Déploiement des Conteneurs avec Kubernetes

Configuration de Kubernetes (K3S)

Modifier le fichier YAML pour le déploiement Kubernetes :

nano goweb-deploy.yaml

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: mon-deployment
spec:
  replicas: 7
  selector:
    matchLabels:
      app: tp38  # Nom de l'application
  template:
    metadata:
      labels:
        app: tp38  # Nom de l'application
    spec:
      containers:
      - name: tp38  # Nom du conteneur
        image: tbmc93/tp38:v2  # Nom de l'image Docker
        ports:
        - containerPort: 80
---
apiVersion: v1
kind: Service
metadata:
  name: mon-service
spec:
  selector:
    app: tp38  # Nom de l'application
  ports:
    - protocol: TCP
      port: 80
      targetPort: 80
  type: LoadBalancer
```

Déploiement Initial sur Kubernetes (K3S)

Appliquer le déploiement :

sudo kubectl apply -f goweb-deploy.yaml

Vérifier les déploiements :

sudo kubectl get deployments

```
ubuntu22@ubuntu22-virtual-machine:~/mysiteweb$ sudo kubectl get deployments
NAME             READY   UP-TO-DATE   AVAILABLE   AGE
mon-deployment   7/7     7            7           16m
```

Vérifier les pods :

sudo kubectl get pods

```
ubuntu22@ubuntu22-virtual-machine:~/mysiteweb$ sudo kubectl get pods
NAME                              READY   STATUS    RESTARTS   AGE
mon-deployment-7d5cf77847-2l97z   1/1     Running   0          11m
mon-deployment-7d5cf77847-b7d42   1/1     Running   0          11m
mon-deployment-7d5cf77847-dj5lf   1/1     Running   0          11m
mon-deployment-7d5cf77847-hz5h2   1/1     Running   0          11m
mon-deployment-7d5cf77847-sxsv6   1/1     Running   0          11m
mon-deployment-7d5cf77847-tb2kk   1/1     Running   0          11m
mon-deployment-7d5cf77847-zbwdw   1/1     Running   0          11m
```

Vérifier les services :

sudo kubectl get services

```
ubuntu22@ubuntu22-virtual-machine:~/mysiteweb$ sudo kubectl get services
NAME          TYPE           CLUSTER-IP      EXTERNAL-IP   PORT(S)        AGE
kubernetes    ClusterIP      10.43.0.1       <none>        443/TCP        64m
mon-service   LoadBalancer   10.43.183.74    <pending>     80:30584/TCP   42m
```

Tester l'accès à l'application

Utilisez l'adresse IP du nœud et le port NodePort pour accéder à votre application :

curl http://<IP-du-noeud>:30584

- Dans Kubernetes, lorsque vous utilisez un service de type LoadBalancer ou NodePort, le système attribue automatiquement un port dans la plage des NodePorts (par défaut 30000-32767) si vous ne spécifiez pas un port particulier.
- Ce port est choisi de manière aléatoire dans cette plage à chaque fois que le service est créé ou recréé.

Script

Rendre le Script Exécutable
Assurez-vous que votre script est exécutable.

chmod +x myscript.sh

Exécuter le script

./deploy-script.sh

C: > Users > kevca > Downloads > $ myscript.sh

```
#!/bin/bash

# Build Docker image
docker build -t tbmc93/tp38:v2 .

# Tag and push sur Docker Hub
docker tag tbmc93/tp38:v1 tbmc93/tp38:v1
docker push tbmc93/tp38:v1

# Apply Kubernetes deployment
sudo kubectl apply -f goweb-deploy.yaml

# Check deployment status
sudo kubectl rollout status deployment/mon-deployment

# Get services and pods
sudo kubectl get services
sudo kubectl get pods
```

```
ubuntu22@ubuntu22-virtual-machine:~/mysiteweb$ sudo ./myscript.sh
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
            Install the buildx component to build images with BuildKit:
            https://docs.docker.com/go/buildx/

Sending build context to Docker daemon  9.216kB
Step 1/2 : FROM customweb
 ---> a72860cb95fd
Step 2/2 : COPY index.html /usr/share/nginx/html
 ---> Using cache
 ---> b13e73db29c9
Successfully built b13e73db29c9
Successfully tagged tbmc93/tp38:v2
The push refers to repository [docker.io/tbmc93/tp38]
74aa2cc600d0: Layer already exists
60e72fbb314e: Layer already exists
599e8de62018: Layer already exists
09581b9299a2: Layer already exists
a39383416a22: Layer already exists
a6355e7844d5: Layer already exists
fcfa12460e7d: Layer already exists
e0781bc8667f: Layer already exists
v2: digest: sha256:be9e8fc2735a602e8f2155dcc4a9781b6c4d45d6107b848e31f6ceec9c52bf9f size: 1985
deployment.apps/mon-deployment unchanged
service/mon-service unchanged
deployment "mon-deployment" successfully rolled out
NAME          TYPE           CLUSTER-IP     EXTERNAL-IP   PORT(S)        AGE
kubernetes    ClusterIP      10.43.0.1      <none>        443/TCP        75m
mon-service   LoadBalancer   10.43.183.74   <pending>     80:30584/TCP   53m
NAME                              READY   STATUS    RESTARTS   AGE
mon-deployment-7d5cf77847-2l97z   1/1     Running   0          23m
mon-deployment-7d5cf77847-b7d42   1/1     Running   0          23m
mon-deployment-7d5cf77847-dj5lf   1/1     Running   0          23m
mon-deployment-7d5cf77847-hz5h2   1/1     Running   0          23m
mon-deployment-7d5cf77847-sxsv6   1/1     Running   0          23m
mon-deployment-7d5cf77847-tb2kk   1/1     Running   0          23m
mon-deployment-7d5cf77847-zbwdw   1/1     Running   0          23m
```