

Lab Exercise 8– Creating Service in Kubernetes

Below is a lab exercise that will help you understand and practice creating a service in Kubernetes:

Task 1: Start Kubernetes in Docker-Desktop

- Start Kubernetes service in Docker-Desktop

```
PS C:\Users\hnp> minikube start
W1024 21:08:42.802900 7448 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\hnp\docker\contexts\meta\37a8e6c1e19687d132fe29851dca629d164e2c4958ba141d5f4133a33f8688f\meta.json: The system cannot find the path specified.
🐳 minikube v1.31.1 on Microsoft Windows 11 Home Single Language 10.0.22621.2428 Build 22621.2428
   ▪ MINIKUBE_HOME=D:\minikube
🔧 Using the virtualbox driver based on existing profile
🔥 Starting control plane node minikube in cluster minikube
📌 minikube 1.31.2 is available! Download it: https://github.com/kubernetes/minikube/releases/tag/v1.31.2
💡 To disable this notice, run: 'minikube config set WantUpdateNotification false'

🔄 Restarting existing virtualbox VM for "minikube" ...
❗ This VM is having trouble accessing https://registry.k8s.io
💡 To pull new external images, you may need to configure a proxy: https://minikube.sigs.k8s.io/docs/reference/networking/proxy/
🔧 Preparing Kubernetes v1.27.3 on Docker 24.0.4 ...
🔗 Configuring bridge CNI (Container Networking Interface) ...
   ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
🔍 Verifying Kubernetes components...
🌟 Enabled addons: default-storageclass, storage-provisioner
🎉 Done! kubectrl is now configured to use "minikube" cluster and "default" namespace by default
```

Task 2: Creating a Service

Create a service to expose the deployed application within the Kubernetes cluster. You can use the following sample YAML manifest as a reference:

```
apiVersion: v1
kind: Service
metadata:
  name: my-service
spec:
  selector:
    app: lbnginx
  ports:
    - protocol: TCP
```

port: 80

nodePort: 30001

type: NodePort

```
service.yaml x
C: > Users > hp > Desktop > ACO-LAB-2021-25 > scripts > service.yaml
1  apiVersion: v1
2  kind: Service
3  metadata:
4    name: my-nginx-service-1
5  spec:
6    selector:
7      app: lbnginx
8    ports:
9      - protocol: TCP
10        port: 80
11        nodePort: 30003
12    type: NodePort
13
```

- Apply the service using the following command:

```
kubectl apply -f service.yaml
```

```
PS C:\Users\hp\Desktop\ACO-LAB-2021-25-SUBMISSION\R2142211343\exp8> kubectl apply -f .\service.yaml
service/my-nginx-service-1 created
```

- Verify that the service is created by running the following command:

```
kubectl get services
```

```
PS C:\Users\hp\Desktop\ACO-LAB-2021-25-SUBMISSION\R2142211343\exp8> kubectl get services
NAME                TYPE        CLUSTER-IP    EXTERNAL-IP  PORT(S)    AGE
kubernetes          ClusterIP   10.96.0.1     <none>       443/TCP    88d
my-nginx-service-1  NodePort    10.105.90.37  <none>       80:30003/TCP 24s
```

Task 4: Accessing the Service

- Access the service using port forwarding. Run the following command:

Access the Nginx server running in the service by opening a web browser and navigating to

```
http://localhost:30001
```

Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working.
Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

Task 5: Deleting the Service

Delete the service using the following command:

```
kubectl delete service my-service
```

```
PS C:\Users\hp> kubectl delete service my-nginx-service-1
service "my-nginx-service-1" deleted
```

Verify that the service has been deleted by running the kubectl get services command.

```
C:\Users\hp>kubectl get services
NAME                TYPE        CLUSTER-IP    EXTERNAL-IP  PORT(S)    AGE
kubernetes          ClusterIP   10.96.0.1     <none>       443/TCP    89d
```

Task 6: Cleanup

Delete any remaining deployments, services, and resources created during the exercise using the appropriate kubectl delete commands.

Task 7: Documentation and Best Practices

Document your findings and the best practices for creating and managing services in Kubernetes.

Through this exercise, you'll gain a better understanding of how to create and manage services to expose applications within a Kubernetes cluster. Adjust the exercise based on your specific use case and requirements.