





3. Services

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To overcome networking issues k8's provides service

Services

-  A service defines networking rules for accessing Pods in the cluster and from the internet
-  Use labels to select a group of Pods
-  Service has a fixed IP address
-  Distribute requests across Pods in the group

```
apiVersion: v1
kind: Service
metadata:
  labels:
    app: webserver
  name: webserver
spec:
  ports:
  - port: 80
  selector:
    app: webserver
  type: NodePort
```

selector defines the labels to match the pod against.

selector: set of pods targeted by a service
usually is determined by the selector.

values of pod's container port

How to expose the service.

NodePort → allocates port over this service on each node in the cluster

By doing this you can reach this service from any node by sending request to this service.

```
admin@Jamess-MBP src % kubectl create -f 2.1-web_service.yaml
service/webserver created
admin@Jamess-MBP src % kubectl get services
NAME         TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)        AGE
kubernetes   ClusterIP   10.96.0.1     <none>         443/TCP        6d18h
webserver    NodePort    10.100.37.149 <none>         80:32337/TCP   5s
```

Private IP for each service.

not available for NodePort type

k8's automatically allocated port

(normally between 30,000 & 32,767)

```

admin@Jamess-MBP src % kubectl get services
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
kubernetes ClusterIP  10.96.0.1        <none>            443/TCP          6d18h
webserver NodePort   10.100.37.149    <none>            80:32337/TCP     5s

```

```

admin@Jamess-MBP src % kubectl describe service webserver
Name:
Namespace:
Labels:
Annotations:
Selector:
Type:
IP:
Port:
TargetPort:
NodePort:
Endpoints:
Session Affinity:
External Traffic Policy:
Events:

```

If there were multiple Pods selected by the label,

```

admin@Jamess-MBP src % kubectl describe nodes | grep -i address -A 1
Addresses:
  InternalIP: 192.168.64.2

```

Internal IP of the node inside the cluster
↓
private IP

```

admin@Jamess-MBP src % curl 192.168.64.2:32337

```

Lab VM is on the same machine as the node.
so it will allow traffic.
will connect to webserver service.

we can try from any node & it will connect to that service.

Services expose pods via a static IP address.

maybe changing but service will take care of it

CONCLUSION

- Services expose Pods via a static IP address
- NodePort Services allows access from outside the cluster