

Lab Exercise 7- Create Service in Kubernetes

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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:

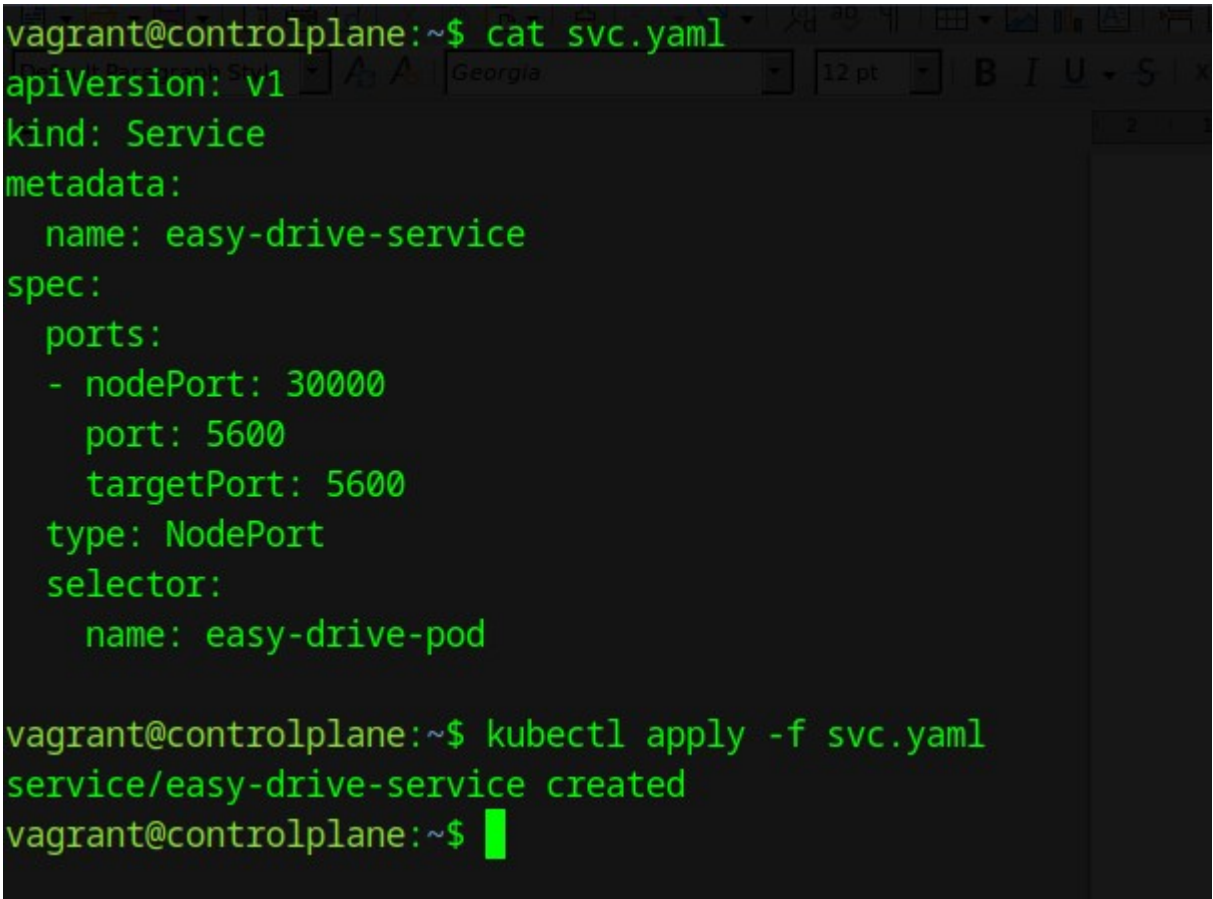
```
apiVersion: v1
kind: Service
metadata:
  name: nodeport-service
spec:
  selector:
    app: my-app
  ports:
    - protocol: TCP
      port: 80
      targetPort: 80
      nodePort: 30007 # A specific port in the range 30000-32767
  type: NodePort
```

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
```

A terminal window with a dark background and green text. The prompt is 'vagrant@controlplane:~\$'. The first command is 'cat svc.yaml', which displays the following YAML content: 'apiVersion: v1', 'kind: Service', 'metadata: name: easy-drive-service', 'spec: ports: - nodePort: 30000, port: 5600, targetPort: 5600, type: NodePort, selector: name: easy-drive-pod'. The second command is 'kubectl apply -f svc.yaml', which outputs 'service/easy-drive-service created'. The prompt returns to 'vagrant@controlplane:~\$' with a green cursor.

```
vagrant@controlplane:~$ cat svc.yaml
apiVersion: v1
kind: Service
metadata:
  name: easy-drive-service
spec:
  ports:
    - nodePort: 30000
      port: 5600
      targetPort: 5600
  type: NodePort
  selector:
    name: easy-drive-pod

vagrant@controlplane:~$ kubectl apply -f svc.yaml
service/easy-drive-service created
vagrant@controlplane:~$
```

Verify the Service:

```
kubectl get services
```

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

```
vagrant@controlplane:~$ kubectl get svc
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
easy-drive-service	NodePort	172.17.5.52	<none>	5600:30000/TCP	42s
kubernetes	ClusterIP	172.17.0.1	<none>	443/TCP	2d