



Introduction to Kubernetes

FOSSMeet'21

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About Me

- > Consultant @ Capgemini
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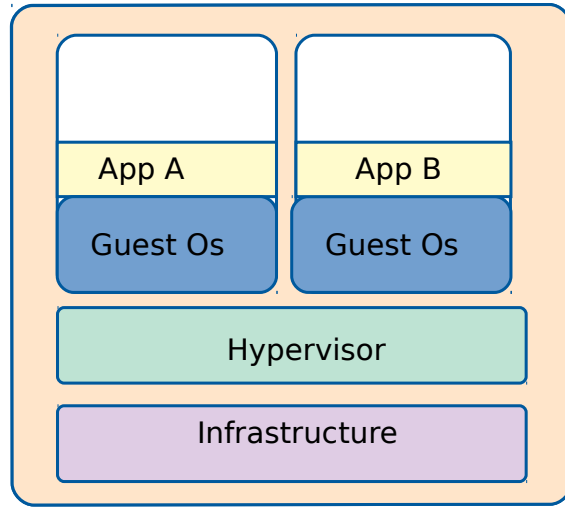
@rahulkrishnanra



<https://uk.linkedin.com/in/rahulkrishnanra>

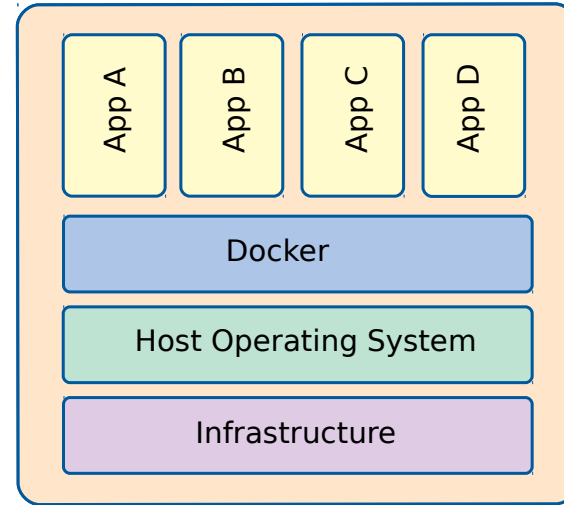
What are containers?

versus



Virtual Machine

The hardware is virtualized so multiple operating system can be isolated on the machine

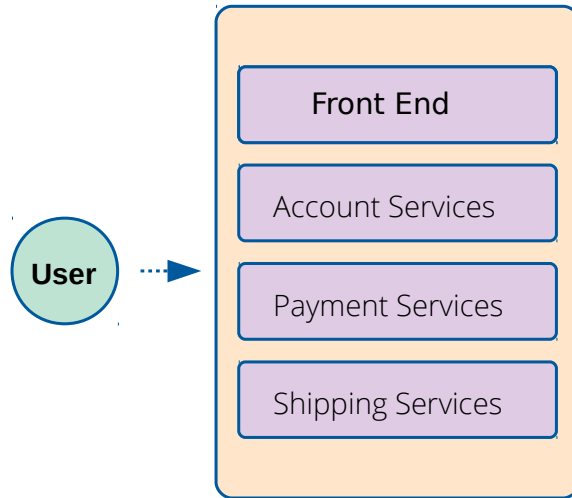


Containers

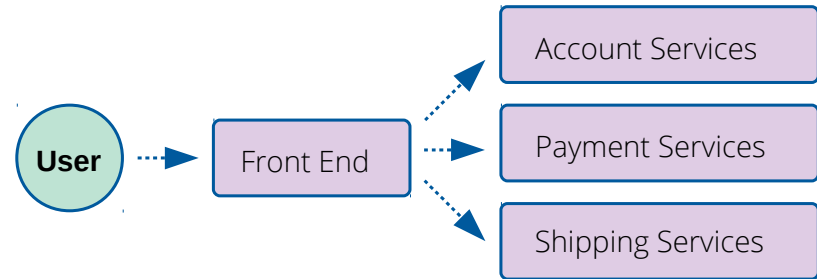
Virtualized operating system - libraries and applications are isolated

Microservices in containers

Monolithic Application



Microservices Application



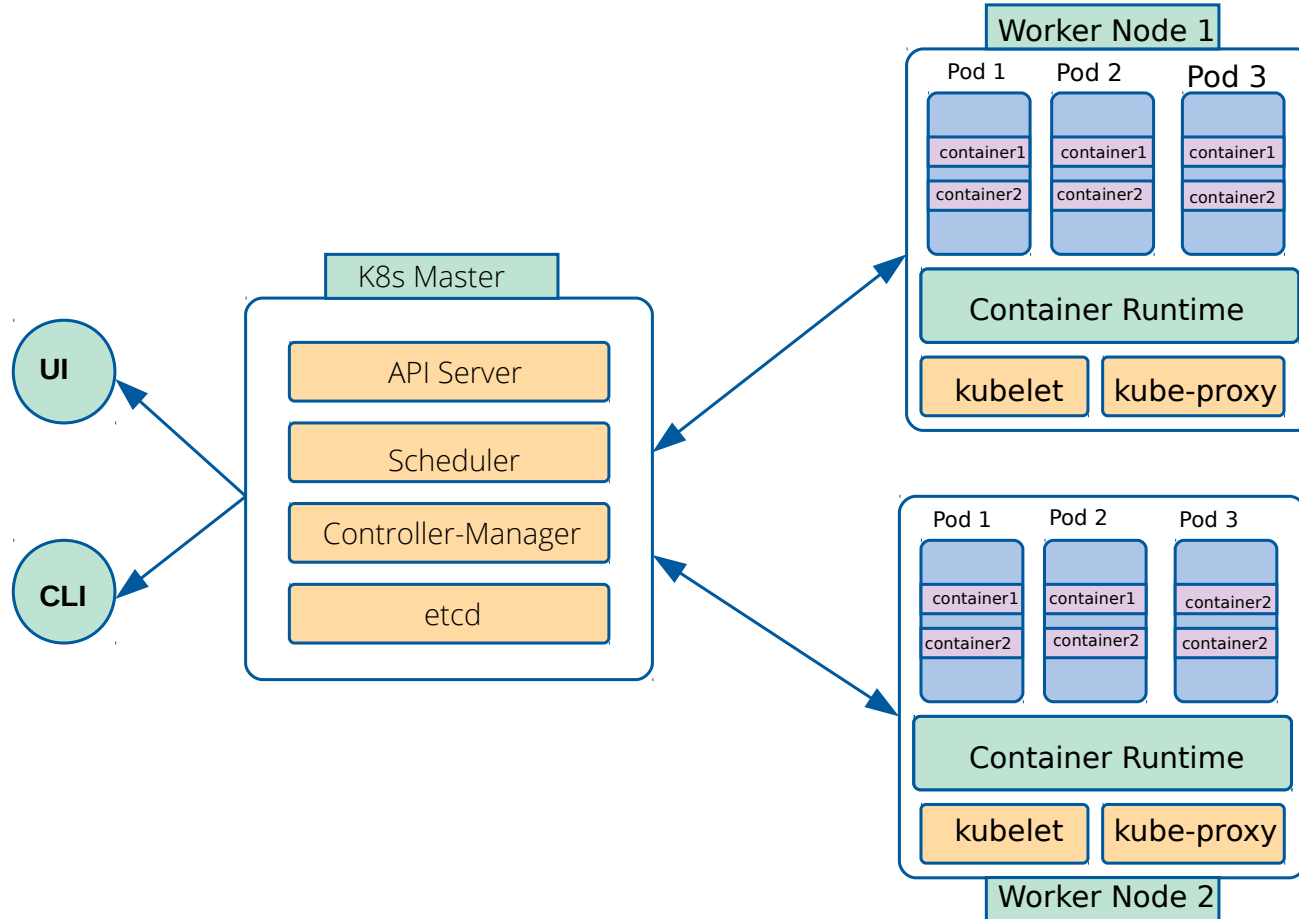
Need of container Orchestrator

- Container orchestration automated the deployment, management, Scaling, and networking of containers
- Framework for managing containers and microservices architecture at scale

Stepping into Kubernetes

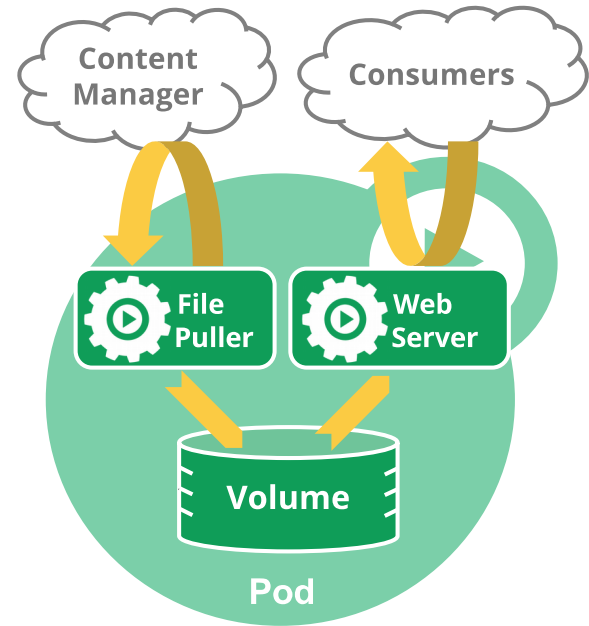
- Open source container orchestration tool
- Originally developed and designed by Google
- Google donated the kubernetes project to CNCF
- Builds upon 15 years of running production workloads at Google
- Eliminates many of the manual process involved in deploying and
Scaling containerized applications

Kubernetes Architecture



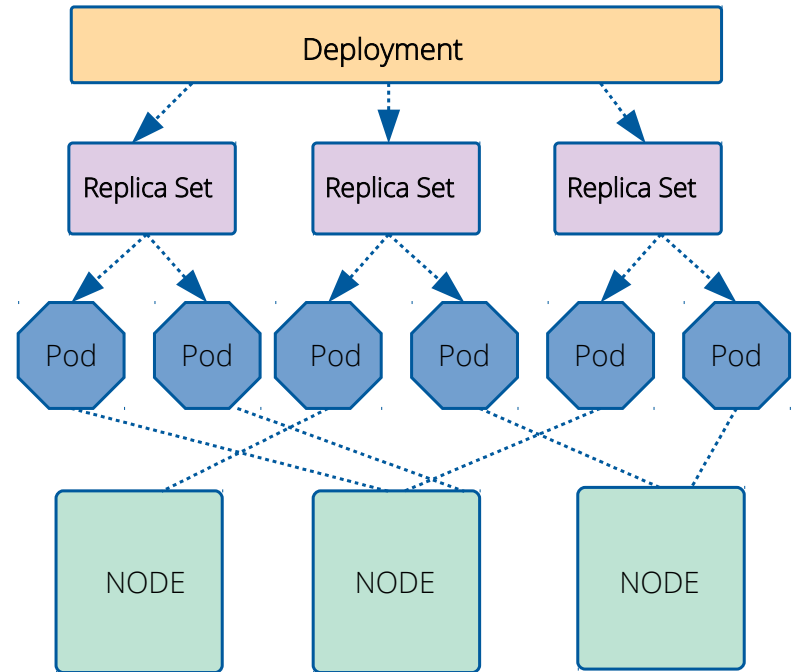
POD in k8s

- Smallest deployable units
- Unit of replication in Kubernetes
- Pod is a group of one or more containers
- Pods are ephemeral
- Primary primitive for running containerized workload
- May contain one or more containers



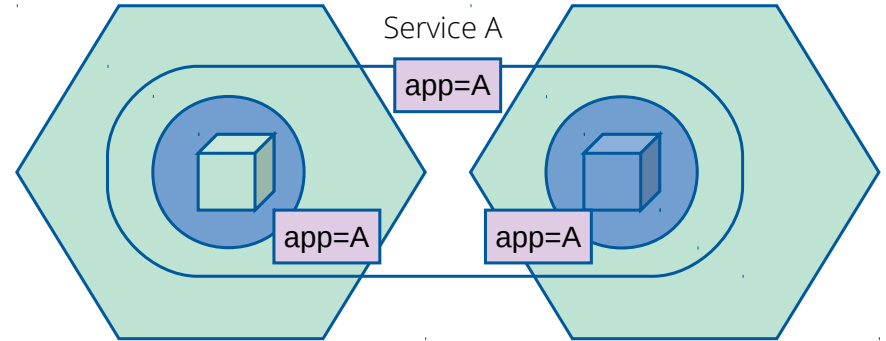
K8s Deployment

- Pods are usually managed by one more layer of abstraction
- Declare how many replicas of a pod should be running at a time
- Declare the desired state of the system



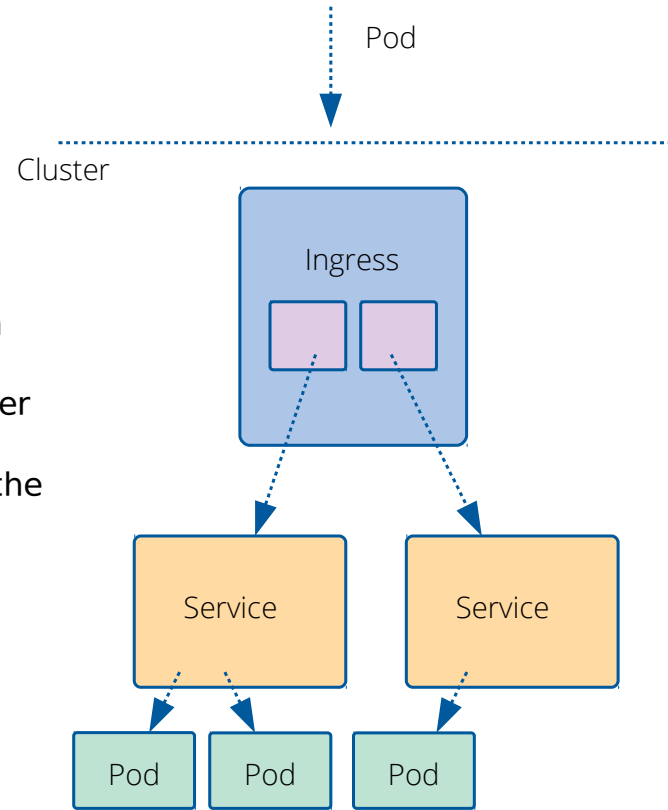
Service in k8s

- Service routes traffic across a set of Pods
- Discovery and routing among dependent Pods
- Services match a set of Pods using Labels and Selectors
- An abstraction which defines a logical set of Pods and a policy by which to access them



Ingress

- Ingress exposes HTTP and HTTPS routes from Outside the cluster to services within the cluster
- Ingress Controller is responsible for fulfilling the ingress



{ Demo }