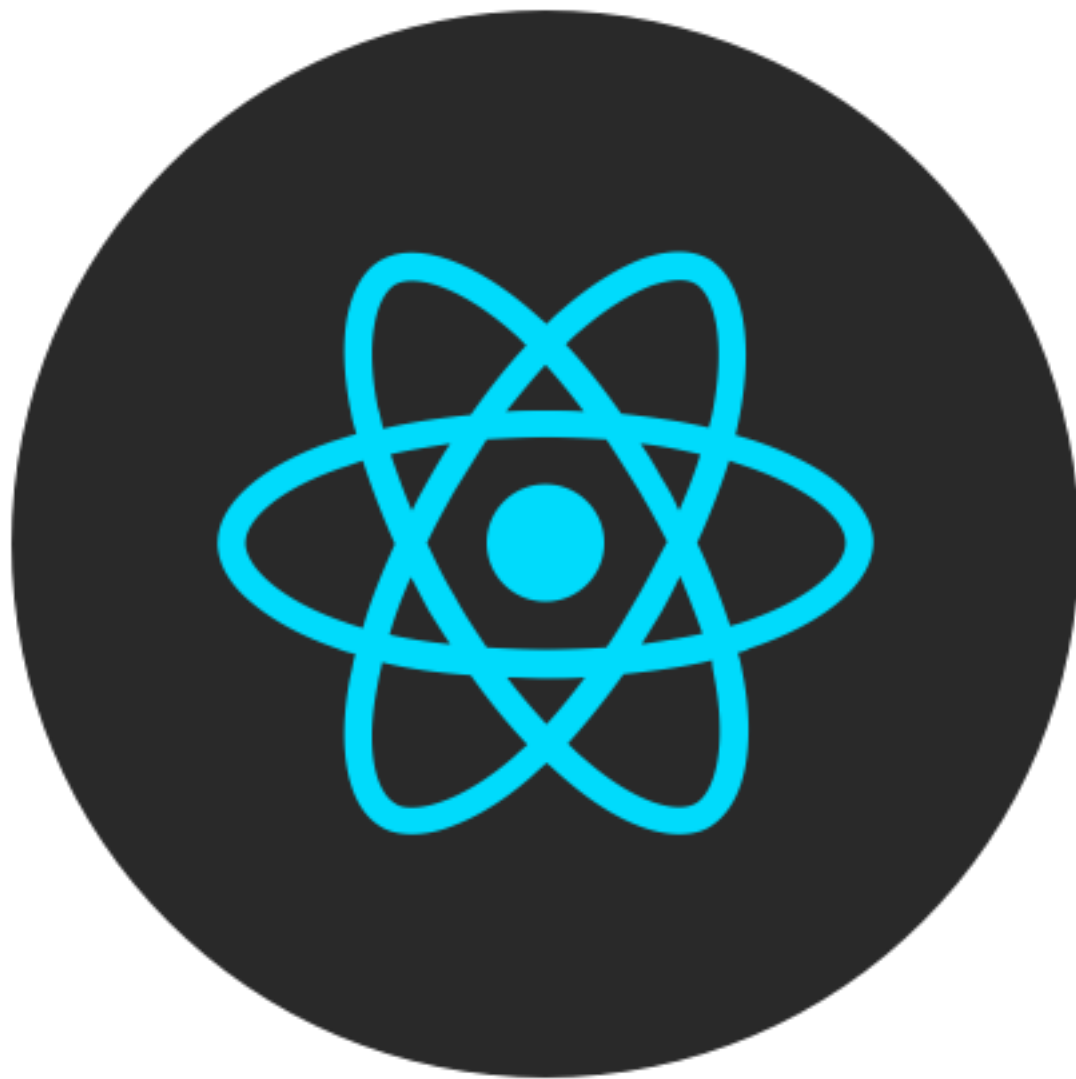
Kubernetes - Use Case

Why?

- Runs LCARS in the Marist ECRL
- LCARS is made up of 9 **unique** pods
- LCARS can run in docker but becomes difficult/confusing to maintain and update.
- High Availability
- Can run any other needed applications for the IBM/Marist Joint Study



Kubernetes - Kuberize and App



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Thank you. Questions?

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