
Network Policies in Kubernetes

K8s Network Policies





K8s Network Policies

- What is Network Policy
- Pod Selector
- Ingress and Egress
- From and To Selector
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- Hands On Demonstration

What is Network Policy

- K8s Network Policies are used to Control the Traffic Flow at IP Address or Port level.
- Network Policy is Object in Kubernetes.
- Pods can communicate using three Identifiers -
 - Other pods that are allowed.
 - Namespaces that are allowed.
 - IP blocks.

What is Network Policy

- Network policies allows to Build a secure network by keeping Pods Isolated from traffic they do not need.
- By default, pods are non-isolated; they accept traffic from any source.
- Pods become isolated by having a NetworkPolicy that selects them.

Network Policy Components

- **podSelector** : Determines to which Pods in namespace the NetworkPolicy will be applied.
- **podSelector** can select the Pods using Labels.
- An empty **podSelector** selects all pods in the namespace.

```
apiVersion: networking.k8s.io/v1
kind: NetworkPolicy
metadata:
  name: sample-net-policy
  namespace: default
spec:
  podSelector:
    matchLabels:
      role: front-end
```

Network Policy Components

- Network Policy apply on Ingress, Egress and Both kind of Traffic.
- **Ingress** : Incoming Network Traffic coming into the Pod from another Source.
- **Egress** : Outgoing Network Traffic that leaving the Pod for another Destination.

To and From Selector

- **fromSelector** : Selects **Ingress** Traffic that will be allowed on Pods.
- **toSelector** : Selects **Egress** Traffic that will be allowed from Pods.

podSelector

Select Pods to allow Traffic From/To.

```
...  
ingress:  
- from:  
  - podSelector:  
    matchLabels:  
      role: client  
...
```

To and From Selector

namespaceSelector

Select namespaces to allow Traffic From/To.

...

ingress:

- from:

- namespaceSelector:

matchLabels:

role: client

ipBlock

Select an IP Range to allow Traffic From/To.

...

ingress:

- from:

- ipBlock:

cidr: 172.17.0.0/16

...

Ports in Network Policy

- **Ports** : Specify one or more Ports that allow Traffic.

```
...  
ingress:  
- from:  
  ports:  
  - protocol: TCP  
    port: 80  
...
```

```
...  
egress:  
- to:  
  ports:  
  - protocol: TCP  
    port: 32000  
    endPort: 32768  
...
```

Hands On Demonstration

Thank You...

Don't be the Same! Be Better!!!
