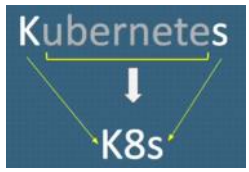
Kubernetes



Introduction

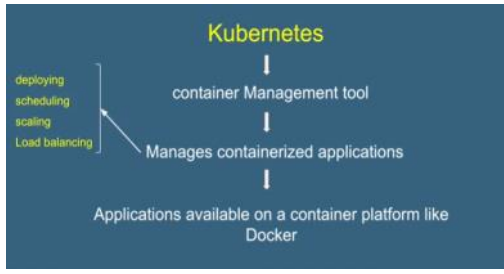
Kubernetes is a Greek word for helmsman or captain of a ship

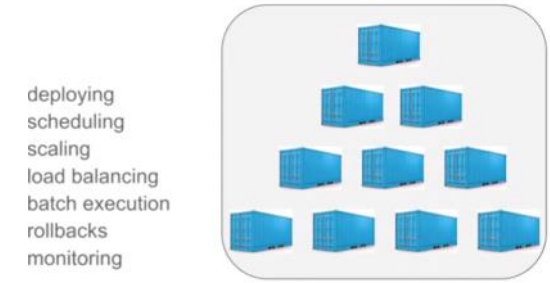
What is Kubernetes

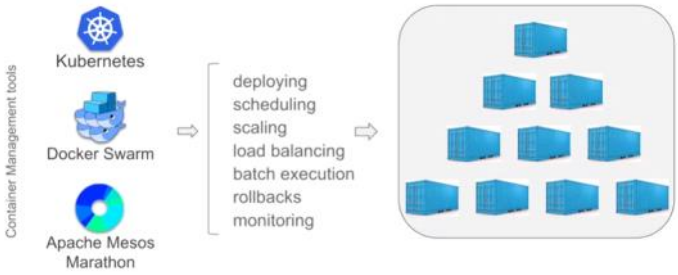
1. Container Management(Orchestration) tool
2. Developed by Google Lab and later donated to CNCF
3. Open Source
4. Written on Go Language.
5. Also called k8s

What is Container Management (Orchestration) Tool

It is an Engine which Automates deploying, scaling and managing containerized application on group of servers







Minikube is the official way to run Kubernetes locally. It is a tool that runs a single-node Kubernetes cluster inside a Virtual Machine (VM) on your computer. It is an easy way to try out Kubernetes and is also useful for testing and development scenarios.

Kubeadm is a tool built to provide **kubeadm** init and **kubeadm** join as best-practice "fast paths" for creating Kubernetes clusters. **kubeadm** performs the actions necessary to get a minimum viable cluster up and running

Kops is an official **Kubernetes** project for managing production-grade **Kubernetes** clusters. **Kops** is currently the best tool to deploy **Kubernetes** clusters to Amazon Web Services

Kubeadm installaiton

1. Create 2 Vms (master Kmaster and Workernode as Kworkernode) (Ubuntu) and open All traffic
2. Run Below commands on both master and worker node
   sudo apt-get update && sudo apt-get install -y apt-transport-https curl
   curl -s https://packages.cloud.google.com/apt/doc/apt-key.gpg | sudo apt-key add -
   cat <<EOF | sudo tee /etc/apt/sources.list.d/kubernetes.list
   deb https://apt.kubernetes.io/ kubernetes-xenial main
   EOF
   sudo apt-get update
   sudo apt-get install -y kubelet kubeadm kubectl
   sudo apt-mark hold kubelet kubeadm kubectl

sudo apt install docker.io -y

3. On master machine run the below command
   kubeadm init --apiserver-advertise-address=172.31.94.60 --pod-network-cidr=192.168.0.0/16 --ignore-preflight-errors=NumCPU

   mkdir -p $HOME/.kube
   sudo cp -i /etc/kubernetes/admin.conf $HOME/.kube/config
   sudo chown $(id -u):$(id -g) $HOME/.kube/config

   Calico yaml file is to be applied
   kubectl apply -f https://docs.projectcalico.org/v3.8/manifests/calico.yaml

4. Once above command is successfully run then it provides the token key for the worker node , copy it and run it on the worker node now the worker node will join to the cluster.
5. To Validate it with command kubectl get nodes