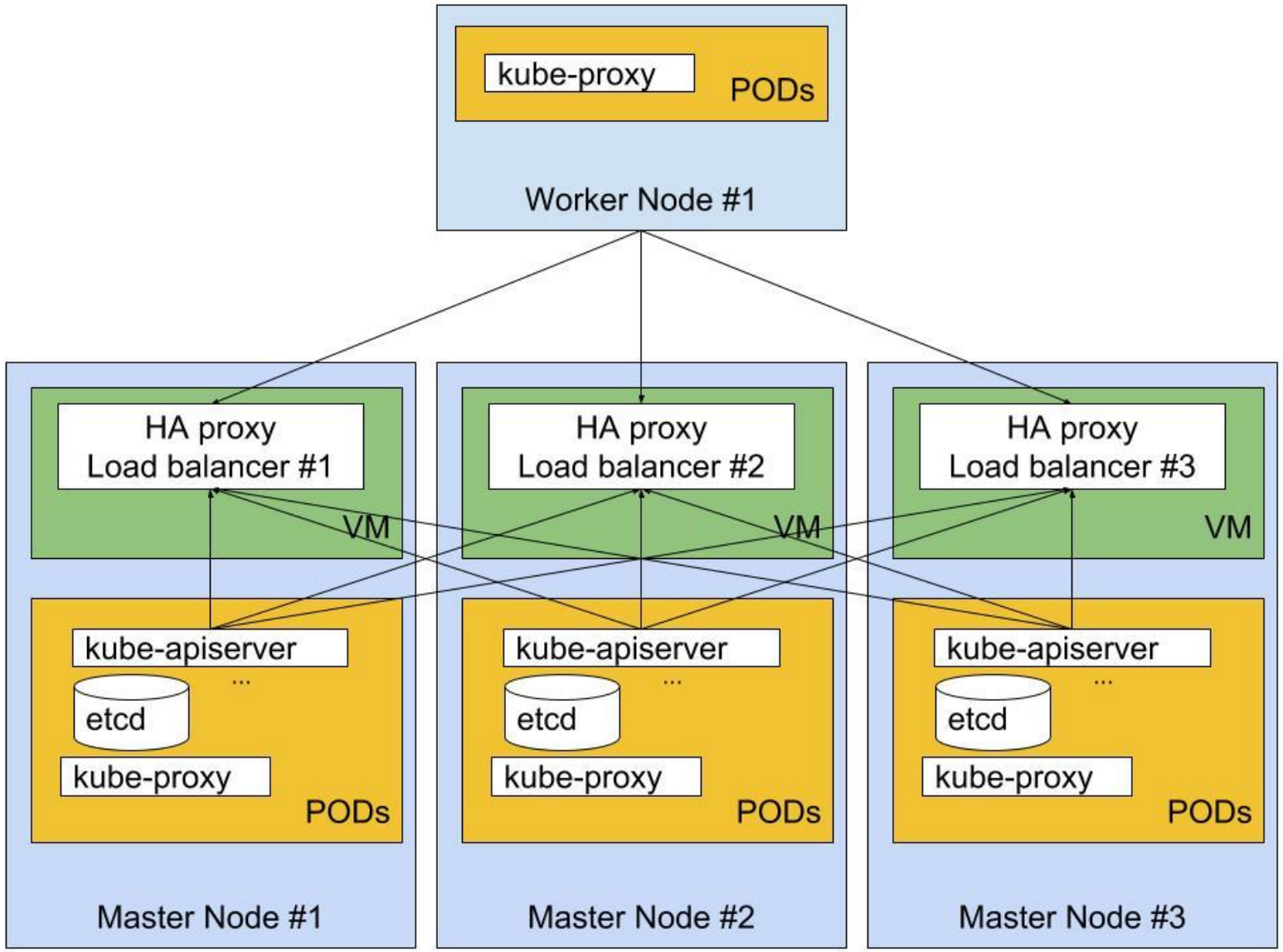
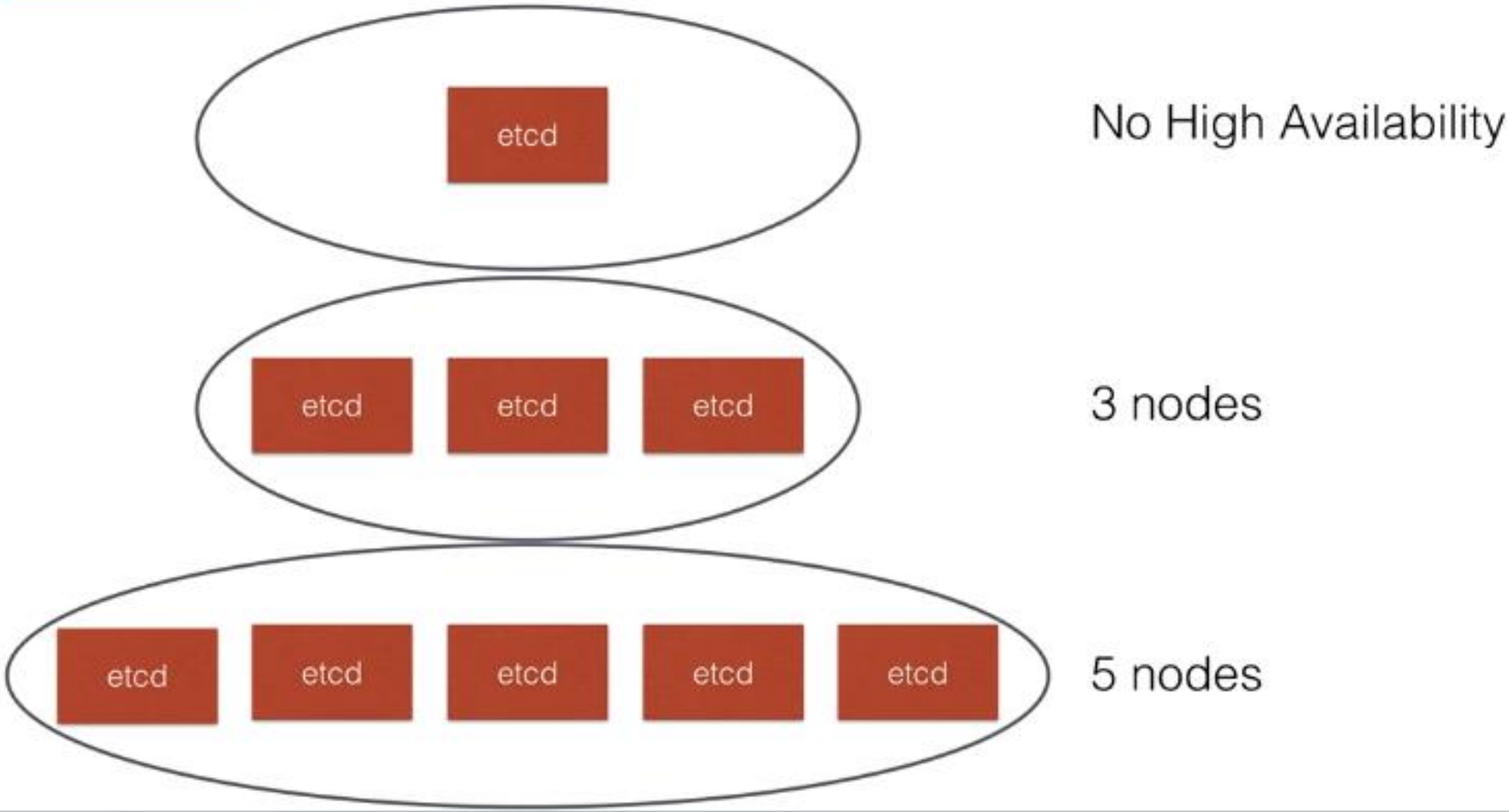
High Availability

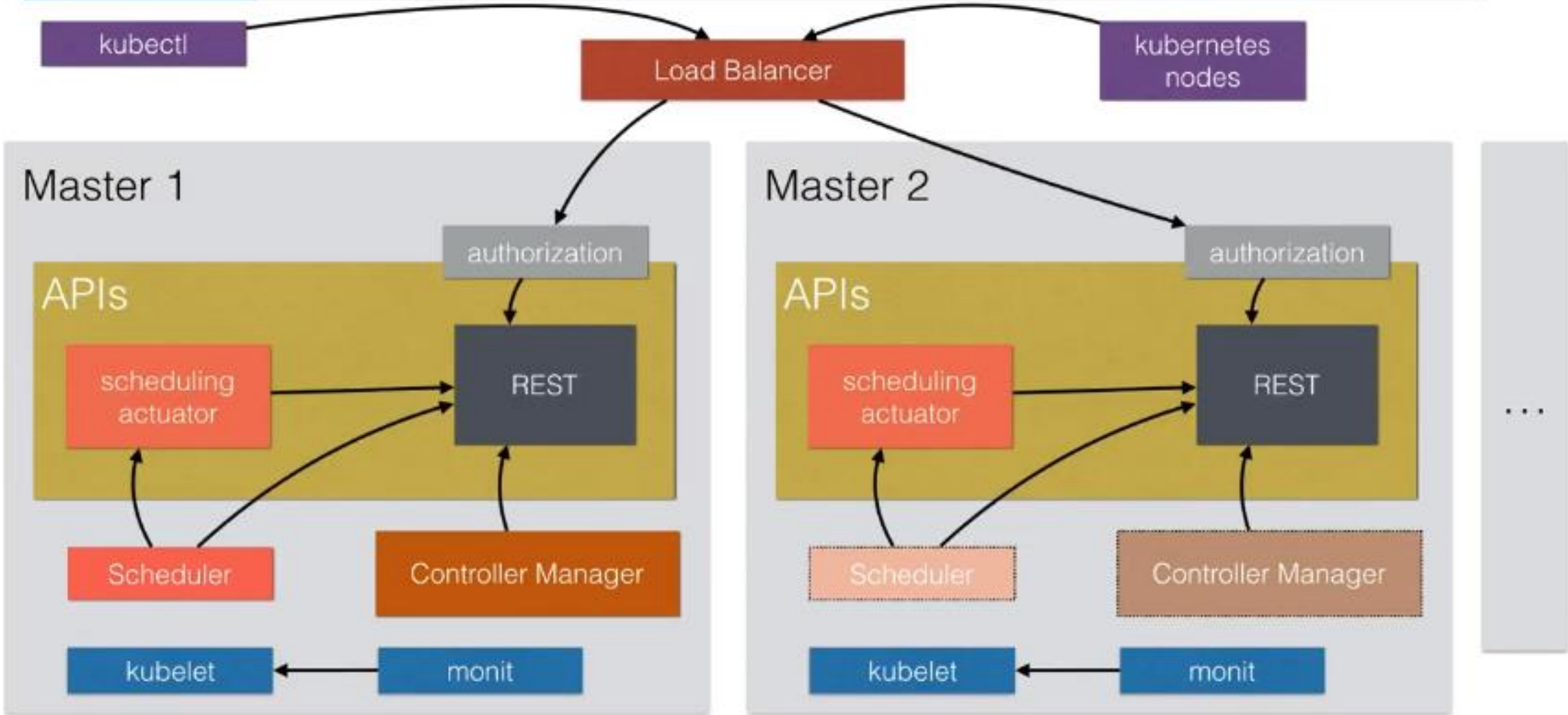
- If you're going to run your cluster in production, you're going to want to have all your master services in a **high availability (HA)** setup
- The setup looks like this:
  - **Clustering etcd**: at least run 3 etcd nodes
  - **Replicated API servers** with a LoadBalancer
  - Running multiple instances of the **scheduler** and the **controllers**
    - Only one of them will be the leader, the other ones are on stand-by


kube-proxy
PODs
Worker Node #1
HA proxy
Load balancer #1
VM
HA proxy
Load balancer #2
VM
HA proxy
Load balancer #3
VM
kube-apiserver
...
etcd
kube-proxy
PODs
kube-apiserver
...
etcd
kube-proxy
PODs
kube-apiserver
...
etcd
kube-proxy
PODs
Master Node #1
Master Node #2
Master Node #3

Architecture overview - HA



Architecture overview - HA



High Availability

- A cluster like minikube doesn't need HA - it's only a one node cluster
- If you're going to use a production cluster on AWS, **kops** can do the heavy lifting for you
- If you're running on an other cloud platform, have a look at the **kube deployment tools** for that platform
    - **kubeadm** is a tool that is in alpha that can set up a cluster for you
- If you're on a platform without any tooling, have a look at http://kubernetes.io/docs/admin/high-availability/ to implement it yourself

KubeSpray

- KubeSpray is an incubated Kubernetes community project for deploying K8s clusters on premises or in the cloud
- **Deploy Anywhere**
- **High Availability Support**
- **Choice of Network Plugins**
- Kubespray enables you to choose from the following four network plugins:
- flannel: gre/vxlan (layer 2) networking
- calico: bgp (layer 3) networking
- canal: a composition of calico and flannel plugins
- weave: a lightweight container overlay network that doesn’t require an external K/V database cluster

Production-Ready, Multi-Master HA Kubernetes Cluster

- Installation Procedure Kubespray with Ansible

- https://github.com/MohanRamadoss/kubernetes/tree/master/LAB/kubespray


THANK
YOU!