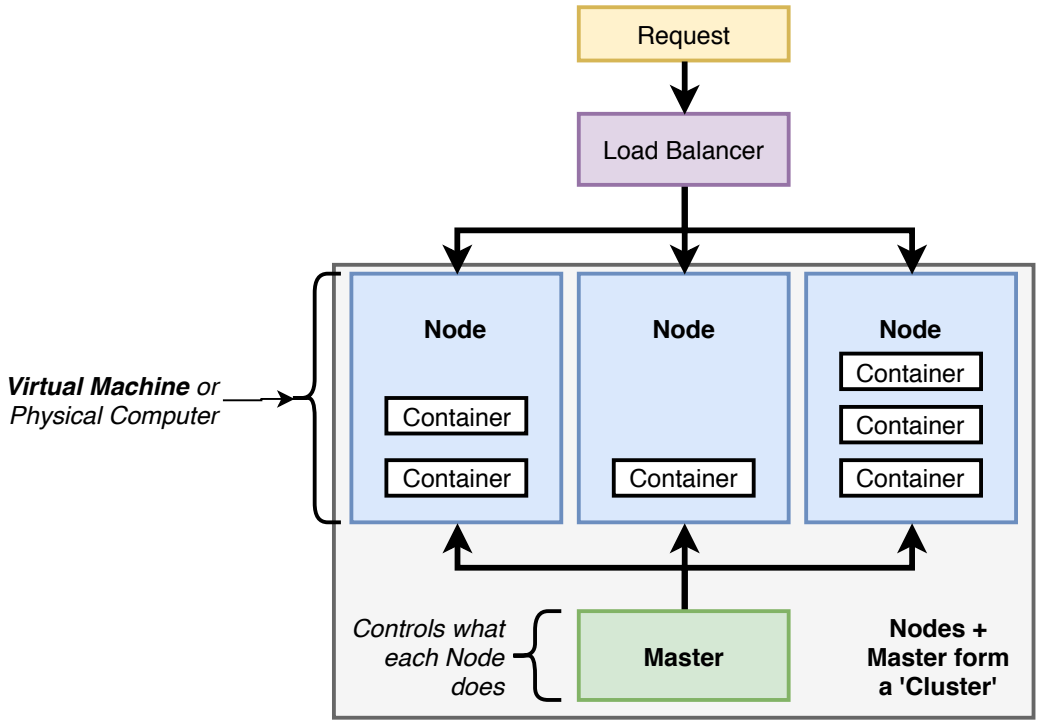
Kubernates

What is Kubernetes? → System **for** running **many different containers** over multiple different machines

Why use Kubernetes? → When you need **to run many different containers** with different images

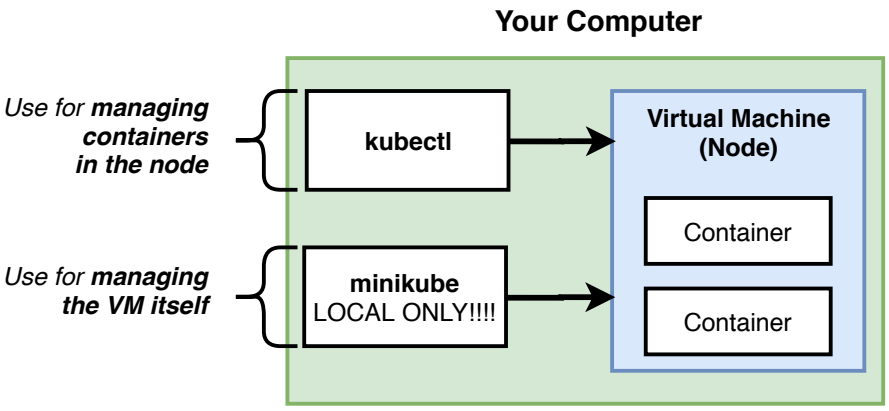


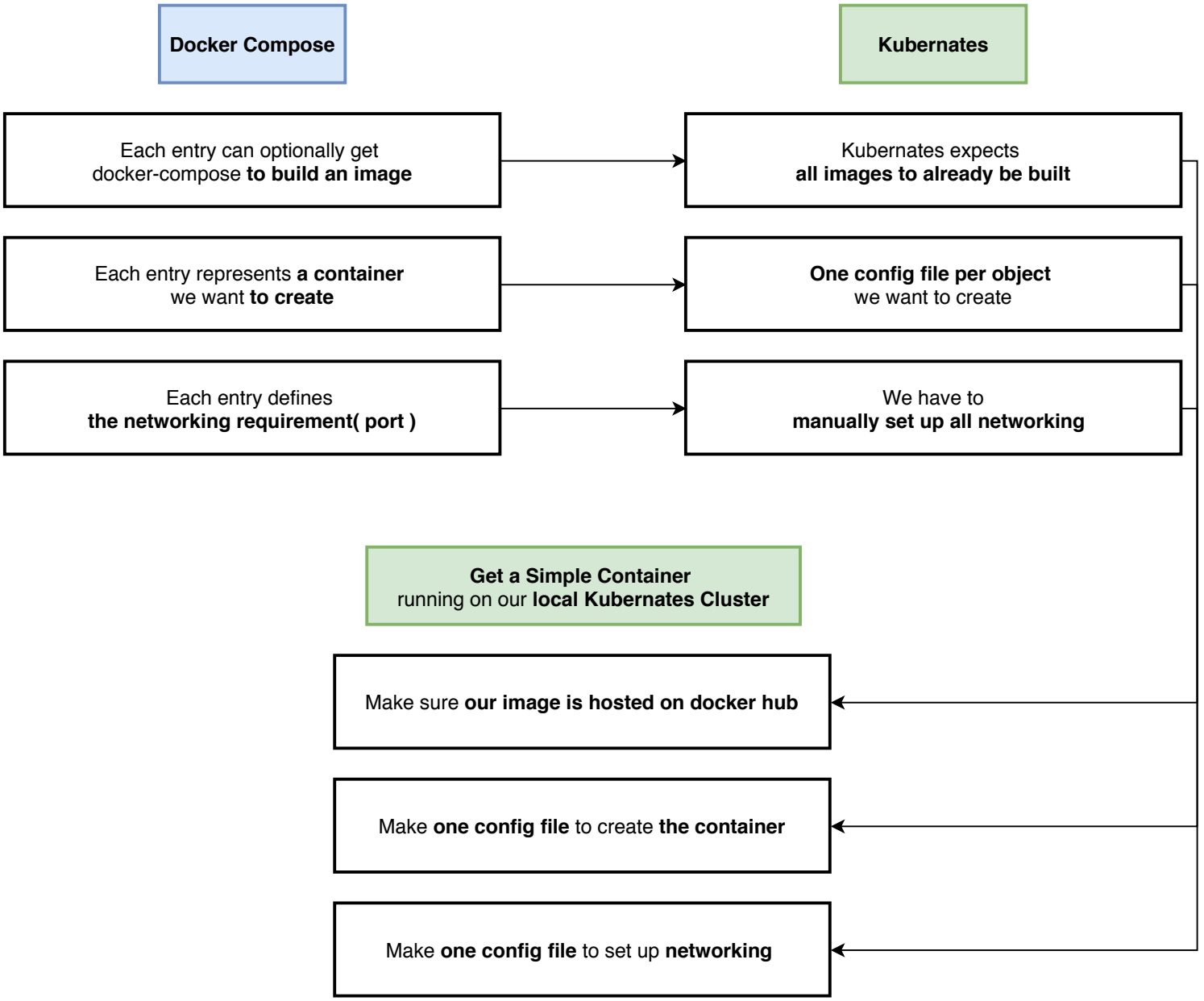
Local Kubernetes Development

Install Kubectl — CLI for interacting with our master

Install a VM driver virtualbox — Used to make a VM that will be your single node

Install minikube — Runs a single node on that VM

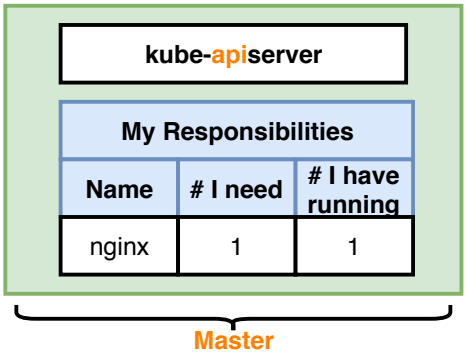


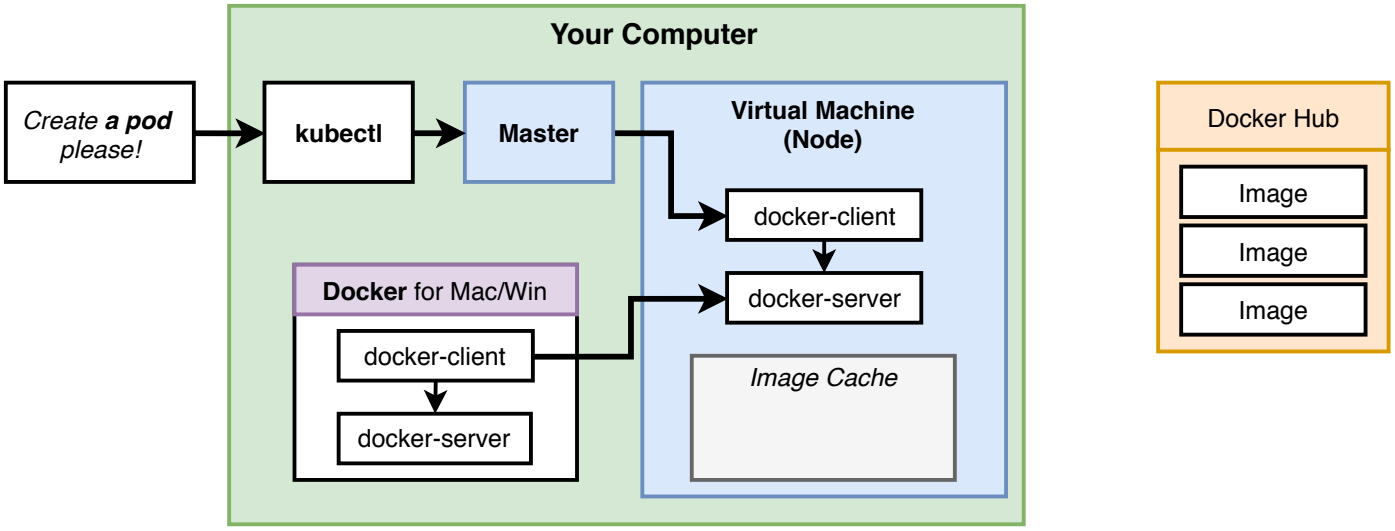


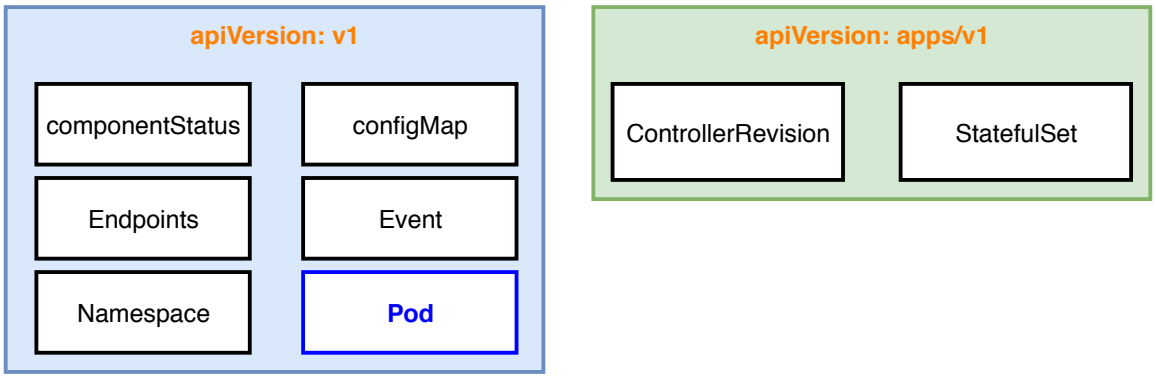
Important Takeaways

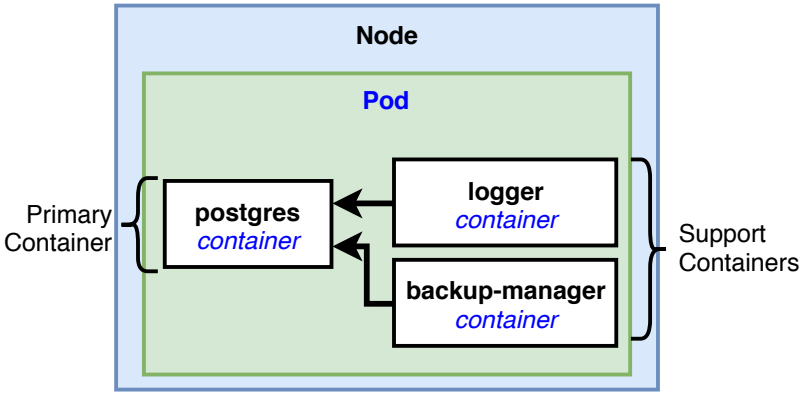
Kubernetes is a system to deploy containerized apps
Nodes are individual machines (or vm's) **that run containers**
Masters are machines (or vm's) with a set of programs **to manage nodes**
Kubernetes didn't build our images - it got them from somewhere else
Kubernetes (the master) **decided where to run each container** - each nodecan run a dissimilar set of containers
To deploy something, we update the desired state of the master with a config file
The master works constantly to meet your desired state

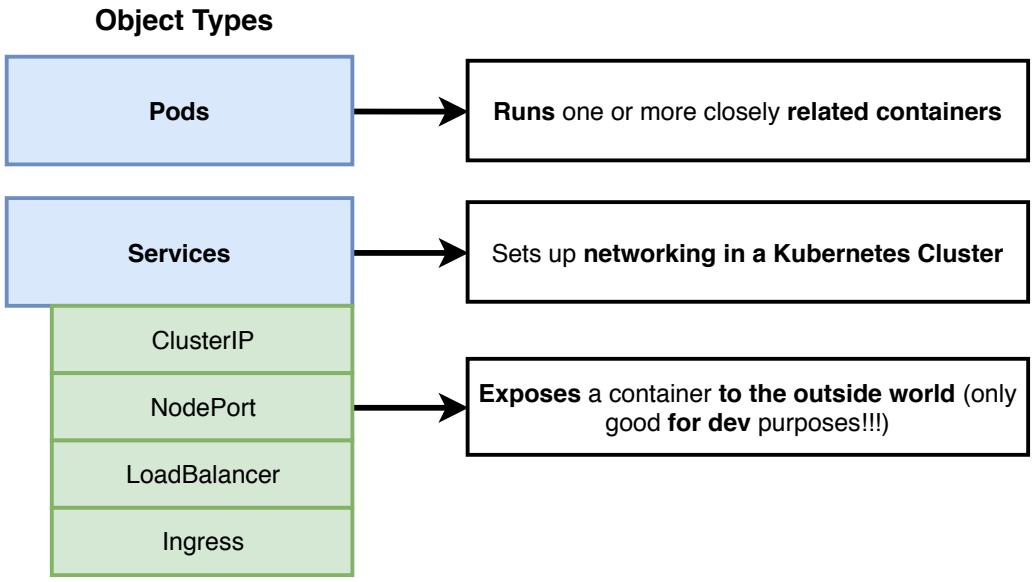
The important stuff

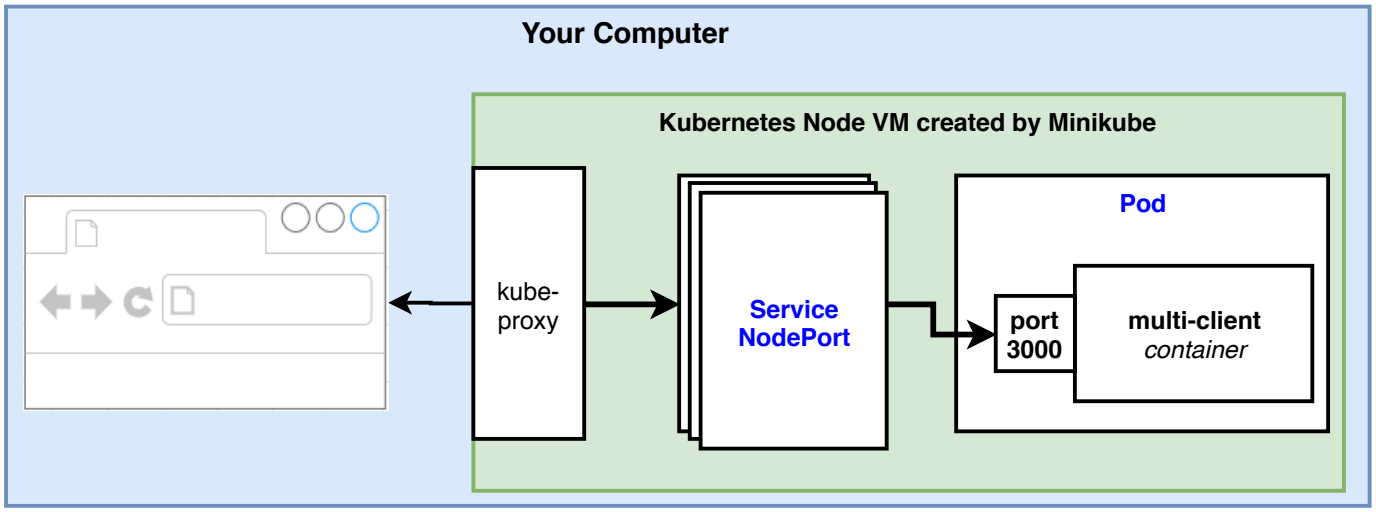

kube-apiserver
My Responsibilities
Name
I need
I have running
nginx
1
1
Master

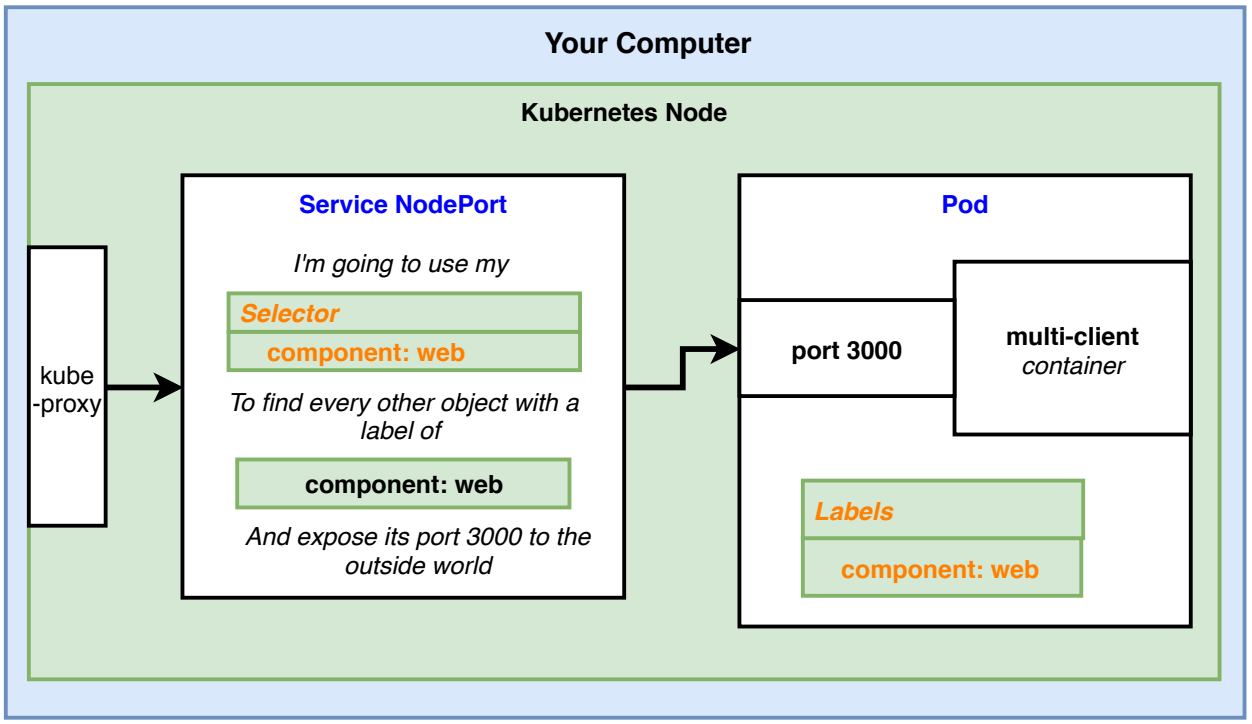

Your Computer
Create a pod please!
kubectl
Master
Virtual Machine (Node)
docker-client
docker-server
Image Cache
Docker for Mac/Win
docker-client
docker-server
Docker Hub
Image
Image
Image

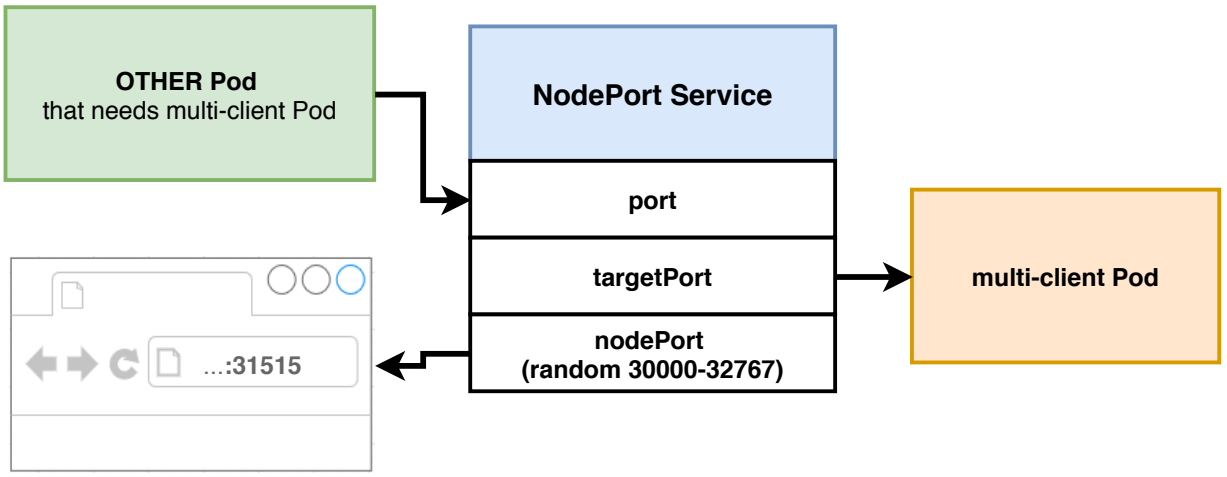

apiVersion: v1
componentStatus
configMap
Endpoints
Event
Namespace
Pod
apiVersion: apps/v1
ControllerRevision
StatefulSet


Node
Pod
Primary Container
postgres container
logger container
backup-manager container
Support Containers


Object Types
Pods
Runs one or more closely related containers
Services
Sets up networking in a Kubernetes Cluster
ClusterIP
NodePort
LoadBalancer
Ingress
Exposes a container to the outside world (only good for dev purposes!!!)


Your Computer
Kubernetes Node VM created by Minikube
kube-proxy
Service NodePort
Pod
port 3000
multi-client container


Your Computer
Kubernetes Node
kube-proxy
Service NodePort
I'm going to use my
Selector
component: web
To find every other object with a label of
component: web
And expose its port 3000 to the outside world
Pod
port 3000
multi-client container
Labels
component: web



Feed a config file to Kubectl

Change the current configuration *of our cluster*

Path to the file with the config

Display VM IP

kubectl	apply	-f	<filename>

minikube	ip

CLI we use to change our Kubernetes cluster

We want to specify a file that has the config changes

We want to ***retrieve information about a running object***

kubectl	get	services

kubectl	get	pods

CLI we use to change our Kubernetes cluster

Specifies the ***object type*** *that we want to get information about*