Lab-6

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**Task 1**

Output:

Below is the screenshot of proving the communication between host U and the router exists.

Text, letter

Description automatically generated

Below is the proof that the router can communicate to host V.

Text, letter

Description automatically generated

Below is the proof that host U cannot communicate with host V

Text

Description automatically generated’

Below is the screenshot of tcpdump on the router on eth0 when capturing packets from host U.

A picture containing diagram

Description automatically generated

Below is the screenshot of tcpdump on the router on eth1 while capturing packets from host V

Text

Description automatically generated with medium confidence

**Task 2**

**Task 2.a**

Running the python program on host U to turn on the tunnel.

Graphical user interface, text

Description automatically generated with medium confidence]

We can see in the interface section, ivaturi0.

Text

Description automatically generated

**Task 2.b**

We see in the below screenshot that an IP address is added to the tunnel and it is usable now, whereas it was not useable earlier.

Text

Description automatically generated

**Task 2.c**

Text

Description automatically generated

We can see above that the code has been changed as guided.

Now, we will try to read IP packets from the TUN interface.

Running the revised program.

Graphical user interface, text

Description automatically generated with medium confidence

Now, pinging an IP from the given domain to test the connection.

Graphical user interface, text

Description automatically generated

Output on the tunnel

Text

Description automatically generated

Now let’s test the second scenario.

Text

Description automatically generated

Text

Description automatically generated with medium confidence

We cannot see the packets on the tunnel as the packets didn’t pass through the tunnel.

We could setup a router to redirect the traffic into the tunnel and then read all the packets.

**Task 2.d**

Text

Description automatically generated

Text

Description automatically generated

Running the above code in host U

A picture containing text, orange

Description automatically generated

Pinging the given IP from host U from another terminal

Text, letter

Description automatically generated

Output in the terminal that was running the program

Text

Description automatically generated

Now, verifying the second case where we transmit some random string into the tunnel.

Changed code snippet is given below

Text

Description automatically generated

We can see in the below screenshot that no packet is received. Text

Description automatically generated

**Task 3**

Code:

Tun\_server.py

Text, letter

Description automatically generated

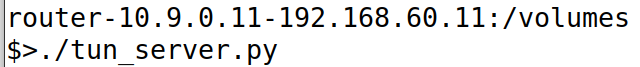
Tun\_client.py

Graphical user interface, text, application, email

Description automatically generated

Output:

Running the server program on the router.



Running the client program on host U

Text

Description automatically generated

Pinging an external IP from host U

A screenshot of a computer

Description automatically generated with medium confidence

Output on the router side

Text

Description automatically generated

The server has received the packets from the client, so the tunnel is working.

Now setup a routing entry to route traffic to ping the external machines via the interface.

Text

Description automatically generated

The last entry added in the above screenshot is for the current purpose.

Now, running the client program on host U and pinging the external host V

Text, letter

Description automatically generated

Output on the server side

Text

Description automatically generated

So, the tunnel is successful.

**Task 4**

For this activity, we will execute the existing client and server code on host U and router machine respectively.

Text

Description automatically generated\

Text, letter

Description automatically generated

Now pinging the router from host U

Text, letter

Description automatically generated

Output on the server’s side

Text

Description automatically generated