

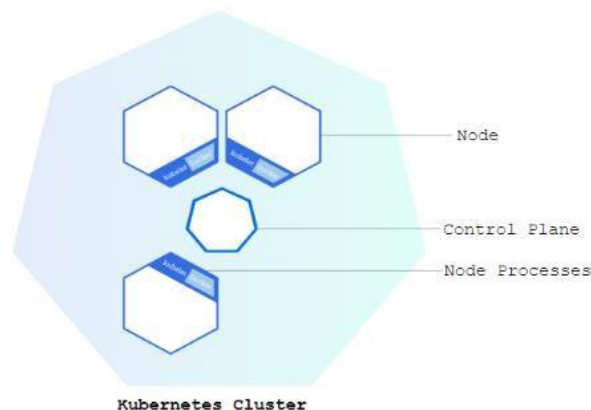


minikube

❖ MINIKUBE:

- Minikube is a utility you can use to run Kubernetes (k8s) on your local machine.
- It is a lightweight Kubernetes implementation that creates a VM on your local machine and deploys a simple cluster containing only one node.
- Minikube CLI provides basic bootstrapping operations for your cluster, including start, stop, status, and delete.
- Minikube is available for Linux, macOS, and Windows systems.

➤ MINIKUBE ARCHITECTURE:



CONTROL PLANE:

- It is responsible for managing the cluster.
- The control plane coordinates all activities in your cluster, such as scheduling applications, maintaining applications' desired state, scaling applications, and rolling out new updates.

NODE:

- Node is a VM or a physical computer that serves as a worker machine in a Kubernetes cluster.
- Each node has a Kubelet and container run time for managing the node and handling container application

➤ **MINIKUBE INSTALLATION:**

PRE-REQUISITES:

- 2 CPUs or more
- 2GB of free memory
- 20GB of free disk space
- Good Internet connection
- Container or virtual machine manager (Docker, Hyper-V, KVM, VirtualBox, or VMware...etc.)

STEP 1: Setting Up Hostname:

```
#hostname Minikube
```

```
#vim /etc/hostname
```

```
Minikube
```

```
#bash
```

STEP 2: Install Docker Engine

```
#sudo yum install -y yum-utils
```

```
#sudo yum-config-manager --add-repo
```

```
https://download.docker.com/linux/centos/docker-ce.repo
```

```
#sudo yum install docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-compose-plugin
```

```
#systemctl start docker
```

```
#systemctl enable docker
```

STEP 3: Download & Install Minikube:

```
#curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64
```

```
#install minikube-linux-amd64 /usr/local/bin/minikube
```

```
#minikube start
```

STEP 3: Install kubectl tool

URL: <https://kubernetes.io/docs/tasks/tools/install-kubectl-linux/>

```
#sudo install -o root -g root -m 0755 kubectl /usr/local/bin/kubectl
#chmod +x kubectl
#mkdir -p ~/.local/bin
#mv ./kubectl ~/.local/bin/kubectl
#kubectl version --client
```

STEP 4: Start Minikube Cluster:

```
#minikube start --driver=docker
#minikube status
```

STEP 5: Interact with your cluster:

```
#kubectl get po -A
#minikube kubectl -- get po -A
#alias kubectl="minikube kubectl -
-"#minikube dashboard
```

STEP 6: Deploy applications:

```
#kubectl create deployment hello-minikube image
image=k8s.gcr.io/echoserver:1.4
#kubectl expose deployment hello-minikube --type=NodePort --port=8080
#kubectl get services hello-minikube
#minikube service hello-minikube
#kubectl port-forward service/hello-minikube 7080:8080
Application is now available at http://localhost:7080
```

STEP 7: Manage your cluster:

Pause Kubernetes without impacting deployed applications:

```
#minikube pause
```

Unpause a paused instance:

```
#minikube unpause
```

Halt the cluster:

```
#minikube stop
```

Change the default memory limit (requires a restart):

```
#minikube config set memory 9001
```

Browse the catalog of easily installed Kubernetes services:

```
#minikube addons list
```

Create a second cluster running an older Kubernetes release:

```
#minikube start -p aged --kubernetes-version=v1.16.1
```

Delete all of the minikube clusters:

```
#minikube delete --all
```