MIRANTIS | LABS

Tech Talks

Managing VMs and Containers Together with KubeVirt

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Passionate about discovering and eliminating root causes of barriers to value, with over a decade of experience helping Fortune 500 companies in multiple industries including finance, retail, healthcare, logistics, and consumer staples achieve software delivery excellence

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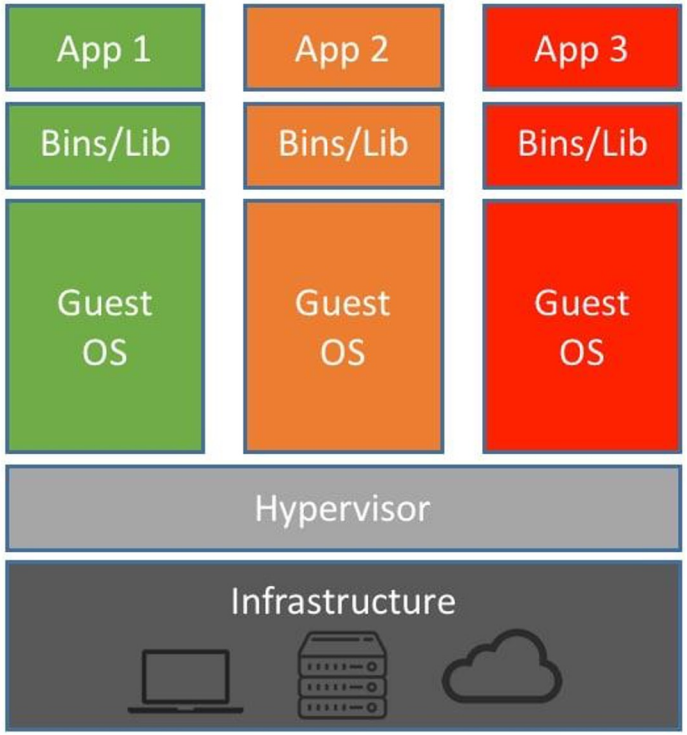
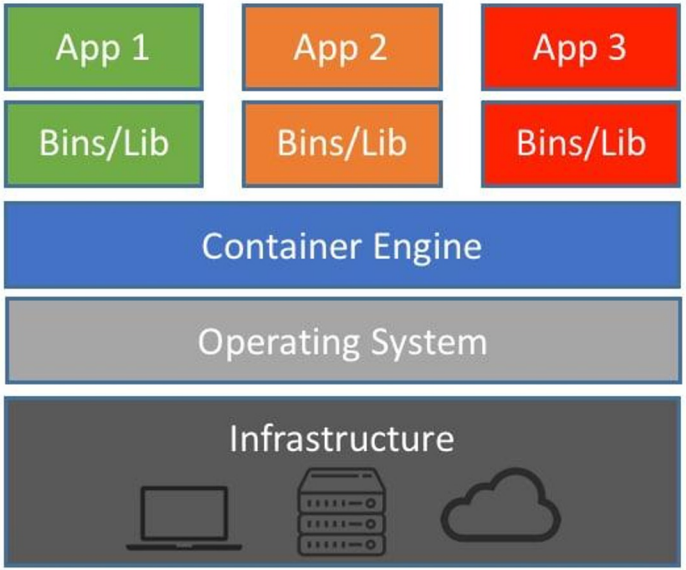
Agenda

- Use Cases
- Benefits
- Architecture Overview
- Installation
- Kubevirt in action

A tale of two workloads



Machine Virtualization



Containers

Kubernetes is everywhere

Use Cases

- Compliment VMWare footprint
- Workloads that are not container ready
- Edge cloud deployments supporting mixed workloads
- Mixed workloads in the datacenter
- Security Isolation of workloads into VMs

Benefits

- Reduce control plane footprint - Edge and Datacenter
- Reduced complexity - One control plane for both containers and VMs
- Single set of orchestration primitives - K8s for both (Containers and VMs)
- Consolidated orchestration

Projects used – k0s

- Fully **open source**, **supported, validated and enhanced distribution** of Kubernetes
- Security compliance
- Full stack **automated life-cycle management**

https://k0sproject.io/

Projects used - kubevirt

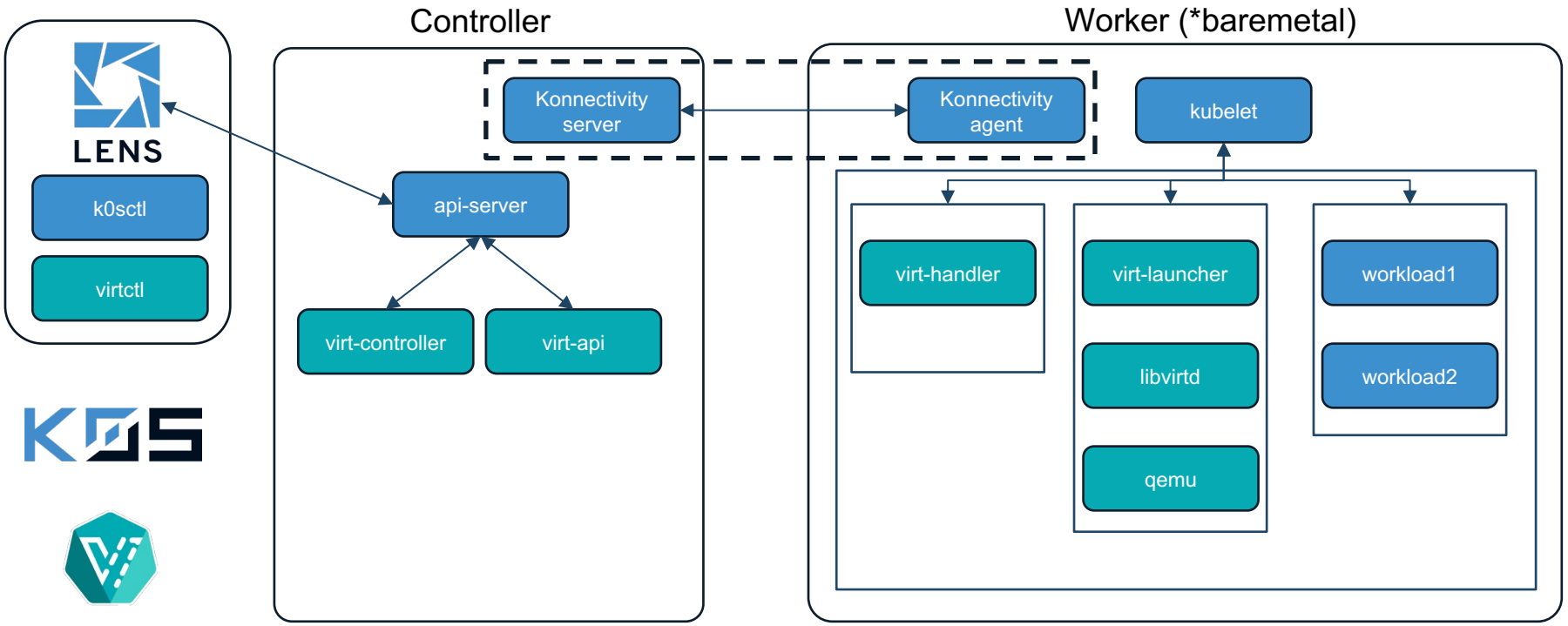
- Brings **virtual machine capabilities** into Kubernetes
- CNCF Incubating project

https://kubevirt.io/

Installation

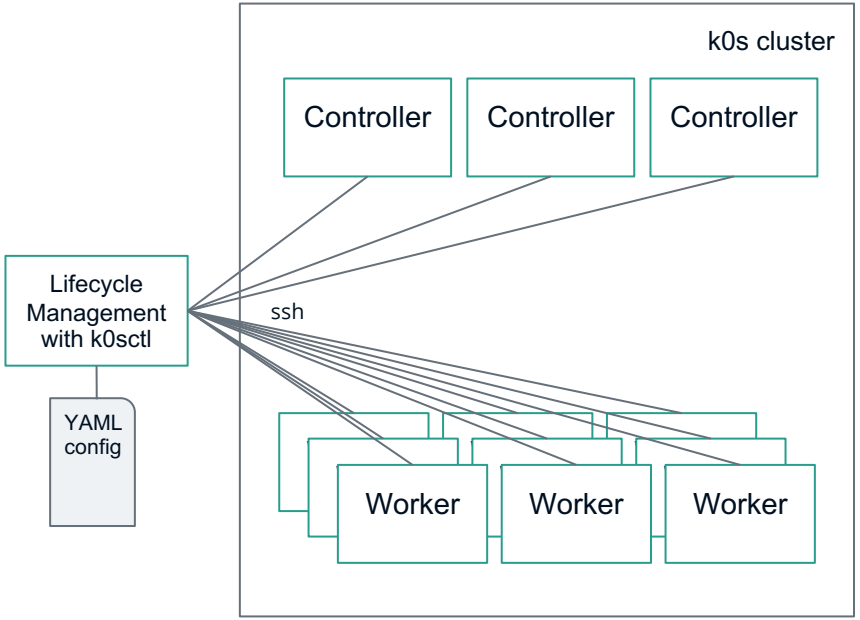
- k0s
- kubevirt operator
- virtctl
- libvirt-clients

Setup


LENS
k0sctl
virtctl
Controller
Konnectivity server
api-server
virt-controller
virt-api
Worker (*baremetal)
Konnectivity agent
kubelet
virt-handler
virt-launcher
libvirtd
qemu
workload1
workload2

Installation – k0s

- Cluster setup with k0sctl
- Need servers to be available and have ssh access
- Update kubelet location on worker node



Installation - kubevirt

- Deploy the KubeVirt operator

```
kubectl apply -f
https://github.com/kubevirt/kubevirt/releases/download/${RELEASE}/kubevirt-
operator.yaml
```

- Create KubeVirt CR

```
kubectl apply -f
https://github.com/kubevirt/kubevirt/releases/download/${RELEASE}/kubevirt-cr.yaml
```

Install virtctl

wget https://github.com/kubevirt/kubevirt/releases/download/${VERSION}/virtctl-${VERSION}-linux-amd64

 # available architectures
darwin-amd64
darwin-arm64
linux-amd64
linux-arm64
windows-amd64

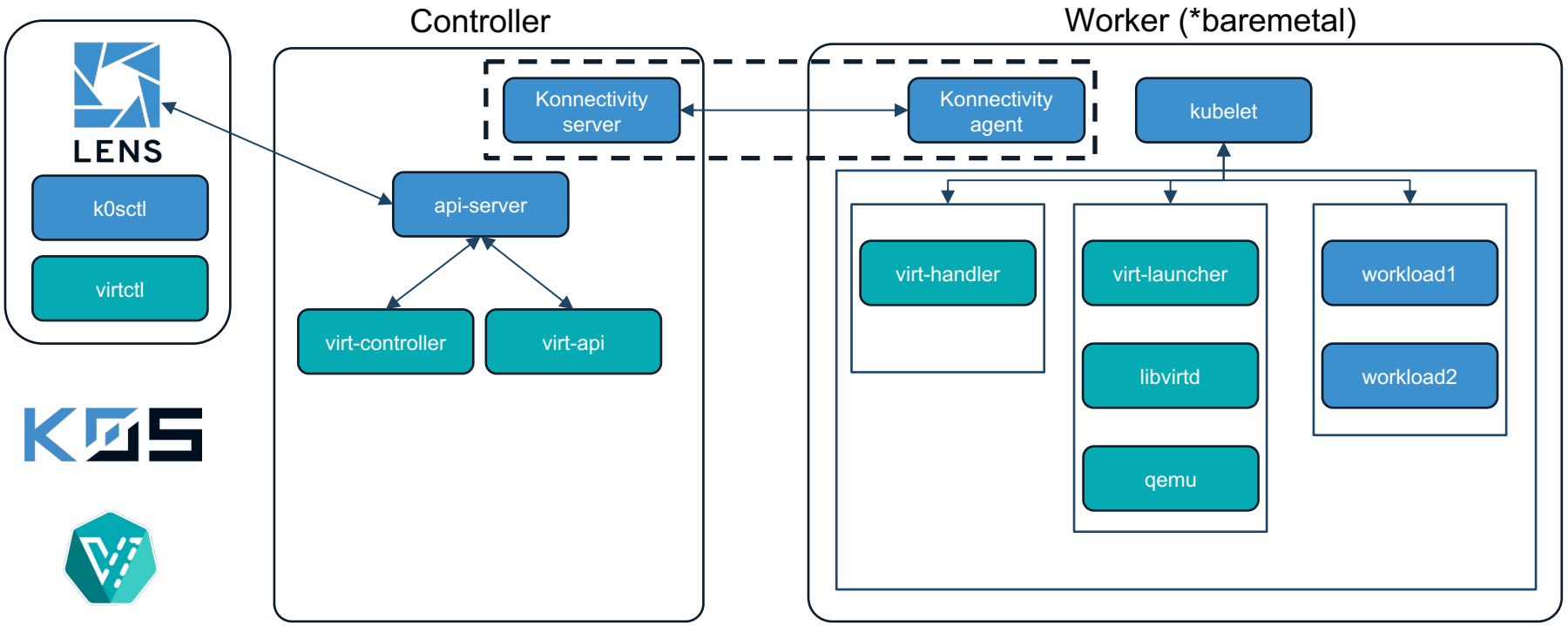
Running VMs

- kind: VirtualMachine

```
kubectl apply –f vm.yaml  #create vm instance
virtctl start ubuntu      #start vm
virtctl console ubuntu    #connect to vm
virtctl stop ubuntu       #stop vm
```

Demo

Setup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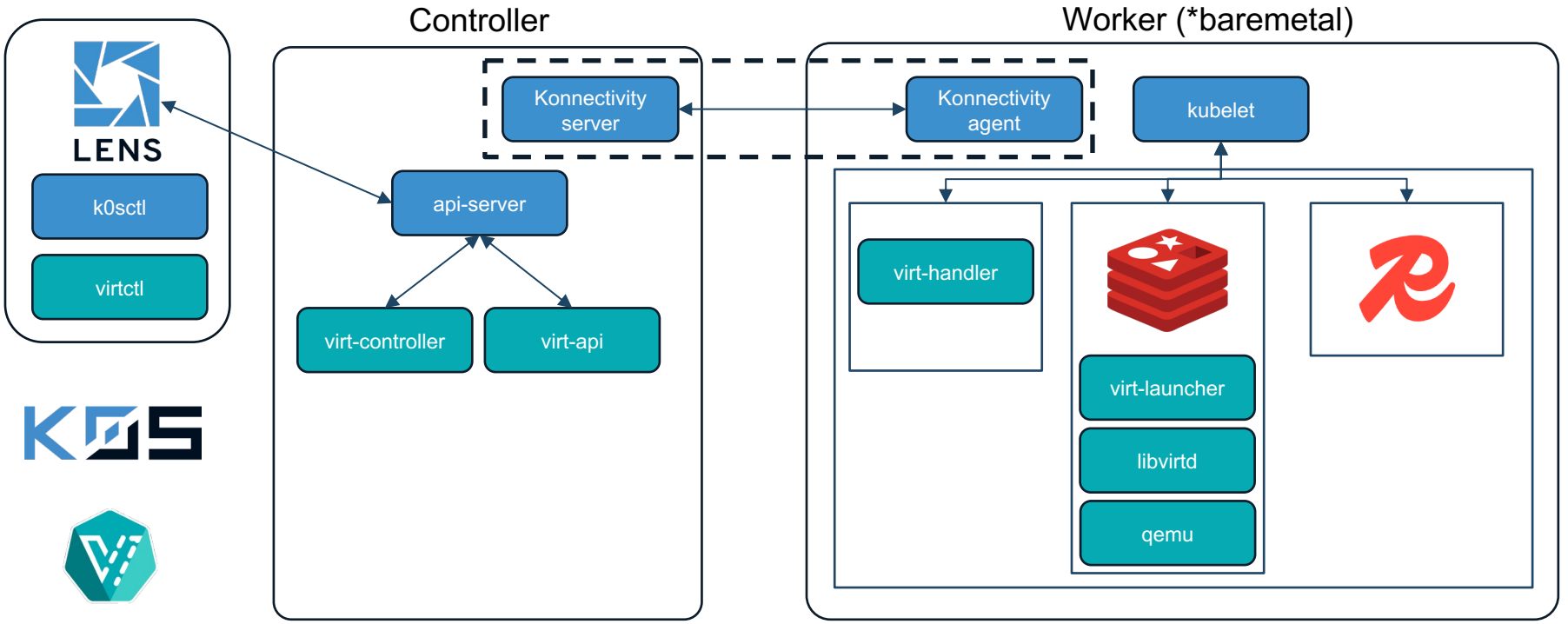
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Try it out yourself

Projects used

k0sproject.io

kubevirt.io

k0smotron.io

Lab assets

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