K8s Services

- K8s service allows you to attach a static Ip address and DNS name for a set of pods
- Services allows you to persist an address for a pod even if it dies.
- Pod without service will have dynamic ip

Service types:

1. ClusterIP: (Randomly forwar traffic to any pod)
2. Headless: (Traffic to specifi pod eg: database)
3. NodePort: (Uses worker node ip address)
4. LoadBalancer: (Balances the traffic)
5. ExternalName: Service that does not have selectors and uses DNS names instead.

Services traffic policies

Services allows you to set traffic policies to determine how ingress traffic is routed.

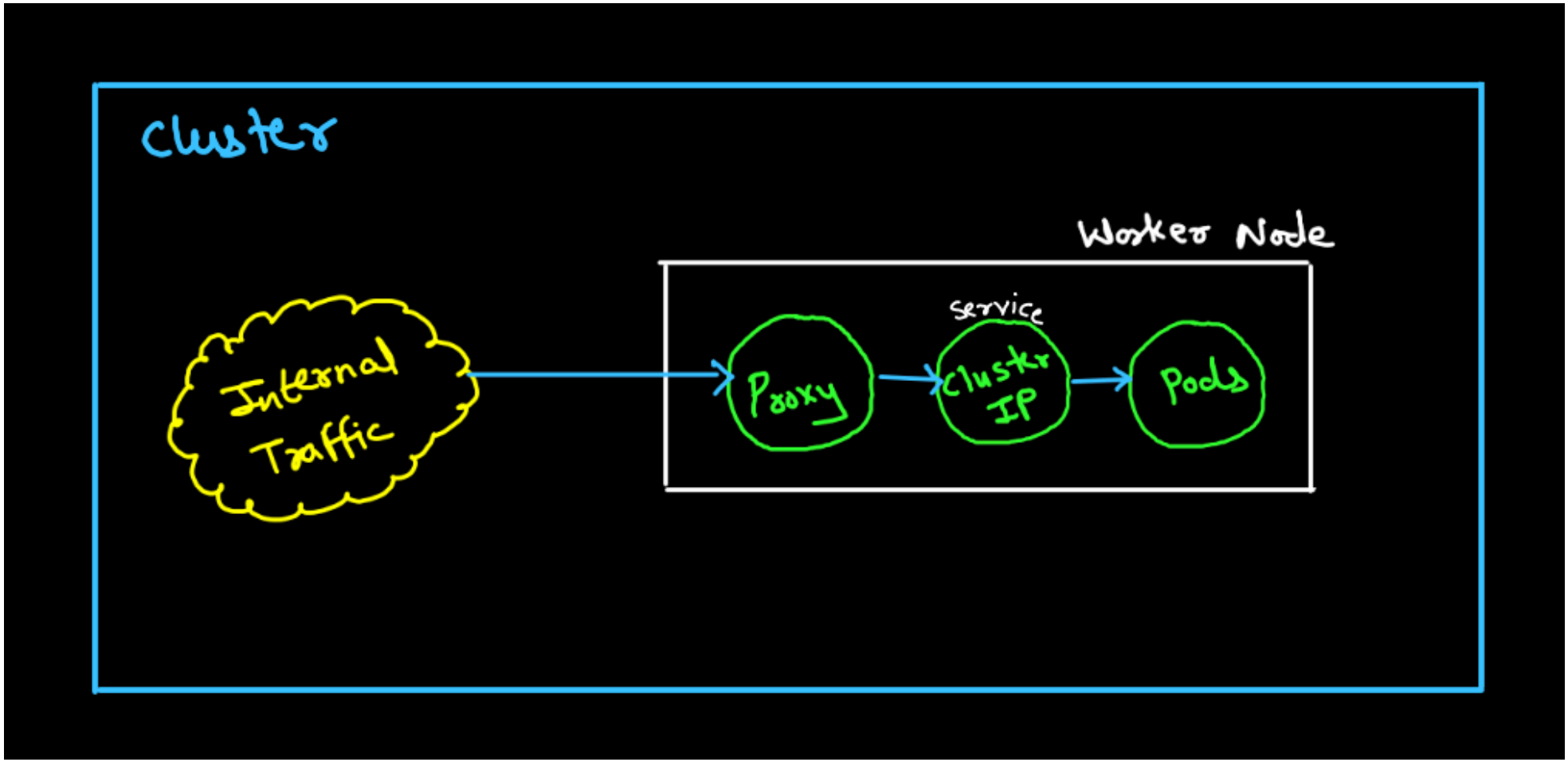
Traffic policies:

- External Traffic policy:
  - Cluster: Route external traffic to all ready endpoints
  - Local: Only route to ready node-local endpoings
- Internal traffic policy: How traffic from internal sources is routed

If traffic policy is local and there are no node-local endpoints, then kubeproxy does not forward any traffic for the relevant service

ClusterIP:

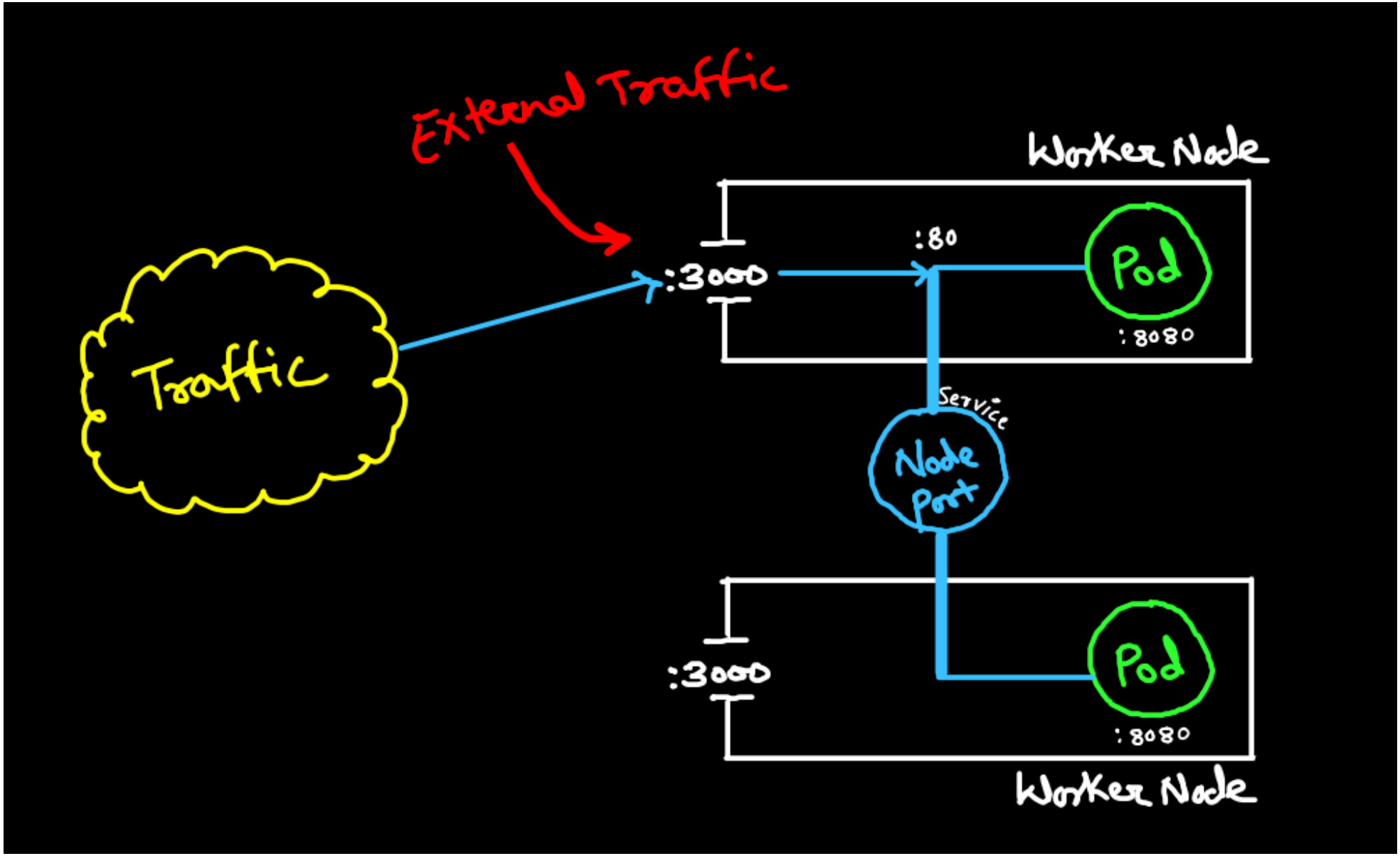
- Default service type
- Used for internal traffic



NodePort:

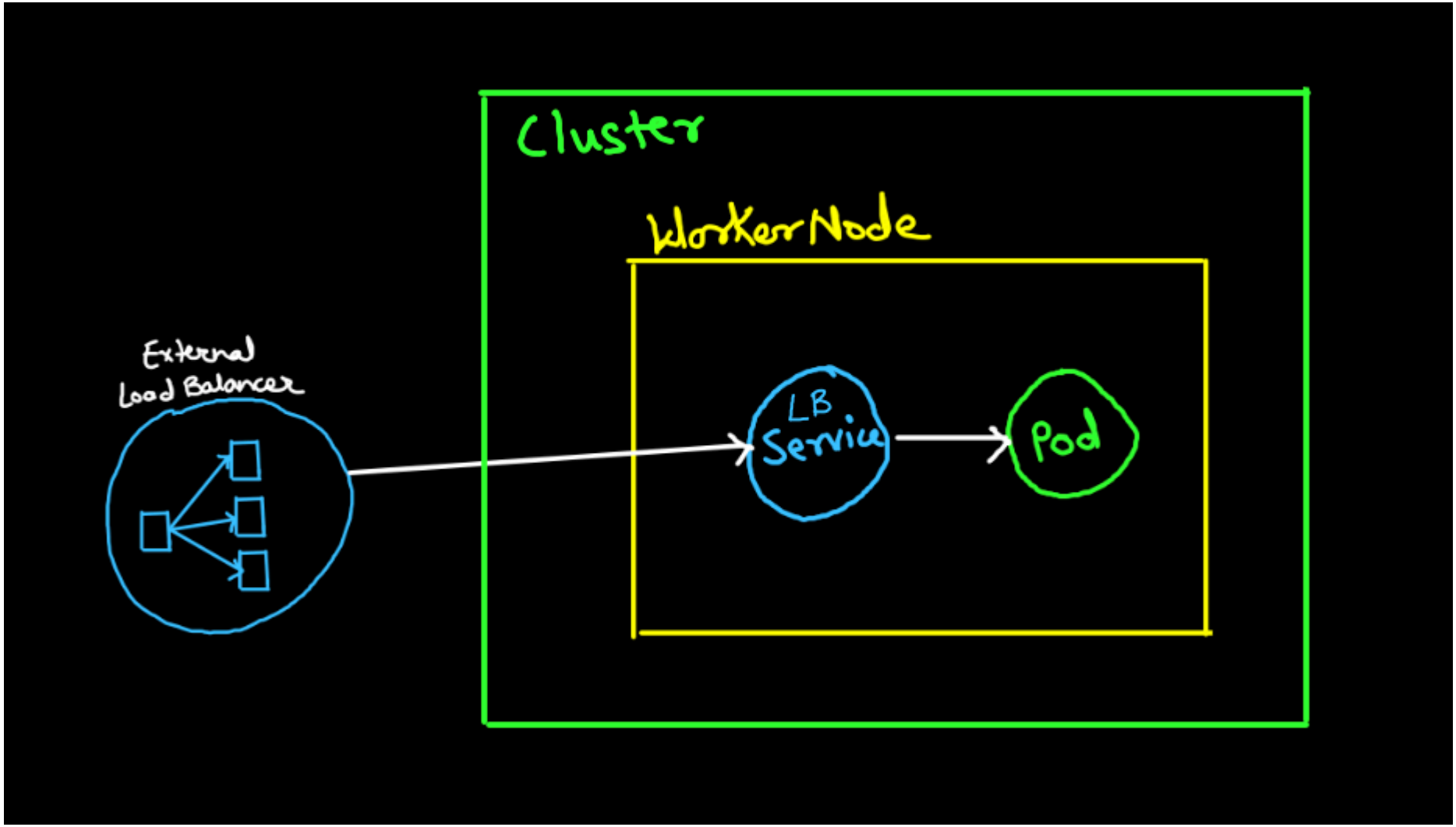
Nodeport allows you to expose a port for virtual machines running pods that service is managing.

```
port: 80
targetPort: 8080
```


External Traffic
Worker Node
:80
:3000
Pod
:8080
Traffic
Service
Node Port
:3000
Pod
:8080
Worker Node

Loadbalancer:

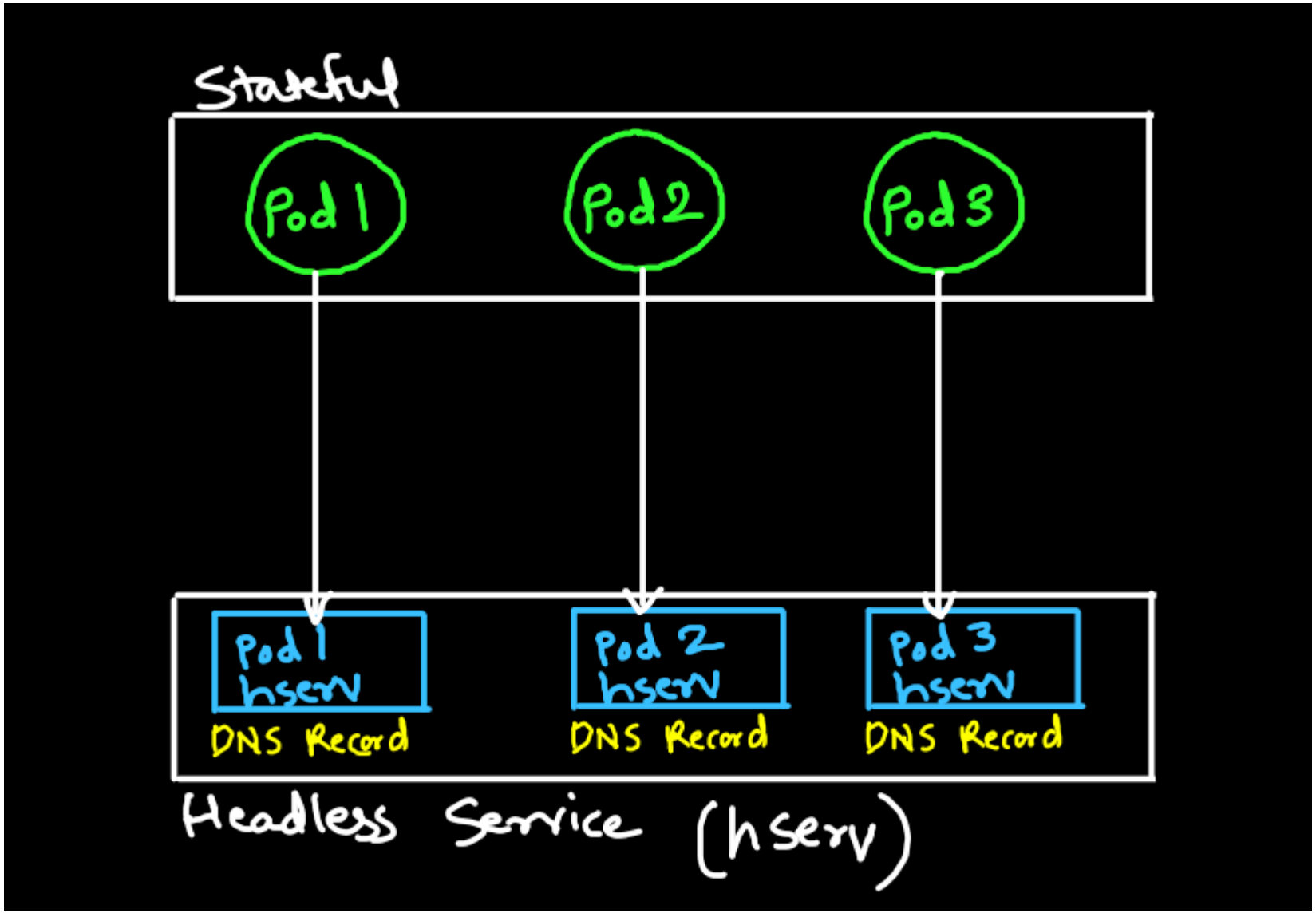
- A loadbalancer service type allows you to use an external load balancer
- Usually managed by third party
- It is well suited for production workloads. Generally to use K8s ingress



Headless:

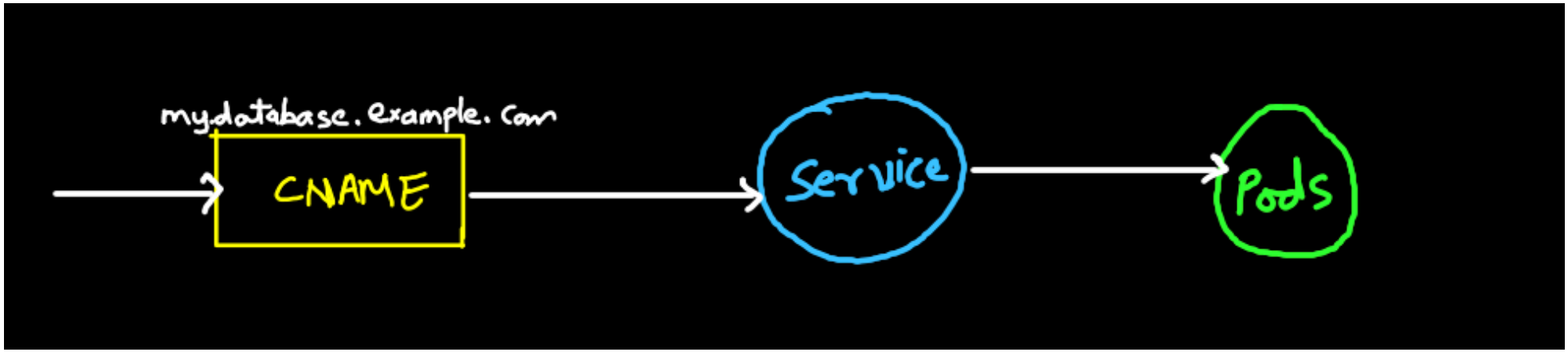
- It is a service with no ClusterIP address

- Does not provide load balancing or proxying



ExternalName:

ExternalName services as the same as ClusterIP service with exception instead of returning staticIP it returns a CNAME records



Kubectl expose command:

```
kubectl expose deployment my-app
--type=NodePort\
--name=my-svc\
--port=80\
--targetport=8080\
--nodeport=3000
```

Busybox:

- BusyBox combines tiny versions of many common UNIX utilities into single small executable

- Can be used to interactively debug services.