

Linux Network Creation Lab Plan

Step 3:

The screenshot shows a Linux desktop environment with a terminal window and a file manager window.

Terminal Window (Bharath@Ubuntu1:~)

```
Bharath@Ubuntu1:~$ sudo ip netns add hostA
Bharath@Ubuntu1:~$ sudo ip netns add hostB
Bharath@Ubuntu1:~$ sudo ip netns exec hostA ip link set lo up
Bharath@Ubuntu1:~$ sudo ip netns exec hostB ip link set lo up
Bharath@Ubuntu1:~$ ip netns list
hostB
hostA
Bharath@Ubuntu1:~$ sudo ip netns exec hostA ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
Bharath@Ubuntu1:~$ sudo ip netns exec hostB ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
Bharath@Ubuntu1:~$
```

File Manager Window

The file manager window displays several files and folders:

- check_ip.sh
- file3.sh
- ssh_monitor_log.txt
- segregated_log.csv
- ssh_port_status.log
- print_salary.awk
- check_ssh.sh
- text3.txt
- log.txt
- text2.txt

Step 4 :

The screenshot shows a Linux desktop environment with a dark theme. A terminal window titled "Bharath@Ubuntu1:~" is open, displaying the following command-line session:

```
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
inet6 ::1/128 scope host
    valid_lft forever preferred_lft forever
Bharath@Ubuntu1:~$ sudo ip link add vethA type veth peer name vethB
Bharath@Ubuntu1:~$ sudo ip link set vethA netns hostA
Bharath@Ubuntu1:~$ sudo ip link set vethB netns hostB
Bharath@Ubuntu1:~$ sudo ip netns exec hostA ip addr add 10.0.0.1/24 dev vethA
Bharath@Ubuntu1:~$ sudo ip netns exec hostB ip addr add 10.0.0.2/24 dev vethB
Bharath@Ubuntu1:~$ sudo ip netns exec hostA ip link set vethA up
Bharath@Ubuntu1:~$ sudo ip netns exec hostB ip link set vethB up
Bharath@Ubuntu1:~$ sudo ip netns exec hostA ping -c 3 10.0.0.2
PING 10.0.0.2 (10.0.0.2) 56(84) bytes of data.
64 bytes from 10.0.0.2: icmp_seq=1 ttl=64 time=0.065 ms
64 bytes from 10.0.0.2: icmp_seq=2 ttl=64 time=0.071 ms
64 bytes from 10.0.0.2: icmp_seq=3 ttl=64 time=0.543 ms
--- 10.0.0.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2063ms
rtt min/avg/max/mdev = 0.065/0.226/0.543/0.223 ms
Bharath@Ubuntu1:~$
```

The desktop environment includes a file manager window showing several files and folders:

- check_ip.sh
- file3.sh
- ssh_monitor_log.txt
- segregated_log.csv
- ssh_port_status.log
- print_salary.awk
- check_ssh.sh
- text3.txt
- log.txt
- text2.txt

The bottom of the screen shows a dock with various icons.

Step 5: ping host A to host B

Ping host B to host A

The screenshot shows a terminal window titled "Bharath@Ubuntu1:~". The terminal displays the following command and its output:

```
net.ipv4.ip_forward = 1
Bharath@Ubuntu1:~$ sudo ip netns exec hostA ip route add 10.0.2.0/24 via 10.0.1.1
Bharath@Ubuntu1:~$ sudo ip netns exec hostB ip route add 10.0.1.0/24 via 10.0.2.1
Bharath@Ubuntu1:~$ sudo ip netns exec hostA ping -c 3 10.0.2.2
PING 10.0.2.2 (10.0.2.2) 56(84) bytes of data.
64 bytes from 10.0.2.2: icmp_seq=1 ttl=63 time=3.72 ms
64 bytes from 10.0.2.2: icmp_seq=2 ttl=63 time=0.064 ms
64 bytes from 10.0.2.2: icmp_seq=3 ttl=63 time=0.107 ms
--- 10.0.2.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 3163ms
rtt min/avg/max/mdev = 0.064/1.297/3.722/1.714 ms
Bharath@Ubuntu1:~$ sudo ip netns exec hostB ping -c 3 10.0.1.2
PING 10.0.1.2 (10.0.1.2) 56(84) bytes of data.
64 bytes from 10.0.1.2: icmp_seq=1 ttl=63 time=0.272 ms
64 bytes from 10.0.1.2: icmp_seq=2 ttl=63 time=0.080 ms
64 bytes from 10.0.1.2: icmp_seq=3 ttl=63 time=0.194 ms
--- 10.0.1.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2077ms
rtt min/avg/max/mdev = 0.080/0.182/0.272/0.078 ms
```

The terminal window has a dark theme and includes a navigation bar at the top with tabs for File, Machine, View, Input, Devices, and Help. The date and time (Dec 17 04:54) are displayed at the top right. The desktop environment shows several icons for files like "check_ip.sh", "file3.sh", "ssh_monitor_log.txt", "segregated_log.csv", "ssh_port_status.log", "print_salary.awk", "check_ssh.sh", "text3.txt", "log.txt", and "text2.txt".

Step 6.2:

Ubuntu 18.04 LTS (Snapshots) [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

```
Dec 17 06:04 Bharath@Ubuntu:~
```

```
ping: connect: Network is unreachable
Bharath@Ubuntu: $ sudo ip netns exec hostA ip route add 10.0.2.0/24 via 10.0.1.1
Bharath@Ubuntu: $ sudo ip netns exec hostA ping -c 3 10.0.2.2
PING 10.0.2.2 (10.0.2.2) 56(84) bytes of data.
64 bytes from 10.0.2.2: icmp_seq=1 ttl=63 time=0.055 ms
64 bytes from 10.0.2.2: icmp_seq=2 ttl=63 time=0.083 ms
64 bytes from 10.0.2.2: icmp_seq=3 ttl=63 time=0.072 ms

? --- 10.0.2.2 ping statistics ---
3 packets transmitted, 0 received, 100% packet loss, time 2074ms
rtt min/avg/max/mdev = 0.055/0.170/0.372/0.143 ms
Bharath@Ubuntu: $ sudo ip netns exec routerB ip link set vethBR down
Bharath@Ubuntu: $ sudo ip netns exec hostA ping -c 3 10.0.2.2
PING 10.0.2.2 (10.0.2.2) 56(84) bytes of data.
From 10.0.1.1 icmp_seq=1 Destination Net Unreachable
From 10.0.1.1 icmp_seq=2 Destination Net Unreachable
From 10.0.1.1 icmp_seq=3 Destination Net Unreachable

--- 10.0.2.2 ping statistics ---
3 packets transmitted, 0 received, +3 errors, 100% packet loss, time 2084ms

Bharath@Ubuntu: $ sudo ip netns exec router ip link set vethBR up
Bharath@Ubuntu: $ sudo ip netns exec hostA ping -c 3 10.0.2.2
PING 10.0.2.2 (10.0.2.2) 56(84) bytes of data.
64 bytes from 10.0.2.2: icmp_seq=1 ttl=63 time=0.084 ms
64 bytes from 10.0.2.2: icmp_seq=2 ttl=63 time=0.059 ms
64 bytes from 10.0.2.2: icmp_seq=3 ttl=63 time=0.052 ms

--- 10.0.2.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2063ms
rtt min/avg/max/mdev = 0.052/0.065/0.084/0.013 ms
Bharath@Ubuntu: $
```

6.3

Ubuntu1 (Snapshot 2) [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Dec 17 06:10

Bharath@Ubuntu1:~

```
Bharath@Ubuntu1: ~$ sudo ip netns exec router ip link set vethBR up
Bharath@Ubuntu1: ~$ sudo ip netns exec hostA ping -c 3 10.0.2.2
PING 10.0.2.2 (10.0.2.2) 56(84) bytes of data.
64 bytes from 10.0.2.2: icmp_seq=1 ttl=63 time=0.084 ms
64 bytes from 10.0.2.2: icmp_seq=2 ttl=63 time=0.059 ms
64 bytes from 10.0.2.2: icmp_seq=3 ttl=63 time=0.052 ms

--- 10.0.2.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2063ms
rtt min/avg/max/mdev = 0.052/0.065/0.084/0.013 ms
Bharath@Ubuntu1: ~$ sudo ip netns exec router tcpdump -i vethBR -n
tcpdump: verbose output suppressed, use -v(v)... for full protocol decode
listening on vethBR, link-type EN10MB (Ethernet), Snapshot length 262144 bytes
^C06:06:13.682819 IP6 fe80::8c40:4bff:fe:ff:0d9 > ff02::2: ICMP6, router solicitation, length 16
06:06:36.973409 IP 10.0.1.2 > 10.0.2.2: ICMP echo request, id 8136, seq 1, length 64
06:06:36.973409 IP 10.0.1.2 > 10.0.2.2: ICMP echo reply, id 8136, seq 1, length 64
06:06:37.286694 IP 10.0.1.2 > 10.0.2.2: ICMP echo request, id 8136, seq 2, length 64
06:06:37.286713 IP 10.0.2.2 > 10.0.1.2: ICMP echo reply, id 8136, seq 2, length 64
06:06:39.411143 IP 10.0.1.2 > 10.0.2.2: ICMP echo request, id 8136, seq 3, length 64
06:06:39.411162 IP 10.0.2.2 > 10.0.1.2: ICMP echo reply, id 8136, seq 3, length 64
06:06:42.277028 ARP, Request who-has 10.0.2.2 tell 10.0.2.1, length 28
06:06:42.277126 ARP, Request who-has 10.0.2.1 tell 10.0.2.2, length 28
06:06:42.277131 ARP, Reply 10.0.2.1 is-at 8e:40:4b:f3:80:d9, length 28
06:06:42.277145 ARP, Reply 10.0.2.2 is-at b6:62:db:aec:6d, length 28
06:08:24.682813 IP6 fe80::8c40:4bff:f3:80d9 > ff02::2: ICMP6, router solicitation, length 16

12 packets captured
12 packets received by filter
0 packets dropped by kernel
Bharath@Ubuntu1: ~
```

Search

ENG IN

11:40 17-12-2025

6.3

Ubuntu1 (Snapshot 2) [Running] - Oracle VirtualBox

File Machine View Input Devices Help

```
Dec 17 06:07
Bharath@Ubuntu1:~
```

thBR down
Bharath@Ubuntu1:~ \$ sudo ip netns exec hostA ping -c 3 10.0.2.2
[sudo] password for Bharathi:
PING 10.0.2.2 (10.0.2.2) 56(84) bytes of data.
From 10.0.1.1 icmp_seq=1 ttl=63 time=0.059 ms
From 10.0.1.1 icmp_seq=2 ttl=63 time=0.064 ms
From 10.0.1.1 icmp_seq=3 ttl=63 time=0.060 ms
... 10.0.2.2 ping statistics ...
3 packets transmitted, 3 received, 0% packet loss, time 2038ms
rtt min/avg/max/mdev = 0.059/0.061/0.064/0.002 ms
Bharath@Ubuntu1:~ \$
thBR up
Bharath@Ubuntu1:~ \$
2.2
PING 10.0.2.2 (10.0.2.2) 56(84) bytes of data.
64 bytes from 10.0.2.2.
64 bytes from 10.0.2.2.
64 bytes from 10.0.2.2.
... 10.0.2.2 ping :
3 packets transmitted
3ms
rtt min/avg/max/mdev = 0.052/0.053/0.054/0.013 ms
Bharath@Ubuntu1:~ \$ sudo ip netns exec router tcpdump -i vethhBR -n
tcpdump: verbose output suppressed, use -v[v]... for full p
rotocol decode
listening on vethhBR, link-type EN10MB (Ethernet), snapshot
length 262144 bytes

Message ChatGPT

Attach | Search | Study | Create image | Voice

ChatGPT can make mistakes. Check important info. See [Cookie Preferences](#).

File Machine View Input Devices Help

Dec 17 06:07

Bharath@Ubuntu1:~

12 packets captured
12 packets received by filter
0 packets dropped by kernel
Bharath@Ubuntu1:~ \$ sudo ip netns exec router sysctl -w net.ipv4.ip_forward=0
net.ipv4.ip_forward = 0
Bharath@Ubuntu1:~ \$ sudo ip netns exec hostA ping -c 3 10.0.2.2
PING 10.0.2.2 (10.0.2.2) 56(84) bytes of data.
... 10.0.2.2 ping statistics ...
3 packets transmitted, 0 received, 100% packet loss, time 2068ms
Bharath@Ubuntu1:~ \$ sudo ip netns exec hostA ping -c 3 10.0.1.1
PING 10.0.1.1 (10.0.1.1) 56(84) bytes of data.
64 bytes from 10.0.1.1: icmp_seq=1 ttl=64 time=0.137 ms
64 bytes from 10.0.1.1: icmp_seq=2 ttl=64 time=0.056 ms
64 bytes from 10.0.1.1: icmp_seq=3 ttl=64 time=0.097 ms
... 10.0.1.1 ping statistics ...
3 packets transmitted, 3 received, 0% packet loss, time 2038ms
rtt min/avg/max/mdev = 0.056/0.096/0.137/0.033 ms
Bharath@Ubuntu1:~ \$ sudo ip netns exec hostA ping -c 3 10.0.1.1
PING 10.0.1.1 (10.0.1.1) 56(84) bytes of data.
64 bytes from 10.0.1.1: icmp_seq=1 ttl=64 time=0.038 ms
64 bytes from 10.0.1.1: icmp_seq=2 ttl=64 time=0.066 ms
64 bytes from 10.0.1.1: icmp_seq=3 ttl=64 time=0.067 ms
... 10.0.1.1 ping statistics ...
3 packets transmitted, 3 received, 0% packet loss, time 2064ms
rtt min/avg/max/mdev = 0.038/0.057/0.067/0.013 ms
Bharath@Ubuntu1:~ \$ sudo ip netns exec router sysctl -w net.ipv4.ip_forward=1
net.ipv4.ip_forward = 1
Bharath@Ubuntu1:~ \$

File Machine View Input Devices Help

Dec 17 06:07

6.4

Ubuntu1 (Snapshot 2) [Running] - Oracle VirtualBox

File Machine View Input Devices Help

```
Dec 17 06:13
Bharath@Ubuntu1:~
```

12 packets captured
12 packets received by filter
0 packets dropped by kernel
Bharath@Ubuntu1:~ \$ sudo ip netns exec router sysctl -w net.ipv4.ip_forward=0
net.ipv4.ip_forward = 0
Bharath@Ubuntu1:~ \$ sudo ip netns exec hostA ping -c 3 10.0.2.2
PING 10.0.2.2 (10.0.2.2) 56(84) bytes of data.
... 10.0.2.2 ping statistics ...
3 packets transmitted, 0 received, 100% packet loss, time 2068ms
Bharath@Ubuntu1:~ \$ sudo ip netns exec hostA ping -c 3 10.0.1.1
PING 10.0.1.1 (10.0.1.1) 56(84) bytes of data.
64 bytes from 10.0.1.1: icmp_seq=1 ttl=64 time=0.137 ms
64 bytes from 10.0.1.1: icmp_seq=2 ttl=64 time=0.056 ms
64 bytes from 10.0.1.1: icmp_seq=3 ttl=64 time=0.097 ms
... 10.0.1.1 ping statistics ...
3 packets transmitted, 3 received, 0% packet loss, time 2038ms
rtt min/avg/max/mdev = 0.056/0.096/0.137/0.033 ms
Bharath@Ubuntu1:~ \$ sudo ip netns exec hostA ping -c 3 10.0.1.1
PING 10.0.1.1 (10.0.1.1) 56(84) bytes of data.
64 bytes from 10.0.1.1: icmp_seq=1 ttl=64 time=0.038 ms
64 bytes from 10.0.1.1: icmp_seq=2 ttl=64 time=0.066 ms
64 bytes from 10.0.1.1: icmp_seq=3 ttl=64 time=0.067 ms
... 10.0.1.1 ping statistics ...
3 packets transmitted, 3 received, 0% packet loss, time 2064ms
rtt min/avg/max/mdev = 0.038/0.057/0.067/0.013 ms
Bharath@Ubuntu1:~ \$ sudo ip netns exec router sysctl -w net.ipv4.ip_forward=1
net.ipv4.ip_forward = 1
Bharath@Ubuntu1:~ \$

File Machine View Input Devices Help

Dec 17 06:13