Instalación local Kubernetes con MicroK8s

- sudo snap install microk8s --classic
- microk8s enable dns
- microk8s enable dashboard
- microk8s enable storage

Instalación de kubctl para la administración del cluster:

```
sudo    curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl"
sudo    curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl.sha256"
echo "$(cat kubectl.sha256)  kubectl" | sha256sum --check
sudo install -o root -g root -m 0755 kubectl /usr/local/bin/kubectl
kubectl version --client
```

Se crea un namespace llamado dev

```
mimi@mimi-Lenovo-V330-15IKB:~/home/mimi$ microk8s kubectl create namespace dev
namespace/dev created
mimi@mimi-Lenovo-V330-15IKB:~/home/mimi$ microk8s kubectl get namespaces
NAME                 STATUS   AGE
argocd               Active   14d
container-registry   Active   14d
default              Active   14d
dev                  Active   21s
ingress              Active   14d
kube-node-lease      Active   14d
kube-public          Active   14d
kube-system          Active   14d
```

Se crean dos archivos manifiestos en yaml:

```
-rw-r--r-- 1 root root 1733 may 26 15:52 deployment.yaml
-rw-r--r-- 1 root root  109 may 26 15:23 my-app-config.yaml
```

En el archivo deployment.yaml construirá y levantará los pods, servicios y volumes; mientras que el archivo my-app-config.yaml será el configmaps.

Primero se corre el deployment del my-app-config.yaml

```
mimi@mimi-Lenovo-V330-15IKB:~/home/mimi$ microk8s kubectl apply -f my-app-config.yaml
configmap/my-app-config unchanged
mimi@mimi-Lenovo-V330-15IKB:~/home/mimi$ microk8s kubectl get configmaps
NAME              DATA   AGE
check             1      96m
kube-root-ca.crt  1      14d
my-app-config     2      96m
```

Comprobando que hay en el sistema antes de aplicar el deployment

```
mimi@mimi-Lenovo-V330-15IKB:~/home/mimi$ microk8s kubectl get all
NAME                 TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)   AGE
service/kubernetes   ClusterIP   10.152.183.1    <none>        443/TCP   14d
mimi@mimi-Lenovo-V330-15IKB:~/home/mimi$ microk8s kubectl get pods
No resources found in default namespace.
mimi@mimi-Lenovo-V330-15IKB:~/home/mimi$ microk8s kubectl get pods --namespace dev
No resources found in dev namespace.
```

Aplicación de deployment:

```
mimi@mimi-Lenovo-V330-15IKB:~/home/mimi$ microk8s kubectl apply -f deployment.yaml
configmap/check unchanged
service/web-service created
deployment.apps/web-deployment created
mimi@mimi-Lenovo-V330-15IKB:~/home/mimi$ microk8s kubectl get all
NAME                                  READY   STATUS    RESTARTS   AGE
pod/web-deployment-79784765c-4xlv2    1/1     Running   0          29s
pod/web-deployment-79784765c-hmvkd    1/1     Running   0          29s
pod/web-deployment-79784765c-n8zz4    1/1     Running   0          29s

NAME                  TYPE        CLUSTER-IP       EXTERNAL-IP   PORT(S)          AGE
service/kubernetes    ClusterIP   10.152.183.1     <none>        443/TCP          14d
service/web-service   NodePort    10.152.183.158   <none>        8083:30000/TCP   29s

NAME                                READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/web-deployment      3/3     3            3           29s

NAME                                           DESIRED   CURRENT   READY   AGE
replicaset.apps/web-deployment-79784765c       3         3         3       29s
```

Test: Eliminación de pod y ***creación automática del mismo:***

```
mimi@mimi-Lenovo-V330-15IKB:~/home/mimi$ microk8s kubectl delete pod web-deployment-79784765c-4xlv2
pod "web-deployment-79784765c-4xlv2" deleted
mimi@mimi-Lenovo-V330-15IKB:~/home/mimi$ microk8s kubectl get all
NAME                                  READY   STATUS    RESTARTS   AGE
pod/web-deployment-79784765c-hmvkd    1/1     Running   0          2m46s
pod/web-deployment-79784765c-n8zz4    1/1     Running   0          2m46s
pod/web-deployment-79784765c-rtp8s    1/1     Running   0          4s

NAME                  TYPE        CLUSTER-IP       EXTERNAL-IP   PORT(S)          AGE
service/kubernetes    ClusterIP   10.152.183.1     <none>        443/TCP          14d
service/web-service   NodePort    10.152.183.158   <none>        8083:30000/TCP   2m46s

NAME                                READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/web-deployment      3/3     3            3           2m46s

NAME                                           DESIRED   CURRENT   READY   AGE
replicaset.apps/web-deployment-79784765c       3         3         3       2m46s
```

Repositorio: https://github.com/mromitelli/Desafio14/tree/main
Enlace al repositorio de la imagen: https://hub.docker.com/r/romitelli/desafio12/tags

Exposición de la aplicación y acceso mediante un navegador: