Container Networking Interface (CNI)
IN KUBERNETES

Pre-Requisites

- ✓ Network Namespaces in Linux
- ✓ Networking in Docker
- ✓ Why and what is Container Network Interface (CNI)?
- ✓ CNI Plugins

CONTAINER NETWORK INTERFACE

- ✓ Container Runtime must create network namespace
- ✓ Identify network the container must attach to
- ✓ Container Runtime to invoke Network Plugin (bridge) when container is ADDed.
- ✓ Container Runtime to invoke Network Plugin (bridge) when container is DELeted.
- ✓ JSON format of the Network Configuration

Configuring CNI

kubelet.service

```
ExecStart=/usr/local/bin/kubelet \\
   --config=/var/lib/kubelet/kubelet-config.yaml \\
   --container-runtime=remote \\
   --container-runtime-endpoint=unix:///var/run/containerd/containerd.sock \\
   --image-pull-progress-deadline=2m \\
   --kubeconfig=/var/lib/kubelet/kubeconfig \\
   --network-plugin=cni \\
   --cni-bin-dir=/opt/cni/bin \\
   --cni-conf-dir=/etc/cni/net.d \\
   --register-node=true \\
   --v=2
```

View kubelet options

```
ps -aux | grep kubelet
```

```
root      2095  1.8  2.4 960676 98788 ?         Ssl  02:32   0:36 /usr/bin/kubelet --bootstrap-
kubeconfig=/etc/kubernetes/bootstrap-kubelet.conf --kubeconfig=/etc/kubernetes/kubelet.conf --
config=/var/lib/kubelet/config.yaml --cgroup-driver=cgroupfs --cni-bin-dir=/opt/cni/bin --cni-
conf-dir=/etc/cni/net.d --network-plugin=cni
```

```
ls /opt/cni/bin
```

```
bridge  dhcp  flannel  host-local  ipvlan  loopback  macvlan  portmap  ptp  sample  tuning
vlan  weave-ipam  weave-net  weave-plugin-2.2.1
```

```
ls /etc/cni/net.d
```

```
10-bridge.conf
```

View kubelet options

```
ls /etc/cni/net.d
```

```
10-bridge.conf
```

```
cat /etc/cni/net.d/10-bridge.conf
```

```
{
   "cniVersion": "0.2.0",
   "name": "mynet",
   "type": "bridge",
   "bridge": "cni0",
   "isGateway": true,
   "ipMasq": true,
   "ipam": {
      "type": "host-local",
      "subnet": "10.22.0.0/16",
      "routes": [
         { "dst": "0.0.0.0/0" }
      ]
   }
}
```