

Otto-Friedrich-University of Bamberg

Professorship for Computer Science,
Communication Services, Telecommunication
Systems and Computer Networks



Foundation of Internet Communication

Assignment 4 NATting, Firewalls, and Virtual Private Networks

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Contents

1	Network Address Translation (NAT) and Firewalls	1
1.1	Network Address Translation (NAT)	1
1.2	Firewall	2
2	Virtual Private Network (VPN)	4
2.1	Softether Server and Client	4
2.2	Softether Cascade Connections	4

List of Figures

1	Configuration of r2	1
2	remove route from collision domain D	1
3	remove route from collision domain D	1
4	web sheldon not pingable but curl gik de is working	2
5	Capture packet with wireshark	2
6	Drop packets	2
7	Allow traffic	2
8	Forward Packets	3
9	accept connections on tcp port 80	3
10	ping fails, but curl gik displays the website content	3
11	VPN command error	4


```
tuhing@tuhin: /root/.ssh/keys/keys/101/101b-conf10/101b-conf10$ kathara connect pc2
/ # vi /etc/resolv.conf
/ # ping web_sheldon
ping: bad address 'web_sheldon'
/ # curl gik.de
curl: (6) Could not resolve host: gik.de
/ # vi /etc/resolv.conf
/ # ping web_sheldon
ping: bad address 'web_sheldon'
/ # curl gik.de
I'm web_sheldon
/ #
```

Figure 4: web sheldon not pingable but curl gik de is working

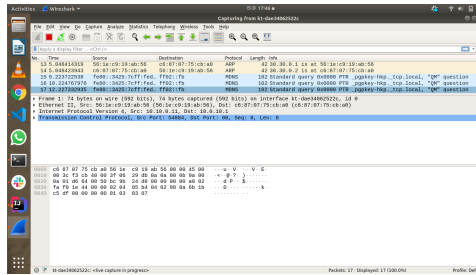


Figure 5: Capture packet with wireshark

1.2 Firewall

1. Create a default filter policy to drop all packets

```
kathara connect pc2
File Edit View Search Terminal Help
r3 [/] iptables -A INPUT -j DROP
r3 [/] iptables -A OUTPUT -j DROP
r3 [/] iptables -A FORWARD -j DROP
```

Figure 6: Drop packets

2. than allow unlimited traffic on the loopback interface lo again

```
kathara connect r3
File Edit View Search Terminal Help
r3 [/] lab_config.n startup kathara connect r3
r3 [/] iptables -I INPUT 1 -i lo -j ACCEPT
r3 [/] iptables -I OUTPUT 1 -o lo -j ACCEPT
r3 [/] ping 127.0.0.1
PING 127.0.0.1 (127.0.0.1): 56 data bytes
64 bytes from 127.0.0.1: seq=0 ttl=64 time=0.132 ms
64 bytes from 127.0.0.1: seq=1 ttl=64 time=0.109 ms
64 bytes from 127.0.0.1: seq=2 ttl=64 time=0.114 ms
64 bytes from 127.0.0.1: seq=3 ttl=64 time=0.110 ms
64 bytes from 127.0.0.1: seq=4 ttl=64 time=0.110 ms
^C
--- 127.0.0.1 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 0.109/0.115/0.132 ms
r3 [/]
```

Figure 7: Allow traffic

3. Forward packets of the DNS network 2.0.0.0/8 without any restrictions

Allow all web servers in CD E to accept connections on tcp port 80

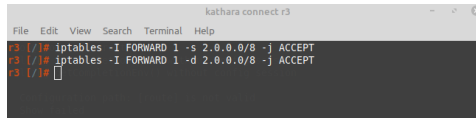


Figure 8: Forward Packets

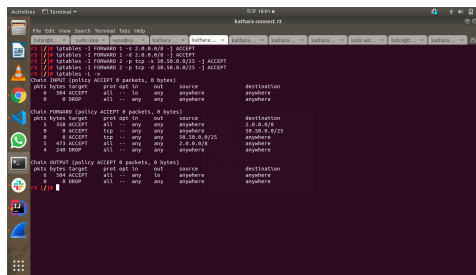


Figure 9: accept connections on tcp port 80

Ping gik org fails, but curl gik org displays the website content

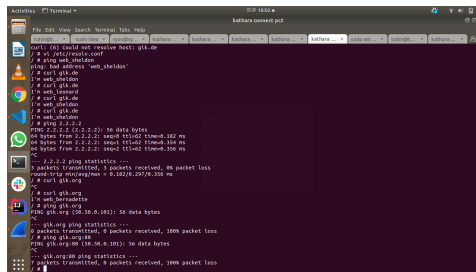


Figure 10: ping fails, but curl gik displays the website content

