Medium

1. what is namespace in networking with linux

• Create two Namespaces and connect them using veth (vm)

# Create two network namespaces

sudo ip netns add mynamespace-1

sudo ip netns add mynamespace-2

# Create a veth virtual-interface pair

sudo ip link add myns-1-eth0 type veth peer name myns-2-eth0

# Assign the interfaces to the namespaces

sudo ip link set myns-1-eth0 netns mynamespace-1

sudo ip link set myns-2-eth0 netns mynamespace-2

# Change the names of the interfaces (prefer to use standard interface names)

sudo ip netns exec mynamespace-1 ip link set myns-1-eth0 name eth0

sudo ip netns exec mynamespace-2 ip link set myns-2-eth0 name eth0

# Assign an address to each interface

sudo ip netns exec mynamespace-1 ip addr add 192.168.1.1/24 dev eth0

sudo ip netns exec mynamespace-2 ip addr add 192.168.2.1/24 dev eth0

# Bring up the interfaces (the veth interfaces and the loopback interfaces)

sudo ip netns exec mynamespace-1 ip link set lo up

sudo ip netns exec mynamespace-1 ip link set eth0 up

sudo ip netns exec mynamespace-2 ip link set lo up

sudo ip netns exec mynamespace-2 ip link set eth0 up

# Configure routes

sudo ip netns exec mynamespace-1 ip route add default via 192.168.1.1 dev eth0

sudo ip netns exec mynamespace-2 ip route add default via 192.168.2.1 dev eth0

# Test the connection (in both directions)

sudo ip netns exec mynamespace-1 ping -c 1 192.168.2.1

sudo ip netns exec mynamespace-2 ping -c 1 192.168.1.1

# Create two network namespaces

sudo ip netns add mynamespace-1

sudo ip netns add mynamespace-2

• Create two Namespaces and connect them using Linux bridge

# Create a veth virtual-interface pair

sudo ip link add myns-1-eth0 type veth peer name myns-2-eth0

# Assign the interfaces to the namespaces

sudo ip link set myns-1-eth0 netns mynamespace-1

sudo ip link set myns-2-eth0 netns mynamespace-2

# Change the names of the interfaces (prefer to use standard interface names)

sudo ip netns exec mynamespace-1 ip link set myns-1-eth0 name eth0

sudo ip netns exec mynamespace-2 ip link set myns-2-eth0 name eth0

# Create a Linux bridge

sudo ip link add name mybridge type bridge

# Connect one end of the veth pair to the bridge

sudo ip link set dev myns-1-eth0 master mybridge

# Assign an address to each interface

sudo ip netns exec mynamespace-1 ip addr add 192.168.1.1/24 dev eth0

sudo ip netns exec mynamespace-2 ip addr add 192.168.2.1/24 dev eth0

# Bring up the interfaces (the veth interfaces and the loopback interfaces)

sudo ip netns exec mynamespace-1 ip link set lo up

sudo ip netns exec mynamespace-1 ip link set eth0 up

sudo ip netns exec mynamespace-2 ip link set lo up

sudo ip netns exec mynamespace-2 ip link set eth0 up

# Bring up the bridge interface

sudo ip link set dev mybridge up

# Configure routes

sudo ip netns exec mynamespace-1 ip route add default via 192.168.1.1 dev eth0

sudo ip netns exec mynamespace-2 ip route add default via 192.168.2.1 dev eth0

# Test the connection (in both directions)

sudo ip netns exec mynamespace-1 ping -c 1 192.168.2.1

sudo ip netns exec mynamespace-2 ping -c 1 192.168.1.1