Déploiement des Conteneurs avec Kubernetes

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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 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

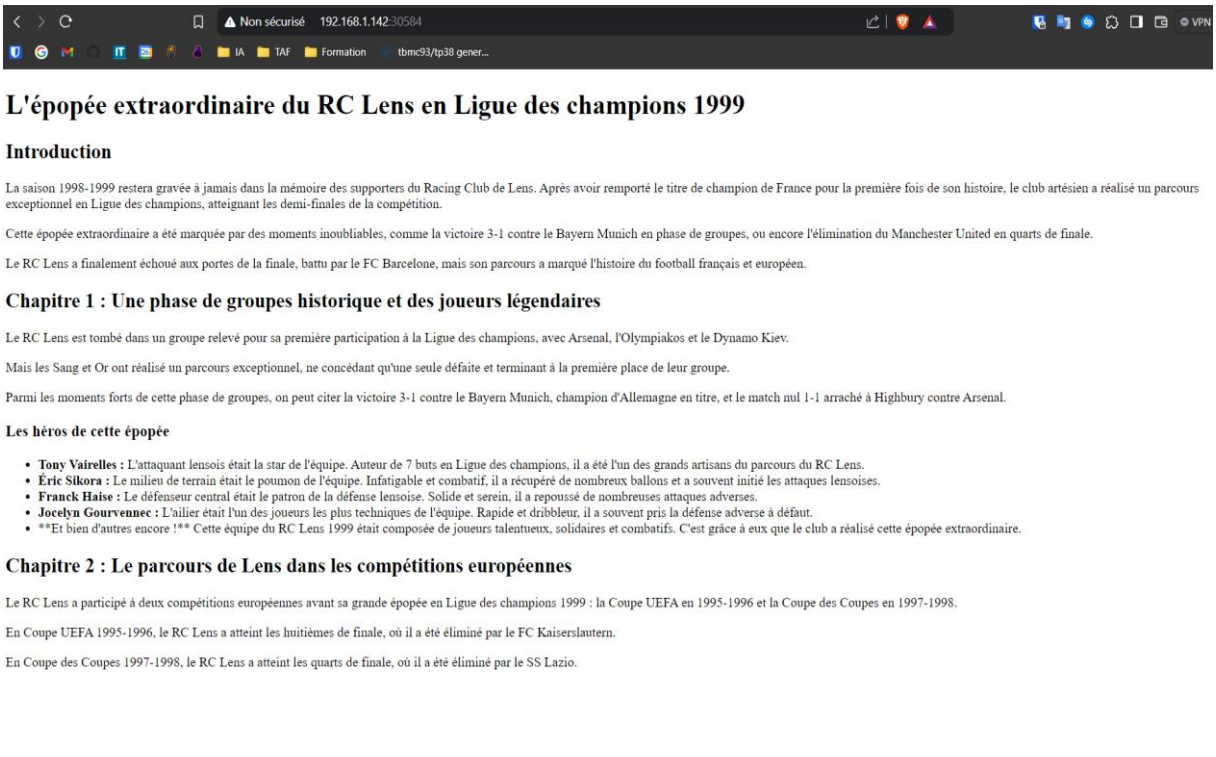
```
ubuntu22@ubuntu22-virtual-machine:~/mysiteweb$ sudo kubectl get services
NAME          TYPE           CLUSTER-IP     EXTERNAL-IP   PORT(S)        AGE
kubernetes    ClusterIP      10.43.0.1      <none>        443/TCP        64m
mon-service   LoadBalancer   10.43.183.74   <pending>     80:30584/TCP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

Menu

```
ubuntu22@ubuntu22-virtual-machine:~/mysiteweb$ sudo ./myscript.sh
1) Build Docker image
2) Tag and push Docker image to Docker Hub
3) Open Kubernetes deployment
4) Apply Kubernetes deployment
5) Check deployment status
6) Get services and pods
7) Exit
Choose an option: _
```

Option 1 & 2

```
Choose an option: 1
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  10.75kB
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
1) Build Docker image
2) Tag and push Docker image to Docker Hub
3) Open Kubernetes deployment
4) Apply Kubernetes deployment
5) Check deployment status
6) Get services and pods
7) Exit
Choose an option: 2
The push refers to repository [docker.io/tbmc93/tp38]
cc5ae9b936b8: 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: sha256:30438e6e80c70cba5f44ea252070d66ebffbcfdec0242f3ca5a0e238fd21cffa size: 1986
```

Option 4, 5, 6 & 7

```
Choose an option: 4
deployment.apps/mon-deployment unchanged
service/mon-service unchanged
1) Build Docker image
2) Tag and push Docker image to Docker Hub
3) Open Kubernetes deployment
4) Apply Kubernetes deployment
5) Check deployment status
6) Get services and pods
7) Exit
Choose an option: 5
deployment "mon-deployment" successfully rolled out
1) Build Docker image
2) Tag and push Docker image to Docker Hub
3) Open Kubernetes deployment
4) Apply Kubernetes deployment
5) Check deployment status
6) Get services and pods
7) Exit
Choose an option: 6
NAME           TYPE           CLUSTER-IP      EXTERNAL-IP   PORT(S)          AGE
kubernetes     ClusterIP      10.43.0.1       <none>        443/TCP          19h
mon-service    LoadBalancer   10.43.183.74    <pending>     80:30584/TCP     19h
NAME                              READY   STATUS    RESTARTS      AGE
mon-deployment-7d5cf77847-2197z   1/1     Running   1 (23m ago)   18h
mon-deployment-7d5cf77847-b7d42   1/1     Running   1 (23m ago)   18h
mon-deployment-7d5cf77847-dj5lf   1/1     Running   1 (23m ago)   18h
mon-deployment-7d5cf77847-hz5h2   1/1     Running   1 (23m ago)   18h
mon-deployment-7d5cf77847-sxsv6   1/1     Running   1 (23m ago)   18h
mon-deployment-7d5cf77847-tb2kk   1/1     Running   1 (23m ago)   18h
mon-deployment-7d5cf77847-zbwdw   1/1     Running   1 (23m ago)   18h
1) Build Docker image
2) Tag and push Docker image to Docker Hub
3) Open Kubernetes deployment
4) Apply Kubernetes deployment
5) Check deployment status
6) Get services and pods
7) Exit
Choose an option: 7
Exit
```