**Network Namespace**

A **network namespace** is a logical copy of the **network** stack from the host system. **Network namespaces** are useful for setting up containers or virtual environments. Each **namespace** has its own IP addresses, **network** interfaces, routing tables, and so forth.

Commands :

**Creating and Listing Network Namespaces**

* Ip netns add blue // add namespace with name blue
* Ip netns // print name of all network namespace
* Ip link //
* Ip link list // to check veth pair, namespace was created or not
* Ip netns exec blue ip link ip -n blue link both are same basically

netns exec blue ip == -n blue

## Assigning Interfaces to Network Namespaces

* Ip link add veth0 type veth peer name veth1 // create 2 virtual ethernet veth0 and veth1 and connect them using veth peer. These veth interfaces belong to global namespace.
* Ip link show veth1 // check veth1 is created or not
* Ip netns exec, is how you execute commands in a different network namespace.
* Ip link set veth1 netns blue // connect veth1 interface with blue

## Configuring Interfaces in Network Namespaces

* Ip -n <namespace> <command to run against that namespace>
* Ip -n blue addr add 10.1.1.0/24 dev veth1 // ip addr is to assign an IP address range to the veth1
* Ip -n blue link set veth1 up // ip link bring that interface up
* Ip -n blue link set lo up // bring up the lo interface because packets destined for that IP (like ping) goes through “local” route table,, not necessary to add this command…..blue will ping blue if we use this line also this command is only for sanity check to verify that blue will ping blue without packet loss.
* Ip addr list // display global namespace and not assign IP related interfaces and addresses
* Ip -n blue addr list // display only assign IP related interfaces and addresses
* Ip route list // in each namespace will show different routing table entries
* Ip -n blue route add 10.1.2.0/24 dev veth0 // update the blue route table by adding a route to 10.1.2.0/24 ie, veth0 and blue connected and 10.1.2.0 is the IP of another namespace from where it is ping
* Ip -n blue route add defult via 10.1.1.0 // use IP of blue connected ethernet and this is used when multiple network ping blue
* Ip netns exec blue ping -c10 10.1.2.0 // blue ping IP of another namespace
* Ip -all netns delete // delete all the network namespace

## Configuring Ethernet Bridge using brctl command line tool

* Bridge\_name say br
* Brctl addbr br // for declaring in the global namespace
* Brctl addif br veth0 // connect bridge with veth0
* Ip link set dev br up // set the bridge up
* To delete a bridge first set it down then delete
* Ip link set dev br down
* Brctl delbr br
* Ip netns exec R brctl addbr br // create separate namespace for bridge wth name R
* Ip netns exec R brctl addif br veth0 // connect bridge with veth0
* Brctl show // show current bridges and interfaces they are connected
* Ip -n R link set br up // set the bridge up
* Sysctl -w net.ipv4.ip\_forward=1 // set the ip\_forward true using sysctl command
* Next Assignment :
* Ip route show
* Route -n