KUBERNETES/K8s

Kubernetes is a container orchestration platform for scheduling and automating the deployment, management and scaling of containerized applications.

Kubernetes Architecture

1. Clusters and Nodes- Clusters are the building blocks of K8s architecture. Clusters are made up of nodes.

-Each cluster consist of a master node that serves as the control plane for the cluster, and multiple worker nodes that deploy, run and manage the containerized applications.

-each worker node includes the tool used to manage the containers e.g docker; and a software agent called a kubelet that receives and executes orders from the master node

b. Pods and deployments

Pods are a group containers that share the same compute resources and software and the same network.

Cluster-🡪Nodes (servers)-🡪Pods-🡪 container

First, create your pod; In order to get inside your pods, you need to be inside your cluster. To get inside your cluster, you need to get its IP address and then ssh into it using the IP address

Minikube is a cluster.

Kubernetes basic commands

1. Create Pod #kubectl run lili-pod --image=nginx

#kubectl get pods --🡪 to see your pods

1. Get inside your cluster:

#minikube ip 🡪 to get the IP of the nodes

#ssh docker@IPadress

Default password:tcuser

Once inside the cluster/minikube;

1. Grep the pod to see its container ID:

#docker ps |grep lili-pod

1. Attach your container;

#docker exec -it (dockerID) sh

1. Get the IP address of the container i.e;

#hostname -i

#curl IpAddress to the content of your container

#Kubectl cluster-info 🡪to see information of the cluster

#kubectl get nodes -🡪 to see your nodes

#kubectl delete pod lili-pod

NAMESPACES

Namespaces are a way to isolate, group and organize resources within a Kubernetes cluster. It gives you a path to your objects/resources.

#Kubectl get namespace --/ will give you the following output:

-default-used by user apps by default, until there are other custom namespaces

-kube-public -used by public Kubernetes resources ;-not recommended to be used by cluster users

-Kube-system -used by Kubernetes control plane, and must not be used by cluster users

Common commands with namespaces:

* kubectl get namespaces
* kubectl create namespace mynamespace
* kubectl get pods --all-namespaces (List all pods with status from all namespaces.)
* kubectl get pods –namespace=GiveNameofnamespace 🡪 to get a list of pods in the namespace
* kubectl get pod -o wide -n <namspace1> -n <namespace2> -n <namespace3> (This command will identify the pods in each namespace)
* kubectl describe namespace <namespace>
* kubectl config view --minify | grep namespace (This command will ensure that you set the namespace correctly for your current context.)
* kubectl delete namespace namespace1