Docker, Kubernetes, VMware Tanzu and RedHat OCP
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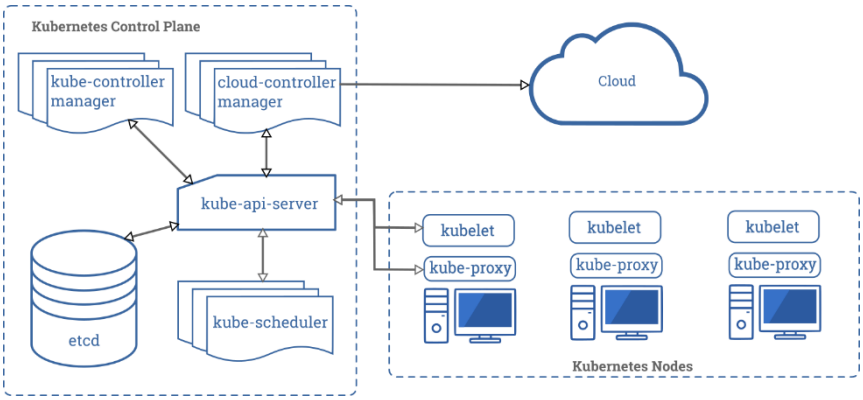
Day05
Kubernetes Platform-Online
Kubernetes Basic, YAML File
Kubernetes Namespace

In Kubernetes Cluster we have:
-masterNode/Nodes
-workerNodes
to prepare minimal K8s Cluster, need
One masterNode
Two WorkerNodes



Access to Kubernetes Platform

1-Online Access
2-minikube all-in-one Installation
3-Cluster Installation in multiple nodes

1-Online Access

https://labs.play-with-k8s.com/
https://killercoda.com/

K8s Basic Configuration
1-YAML indentation
vim ~/.vimrc
autocmd FileType yaml setlocal ai ts=2 sw=2 et cursorcolumn
:wq!
2-Bash auto-completion
kubectl completion bash >>~/.bashrc
kubeadm completion bash >>~/.bashrc
source ~/.bashrc
kubectl tab tab

Kubernetes Cli

kubectl version
kubectl --help
kubectl cordon --help
kubectl create deployment --help

Kubernetes API

storage.k8s.io/v1
kubectl api-resources
kubectl api-resources | grep -i ^"pod"
NAME SHORTNAMES APIVERSION NAMESPACED KIND
pods po v1 true Pod
kubectl api-resources | wc -l
72
kubectl cluster-info
Kubernetes control plane is running at https://172.30.1.2:6443
kubectl config view
ls /etc/kubernetes/
admin.conf controller-manager.conf kubelet.conf manifests pki scheduler.conf
cat /etc/kubernetes/admin.conf
ls /etc/kubernetes/manifests/
etcd.yaml kube-apiserver.yaml kube-controller-manager.yaml kube-scheduler.yaml ->MasterNode Components File

whoami
root
ls -a
. .. .kube
ls -a .kube/
. .. config
cat ls -a .kube/config

kubectl explain pod
kubectl explain pod.status

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Kubernetes Resources

Nodes

https://kubernetes.io/docs/concepts/architecture/nodes/

Kubernetes runs your workload by placing containers into Pods to run on Nodes. A node may be a virtual or physical machine, depending on the cluster.

```
# kubectl get nodes
# kubectl describe node node01
# kubectl edit node node01
# kubectl delete  <resource>
# kubectl get node -o wide

# kubectl get service
# kubectl describe service Kubernetes
```

Take Backup of resources

```
# kubectl get node node01 -o yaml >/tmp/node01.yaml
# kubectl get node node01 -oyaml >/tmp/node01.yaml
# kubectl get node node01 -oyaml >/tmp/node01.yml

# kubectl get services
# kubectl edit  services Kubernetes
# kubectl get service kubernetes -o yaml >/tmp/kubernetes-service.yaml
```

Namespaces

https://kubernetes.io/docs/concepts/overview/working-with-objects/namespaces/

-namespaces provide a mechanism for isolating groups of resources within a single cluster.
-Names of resources need to be unique within a namespace, but not across namespaces.

Get

```
# kubectl get namespaces
```

Create

```
# kubectl create namespace cust1
```

Describe

```
# kubectl describe ns cust1
```

Edit

```
# kubectl edit namespaces cust1
```

Backup

```
# kubectl get namespaces cust1 -o yaml >/tmp/cus1.yaml
```

delete

```
# kubectl delete namespaces cust1 --force --grace=period=0
```

NOTE

How to create K8s Resources

1- through kubectl cmd
2- through YAML file

through YAML file

to create K8s resource through YAML file:

```
# kubectl api-resources | grep -i "namespace"
```

NAME	SHORTNAMES	APIVERSION	NAMESPACED	KIND
namespaces	ns	v1	false	Namespace

1-create YAML file

```
# vim cust4.yaml
```

2-start writing by use:

```
kind:
apiVersion:
metadata:
spec:
```

Create YAML

```
# cat cust4.yaml
kind: Namespace
apiVersion: v1
metadata:
  name: cust4
spec: {}
status: {}
```

Run YAML

-Dry-Run

```
# kubectl create -f cust4.yaml --dry-run=client
# kubectl apply -f cust4.yaml --dry-run=client
```

-Real

```
# kubectl create -f cust4.yaml
# kubectl apply -f cust4.yaml
```

```
# kubectl get namespace
# kubectl get namespace cust4 -o yaml
# kubectl get namespace cust4 -o json
```

current active namespace

```
# kubectl config get-contexts
```

change namespace

```
# kubectl config set-context --namespace cust4 –current
# kubectl config get-contexts
CURRENT   NAME                          CLUSTER      AUTHINFO           NAMESPACE
*         kubernetes-admin@kubernetes   kubernetes   kubernetes-admin   cust4
```