

Lab Exercise 7- Create Service in Kubernetes

Objective:

- Understand the syntax and structure of a Kubernetes Service definition file (YAML).
- Learn to create different types of Services: ClusterIP, NodePort, and LoadBalancer.
- Comprehend how Services operate independently of specific Pods.

Prerequisites

- Kubernetes Cluster: Have a running Kubernetes cluster (locally using Minikube or kind, or a cloud-based service).
- kubectl: Install and configure kubectl to interact with your Kubernetes cluster.
- Basic Knowledge of YAML: Familiarity with YAML format will be helpful for understanding Kubernetes resource definitions.

Step-by-Step Guide

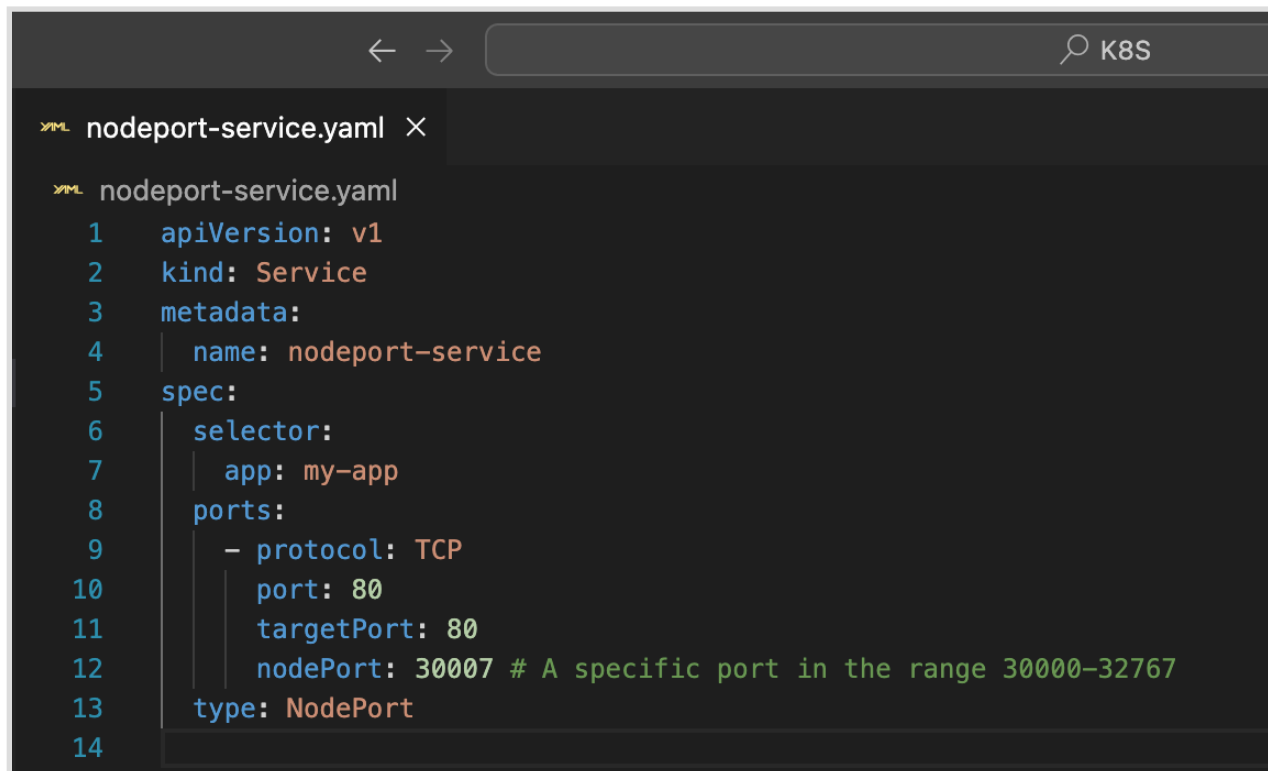
NodePort Service

To expose the Service on a port on each Node in the cluster, modify the Service type to NodePort.

Create a YAML file named **nodeport-service.yaml** with the following content:

```
apiVersion: v1
kind: Service
metadata:
```

```
name: nodeport-service
spec:
  selector:
    app: my-app
  ports:
    - protocol: TCP
      port: 80
      targetPort: 80
      nodePort: 30007 # A specific port in the range 30000-32767
  type: NodePort
```

A screenshot of a code editor window with a dark theme. The window has a title bar with navigation arrows and a search icon labeled 'K8S'. The editor shows a file named 'nodeport-service.yaml' with a close button. The code is a Kubernetes Service manifest. Line numbers 1 through 14 are visible on the left. The code is as follows:

```
1  apiVersion: v1
2  kind: Service
3  metadata:
4    name: nodeport-service
5  spec:
6    selector:
7      app: my-app
8    ports:
9      - protocol: TCP
10        port: 80
11        targetPort: 80
12        nodePort: 30007 # A specific port in the range 30000-32767
13    type: NodePort
14
```

Explanation:

- The primary difference from the ClusterIP Service is the addition of nodePort, which specifies the static port on each Node.
- type: Set to NodePort, exposing the Service on a specific port across all Nodes.

Apply this YAML to create the NodePort Service:

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

```
[sai@Sais-Mac K8S % kubectl apply -f nodeport-service.yaml  
service/nodeport-service created
```

Verify the Service:

```
kubectl get services
```

```
[sai@Sais-Mac K8S % kubectl get services  
NAME                TYPE        CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE  
kubernetes           ClusterIP   10.96.0.1     <none>         443/TCP          13h  
nodeport-service     NodePort    10.109.110.214 <none>         80:30007/TCP     32s
```

You should see the nodeport-service listed with a NodePort and details about the port exposed.