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Time on Task:14 hours, 24 minutes

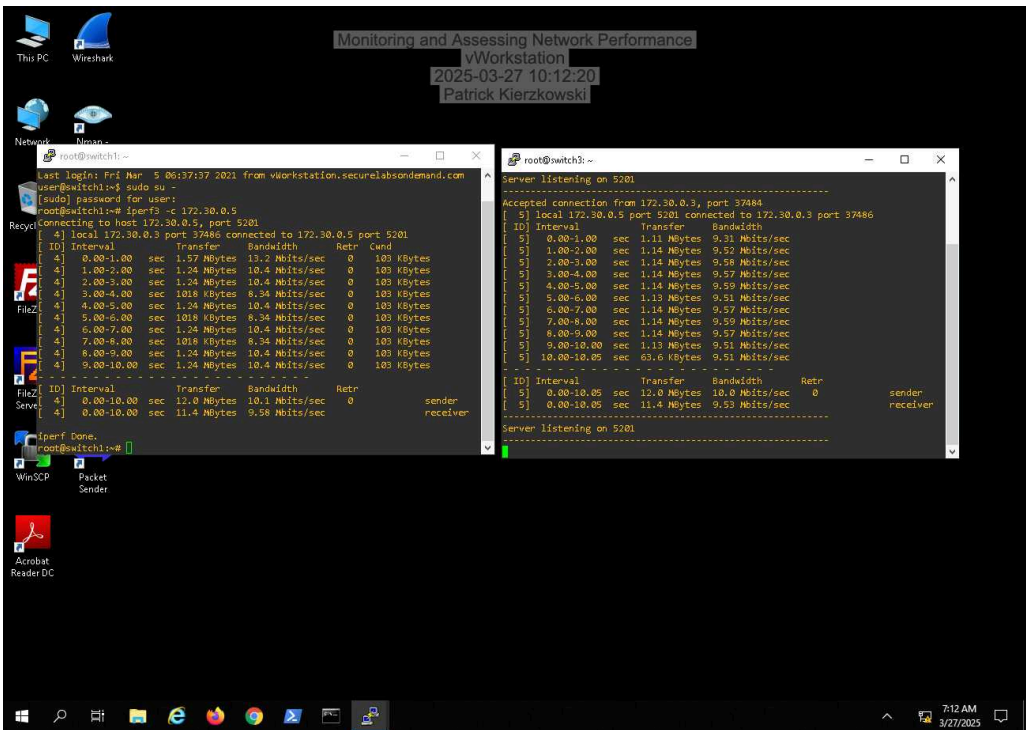
Progress:100%

Report Generated: Monday, July 7, 2025 at 9:46 PM

Section 1: Hands-On Demonstration

Part 1: Assess Network Performance with Active Monitoring Tools

9. Make a screen capture showing the iperf3 client output resulting from your Switch1 to Switch3 throughput test.



12. Make a screen capture showing the **iperf3** client output resulting from your Switch2 to Switch3 throughput test.

```
root@switch2:~# iperf3 -c 172.30.0.5
Connecting to host 172.30.0.5, port 5201
local 172.30.0.4 port 54786 connected to 172.30.0.5 port 5201
[ ID] Interval      Transfer    Bandwidth  Retr  Cwnd
[ 0] 0.00-1.00 sec  976 KBytes  7.99 Mbits/sec  0   70.7 KBytes
[ 1] 1.00-2.00 sec  573 KBytes  4.69 Mbits/sec  0   70.7 KBytes
[ 2] 2.00-3.00 sec  573 KBytes  4.69 Mbits/sec  0   70.7 KBytes
[ 3] 3.00-4.00 sec  573 KBytes  4.69 Mbits/sec  0   70.7 KBytes
[ 4] 4.00-5.00 sec  573 KBytes  4.69 Mbits/sec  0   70.7 KBytes
[ 5] 5.00-6.00 sec  573 KBytes  4.69 Mbits/sec  0   70.7 KBytes
[ 6] 6.00-7.00 sec  573 KBytes  4.69 Mbits/sec  0   70.7 KBytes
[ 7] 7.00-8.00 sec  573 KBytes  4.69 Mbits/sec  0   70.7 KBytes
[ 8] 8.00-9.00 sec  573 KBytes  4.69 Mbits/sec  0   70.7 KBytes
[ 9] 9.00-10.00 sec 573 KBytes  4.69 Mbits/sec  0   70.7 KBytes
[10] Interval      Transfer    Bandwidth  Retr  Cwnd
[ 0] 0.00-10.00 sec 5.99 MBytes  5.02 Mbits/sec  0
[ 1] 0.00-10.00 sec 5.71 MBytes  4.79 Mbits/sec

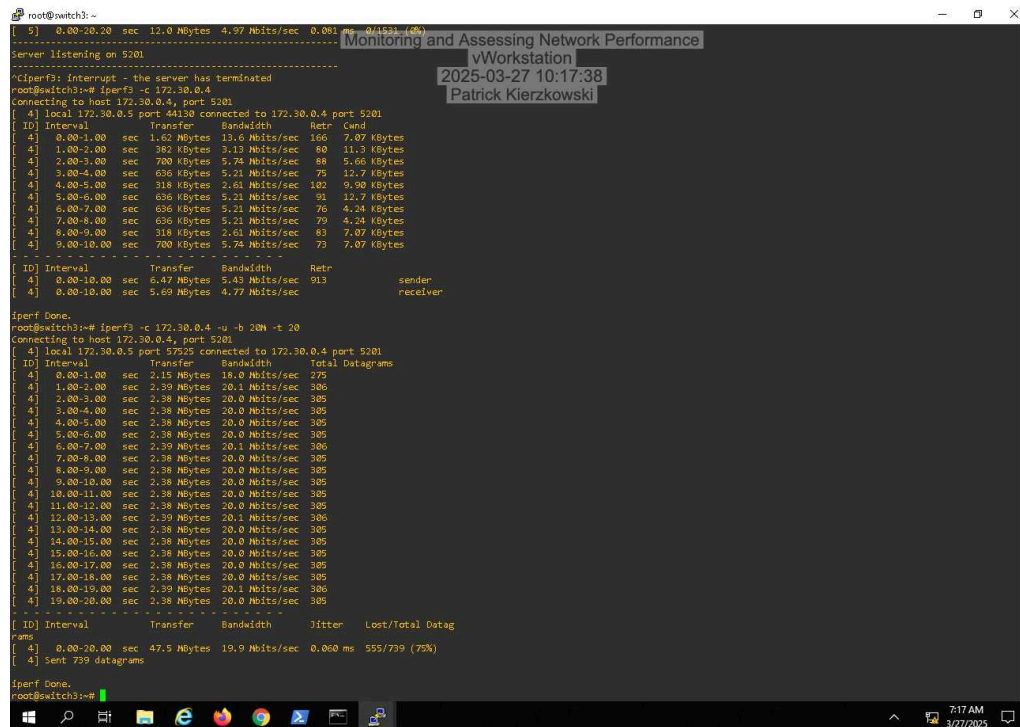
root@switch3:~# iperf3 -s
Server listening on 5201
Accepted connection from 172.30.0.4, port 54786
[ ID] Interval      Transfer    Bandwidth
[ 0] 0.00-1.00 sec  568 KBytes  4.66 Mbits/sec
[ 1] 1.00-2.00 sec  581 KBytes  4.76 Mbits/sec
[ 2] 2.00-3.00 sec  585 KBytes  4.80 Mbits/sec
[ 3] 3.00-4.00 sec  581 KBytes  4.76 Mbits/sec
[ 4] 4.00-5.00 sec  585 KBytes  4.80 Mbits/sec
[ 5] 5.00-6.00 sec  581 KBytes  4.76 Mbits/sec
[ 6] 6.00-7.00 sec  585 KBytes  4.80 Mbits/sec
[ 7] 7.00-8.00 sec  581 KBytes  4.76 Mbits/sec
[ 8] 8.00-9.00 sec  585 KBytes  4.80 Mbits/sec
[ 9] 9.00-10.00 sec 581 KBytes  4.76 Mbits/sec
[10] Interval      Transfer    Bandwidth
[ 0] 0.00-10.00 sec 5.80 MBytes  5.00 Mbits/sec
[ 1] 0.00-10.00 sec 5.71 MBytes  4.76 Mbits/sec
Server listening on 5201
```

14. Make a screen capture showing the **iperf3** client output resulting from your Switch2 to Switch3 UDP test.

```
root@switch2:~# iperf3 -c 172.30.0.5 -t 20 -P 1
local 172.30.0.4 port 55302 connected to 172.30.0.5 port 5201
[ ID] Interval      Transfer    Bandwidth  Total  Retransmits
[ 0] 0.00-1.00 sec  536 KBytes  4.39 Mbits/sec  21.478 ms  0/67 (0%)
[ 1] 1.00-2.00 sec  608 KBytes  4.98 Mbits/sec  22.165 ms  0/76 (0%)
[ 2] 2.00-3.00 sec  608 KBytes  4.98 Mbits/sec  22.369 ms  0/76 (0%)
[ 3] 3.00-4.00 sec  608 KBytes  4.98 Mbits/sec  22.400 ms  0/76 (0%)
[ 4] 4.00-5.00 sec  608 KBytes  4.98 Mbits/sec  22.709 ms  0/76 (0%)
[ 5] 5.00-6.00 sec  616 KBytes  5.05 Mbits/sec  22.219 ms  0/77 (0%)
[ 6] 6.00-7.00 sec  608 KBytes  4.98 Mbits/sec  22.392 ms  0/76 (0%)
[ 7] 7.00-8.00 sec  608 KBytes  4.98 Mbits/sec  22.677 ms  0/76 (0%)
[ 8] 8.00-9.00 sec  616 KBytes  5.05 Mbits/sec  22.700 ms  0/76 (0%)
[ 9] 9.00-10.00 sec 616 KBytes  5.05 Mbits/sec  22.371 ms  0/77 (0%)
[10] Interval      Transfer    Bandwidth  Total  Retransmits
[ 0] 0.00-10.00 sec 11.9 MBytes  4.98 Mbits/sec  20.739 ms  0/1519 (0%)
[ 1] Sent 1519 datagrams

Server output:
Accepted connection from 172.30.0.4, port 54788
[ ID] Interval      Transfer    Bandwidth  Total  Retransmits
[ 0] 0.00-1.00 sec  536 KBytes  4.39 Mbits/sec  21.478 ms  0/67 (0%)
[ 1] 1.00-2.00 sec  608 KBytes  4.98 Mbits/sec  22.165 ms  0/76 (0%)
[ 2] 2.00-3.00 sec  608 KBytes  4.98 Mbits/sec  22.369 ms  0/76 (0%)
[ 3] 3.00-4.00 sec  608 KBytes  4.98 Mbits/sec  22.400 ms  0/76 (0%)
[ 4] 4.00-5.00 sec  608 KBytes  4.98 Mbits/sec  22.709 ms  0/76 (0%)
[ 5] 5.00-6.00 sec  616 KBytes  5.05 Mbits/sec  22.219 ms  0/77 (0%)
[ 6] 6.00-7.00 sec  608 KBytes  4.98 Mbits/sec  22.392 ms  0/76 (0%)
[ 7] 7.00-8.00 sec  608 KBytes  4.98 Mbits/sec  22.677 ms  0/76 (0%)
[ 8] 8.00-9.00 sec  616 KBytes  5.05 Mbits/sec  22.700 ms  0/76 (0%)
[ 9] 9.00-10.00 sec 616 KBytes  5.05 Mbits/sec  22.371 ms  0/77 (0%)
[10] Interval      Transfer    Bandwidth  Total  Retransmits
[ 0] 0.00-10.00 sec 11.9 MBytes  4.98 Mbits/sec  20.739 ms  0/1519 (0%)
[ 1] Sent 1519 datagrams
```

21. Make a screen capture showing the **iperf3** client output resulting from your Switch3 to Switch2 UDP test with excess bandwidth.



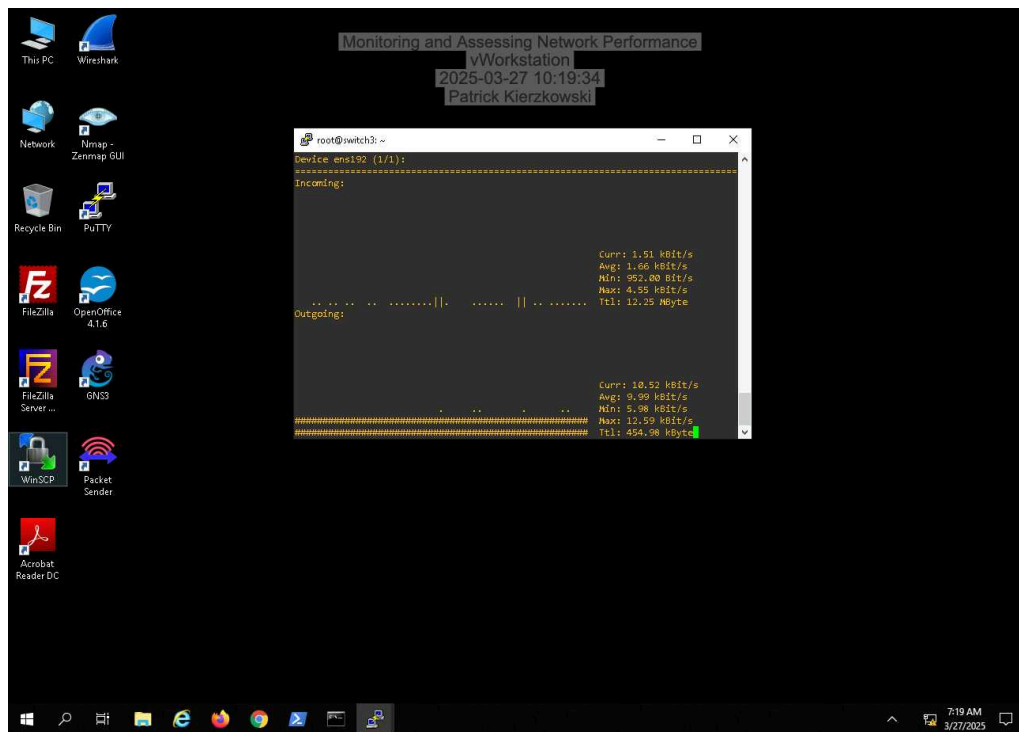
```
root@switch3:~# iperf3 -c 172.30.0.4
Connecting to host 172.30.0.4, port 5201
[ 4] local 172.30.0.5 port 49130 connected to 172.30.0.4 port 5201
[ ID] Interval      Transfer      Bandwidth    Retr  Cwnd
[ 4] 0.00-1.00 sec  1.62 MBytes  13.6 Mb/s/sec  166  7.07 KBytes
[ 4] 1.00-2.00 sec  382 KBytes   3.13 Mb/s/sec   80  11.3 KBytes
[ 4] 2.00-3.00 sec  700 KBytes   5.74 Mb/s/sec   88  5.66 KBytes
[ 4] 3.00-4.00 sec  636 KBytes   5.21 Mb/s/sec   75  12.7 KBytes
[ 4] 4.00-5.00 sec  318 KBytes   2.61 Mb/s/sec  102  9.90 KBytes
[ 4] 5.00-6.00 sec  636 KBytes   5.21 Mb/s/sec   91  12.7 KBytes
[ 4] 6.00-7.00 sec  636 KBytes   5.21 Mb/s/sec   76  4.24 KBytes
[ 4] 7.00-8.00 sec  636 KBytes   5.21 Mb/s/sec   79  4.24 KBytes
[ 4] 8.00-9.00 sec  318 KBytes   2.61 Mb/s/sec   83  7.07 KBytes
[ 4] 9.00-10.00 sec  700 KBytes   5.74 Mb/s/sec   73  7.07 KBytes
[ ID] Interval      Transfer      Bandwidth    Retr
[ 4] 0.00-10.00 sec  6.47 MBytes  5.43 Mb/s/sec  913
[ 4] 0.00-10.00 sec  5.69 MBytes  4.77 Mb/s/sec

iperf Done.
root@switch3:~# iperf3 -t 172.30.0.4 -u -b 20M -t 20
Connecting to host 172.30.0.4, port 5201
[ 4] local 172.30.0.5 port 57525 connected to 172.30.0.4 port 5201
[ ID] Interval      Transfer      Bandwidth    Total Datagrams
[ 4] 0.00-1.00 sec  2.15 MBytes  18.0 Mb/s/sec  275
[ 4] 1.00-2.00 sec  2.38 MBytes  20.1 Mb/s/sec  305
[ 4] 2.00-3.00 sec  2.38 MBytes  20.0 Mb/s/sec  305
[ 4] 3.00-4.00 sec  2.38 MBytes  20.0 Mb/s/sec  305
[ 4] 4.00-5.00 sec  2.38 MBytes  20.0 Mb/s/sec  305
[ 4] 5.00-6.00 sec  2.38 MBytes  20.0 Mb/s/sec  305
[ 4] 6.00-7.00 sec  2.39 MBytes  20.1 Mb/s/sec  306
[ 4] 7.00-8.00 sec  2.38 MBytes  20.0 Mb/s/sec  305
[ 4] 8.00-9.00 sec  2.38 MBytes  20.0 Mb/s/sec  305
[ 4] 9.00-10.00 sec  2.38 MBytes  20.0 Mb/s/sec  305
[ 4] 10.00-11.00 sec  2.38 MBytes  20.0 Mb/s/sec  305
[ 4] 11.00-12.00 sec  2.38 MBytes  20.0 Mb/s/sec  305
[ 4] 12.00-13.00 sec  2.39 MBytes  20.1 Mb/s/sec  306
[ 4] 13.00-14.00 sec  2.38 MBytes  20.0 Mb/s/sec  305
[ 4] 14.00-15.00 sec  2.38 MBytes  20.0 Mb/s/sec  305
[ 4] 15.00-16.00 sec  2.38 MBytes  20.0 Mb/s/sec  305
[ 4] 16.00-17.00 sec  2.38 MBytes  20.0 Mb/s/sec  305
[ 4] 17.00-18.00 sec  2.38 MBytes  20.0 Mb/s/sec  305
[ 4] 18.00-19.00 sec  2.39 MBytes  20.1 Mb/s/sec  306
[ 4] 19.00-20.00 sec  2.38 MBytes  20.0 Mb/s/sec  305
[ ID] Interval      Transfer      Bandwidth    Jitter    Lost/Totl Datag
[ 4] 0.00-20.00 sec  47.5 MBytes  19.9 Mb/s/sec  0.060 ms  555/739 (75%)
[ 4] Sent 739 datagrams

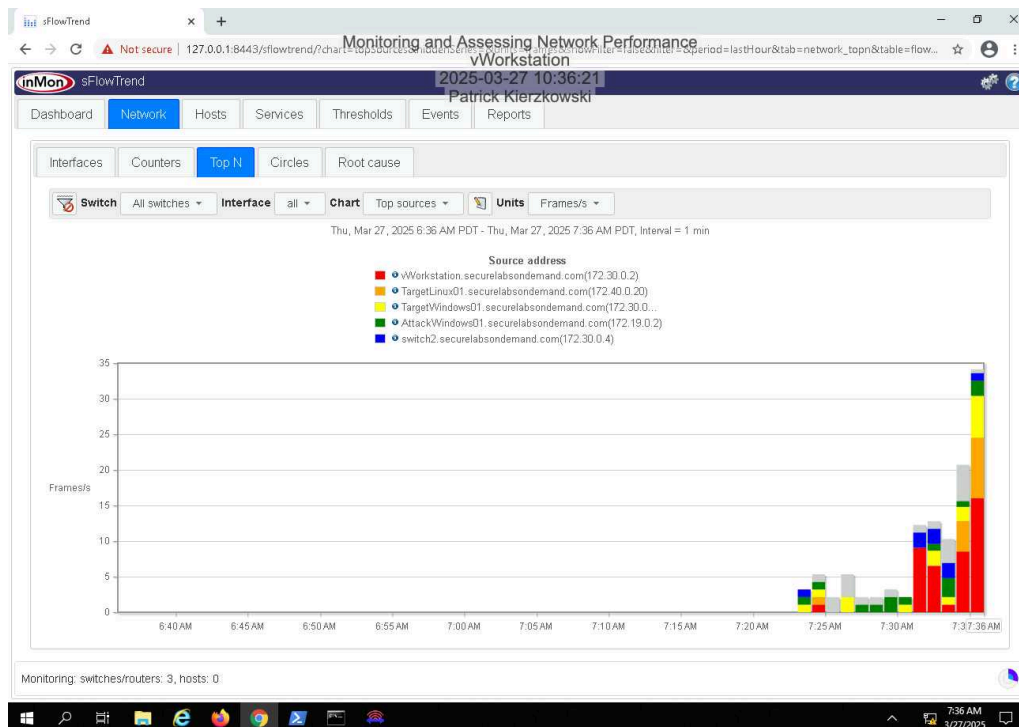
iperf Done.
root@switch3:~#
```

Part 2: Assess Network Performance with Passive Monitoring Tools

6. Make a screen capture showing the output of the nload command for ens192.

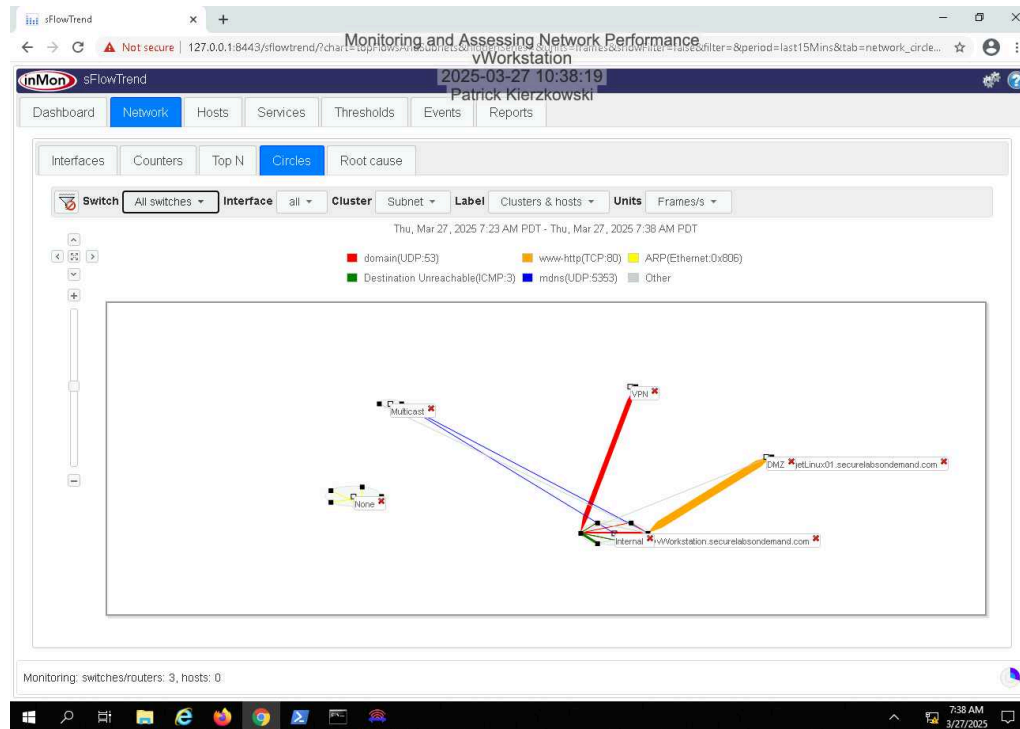


27. Make a screen capture showing the Top N bar chart for your selected interval.



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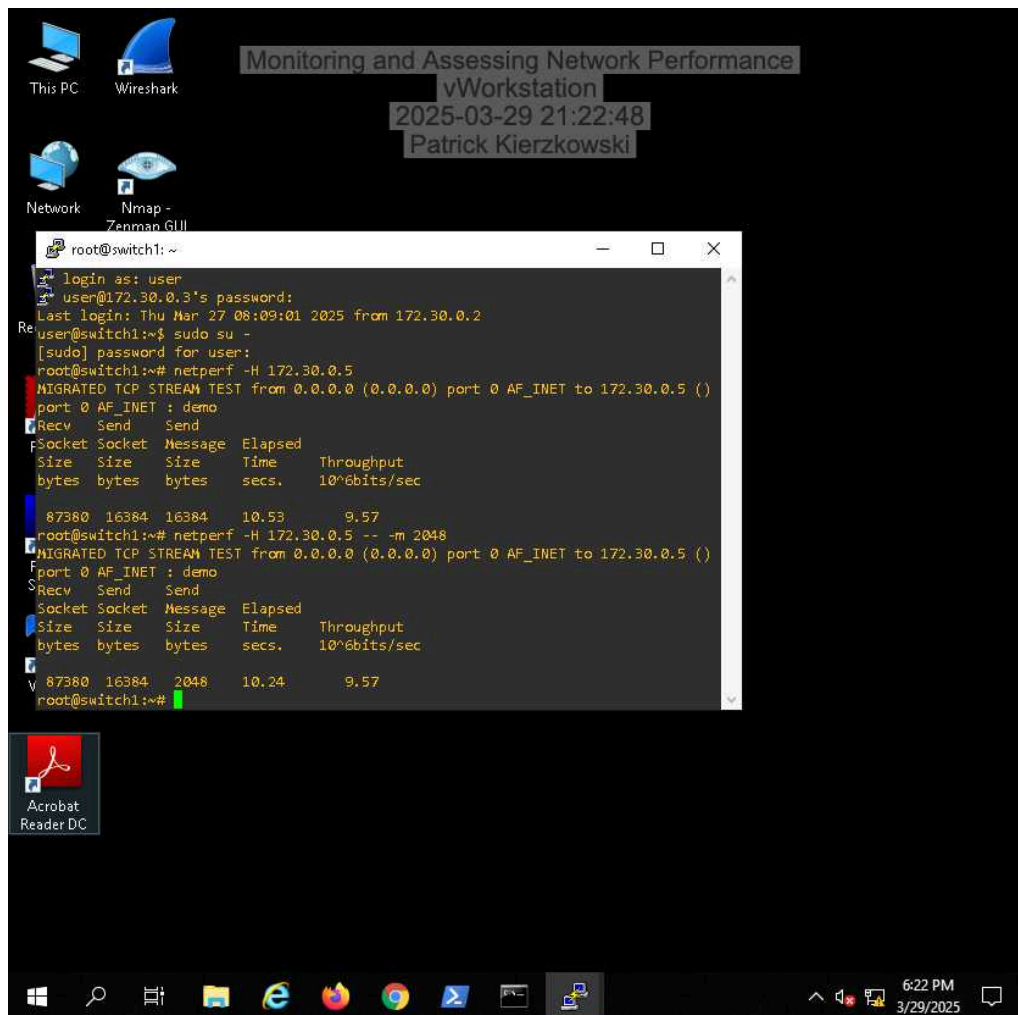
32. **Make a screen capture** showing the **traffic visualization** for all switches in the **Circles** view.



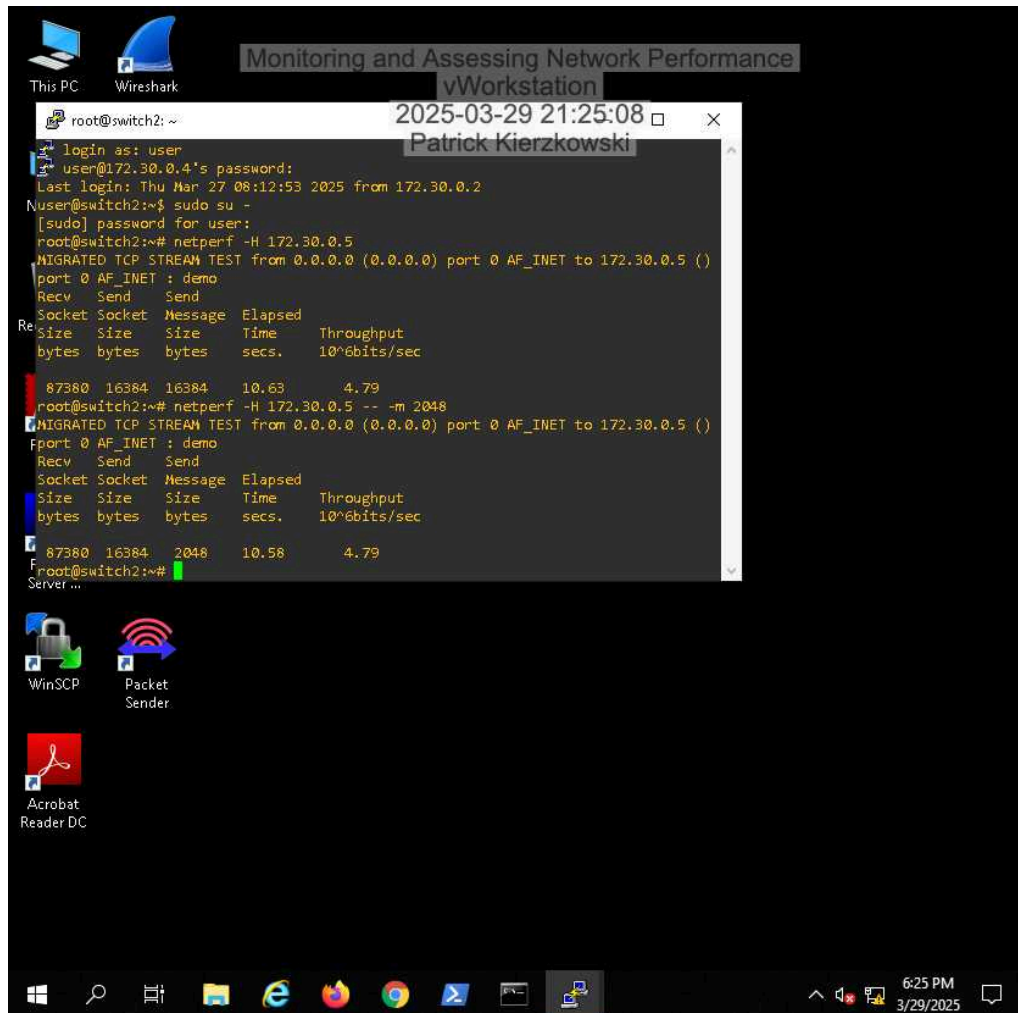
Section 2: Applied Learning

Part 1: Assess Network Performance with Active Monitoring Tools

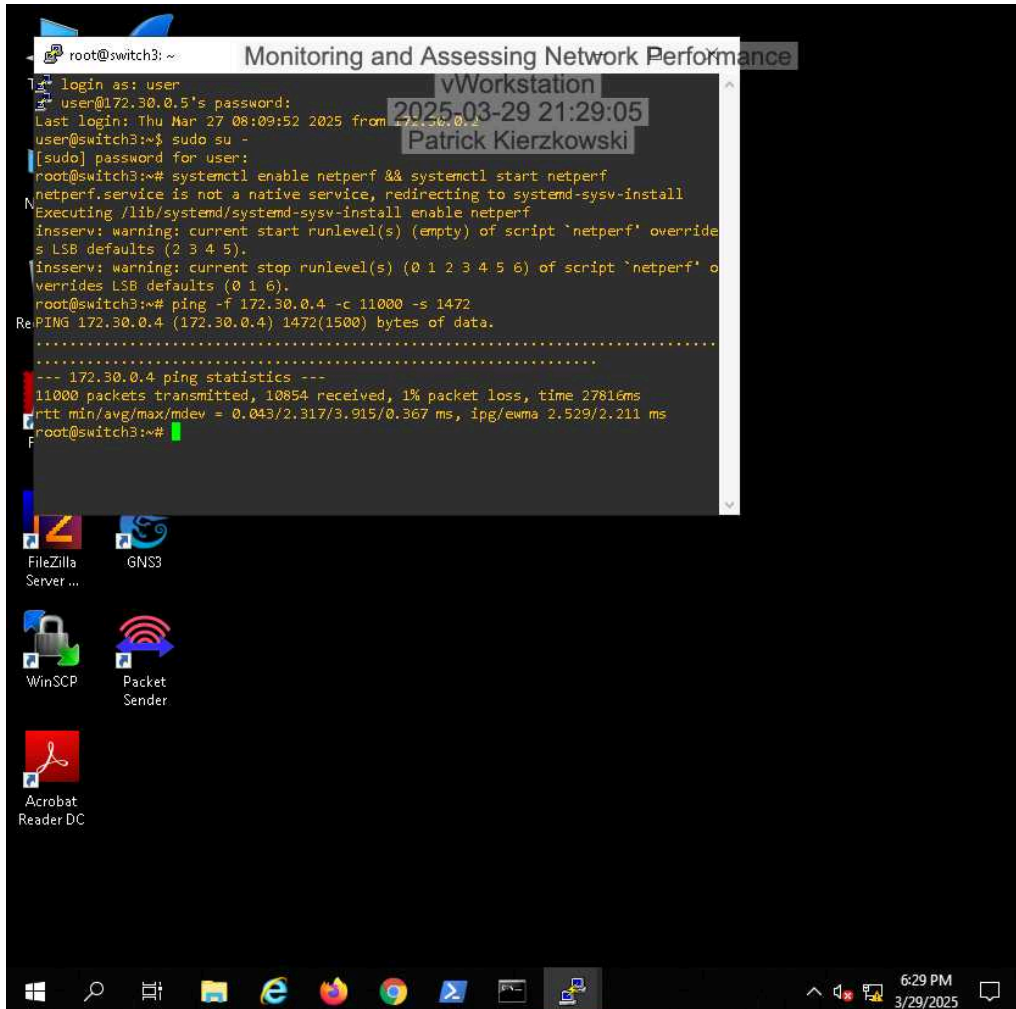
9. Make a screen capture showing the results of both of your Switch1 => Switch3 throughput tests.



14. **Make a screen capture** showing the **results of both of your Switch2 => Switch3 throughput tests.**



18. Make a screen capture showing the result of your ping flood from Switch3 => Switch3.

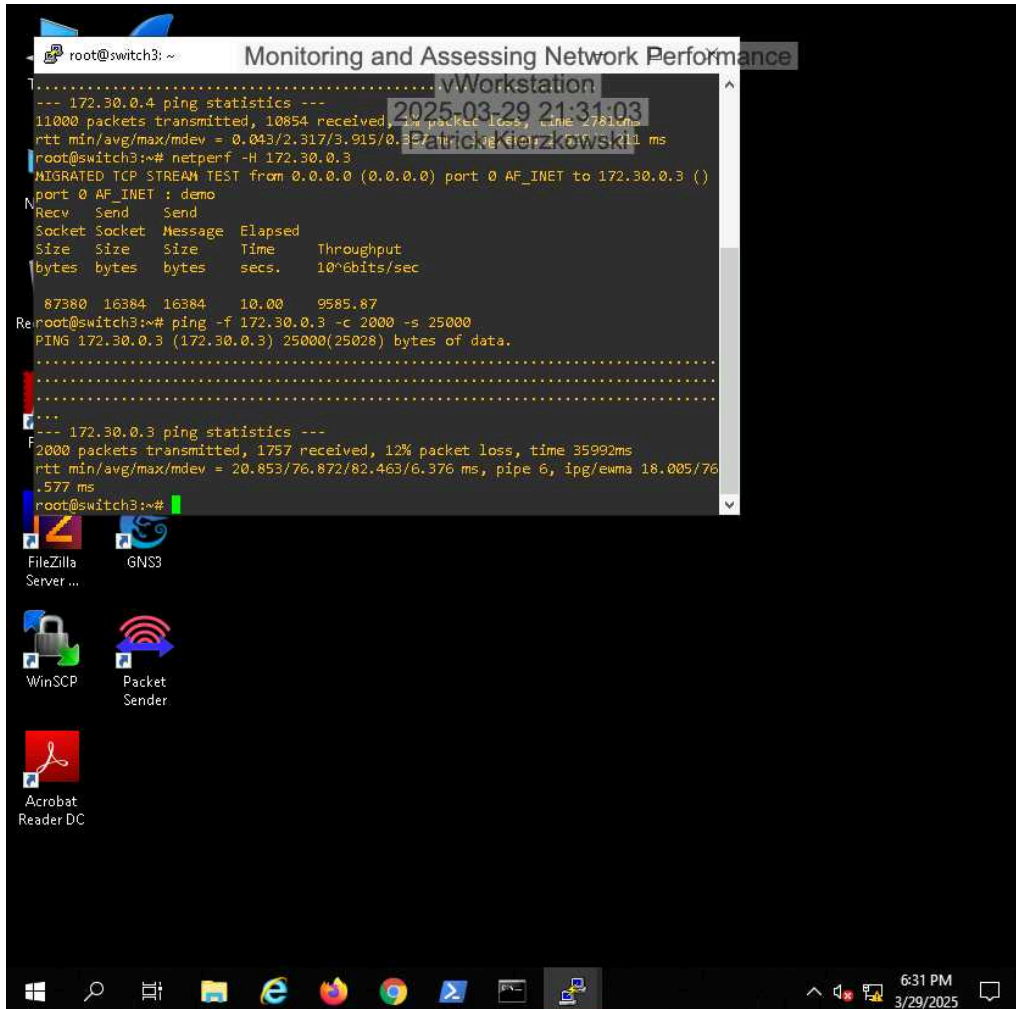


The screenshot shows a vWorkstation window titled "Monitoring and Assessing Network Performance". Inside, a terminal window displays the following commands and output:

```
root@switch3: ~  
login as: user  
user@172.30.0.5's password:  
Last login: Thu Mar 27 08:09:52 2025 from 172.30.0.1  
user@switch3:~$ sudo su -  
[sudo] password for user:  
root@switch3:~# systemctl enable netperf && systemctl start netperf  
netperf.service is not a native service, redirecting to systemd-sysv-install  
Executing /lib/systemd/systemd-sysv-install enable netperf  
inserv: warning: current start runlevel(s) (empty) of script 'netperf' override  
s LSB defaults (2 3 4 5).  
inserv: warning: current stop runlevel(s) (0 1 2 3 4 5 6) of script 'netperf' o  
verrides LSB defaults (0 1 6).  
root@switch3:~# ping -f 172.30.0.4 -c 11000 -s 1472  
PING 172.30.0.4 (172.30.0.4) 1472(1500) bytes of data.  
.....  
--- 172.30.0.4 ping statistics ---  
11000 packets transmitted, 10854 received, 1% packet loss, time 27816ms  
rtt min/avg/max/mdev = 0.043/2.317/3.915/0.367 ms, ipg/ewma 2.529/2.211 ms  
root@switch3:~#
```

The terminal window is overlaid on a desktop environment with icons for FileZilla Server, GNS3, WinSCP, Packet Sender, and Acrobat Reader DC. The taskbar at the bottom shows the Windows logo, search, task view, and several application icons. The system clock in the bottom right corner indicates 6:29 PM on 3/29/2025.

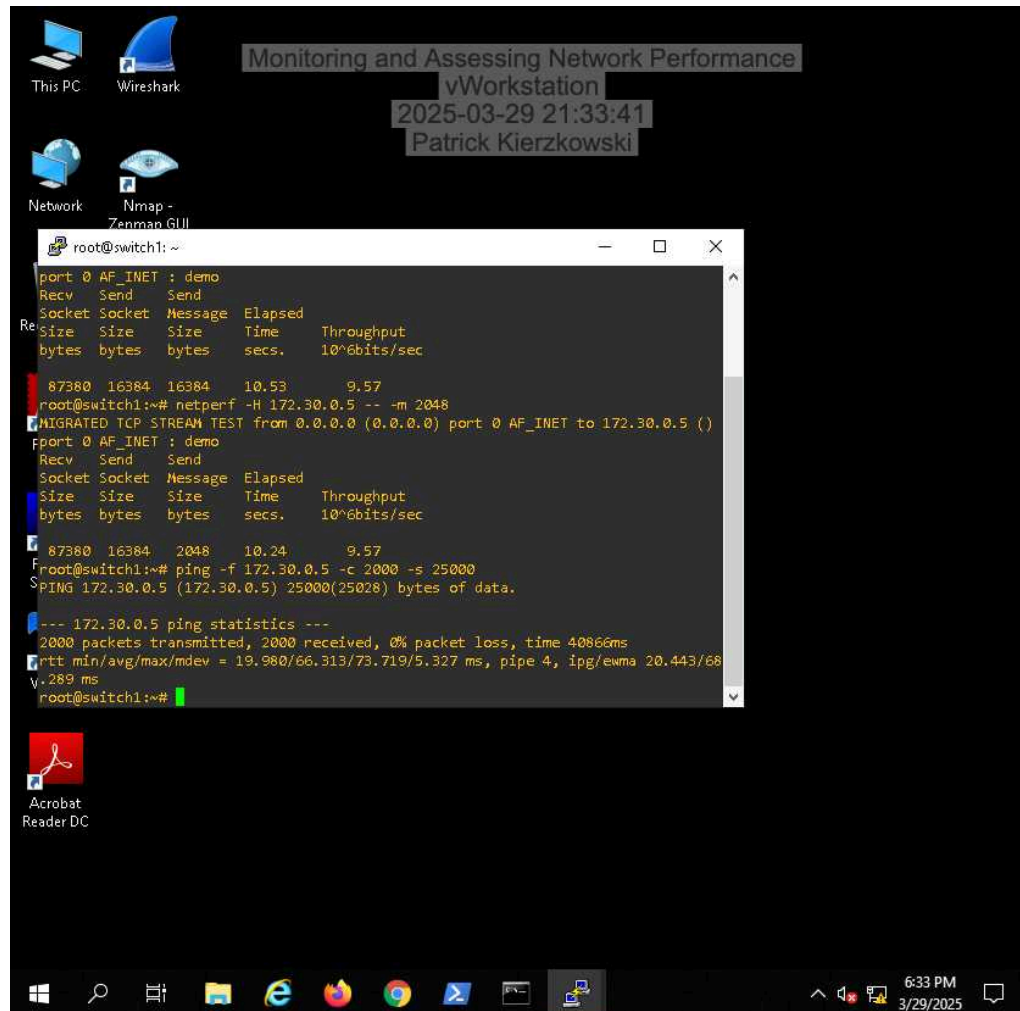
21. Make a screen capture showing the result of your ping flood from Switch3 => Switch1.



```
root@switch3: ~  
----- vWorkstation  
----- 172.30.0.4 ping statistics -----  
11000 packets transmitted, 10854 received, 1.4% packet loss, time 2781ms  
rtt min/avg/max/mdev = 0.043/2.317/3.915/0.333 ms  
root@switch3:~# netperf -H 172.30.0.3  
MIGRATED TCP STREAM TEST from 0.0.0.0 (0.0.0.0) port 0 AF_INET to 172.30.0.3 ()  
port 0 AF_INET : demo  
Recv Send Send  
Socket Socket Message Elapsed  
Size Size Size Time Throughput  
bytes bytes bytes secs. 10^6bits/sec  
87380 16384 16384 10.00 9585.87  
root@switch3:~# ping -f 172.30.0.3 -c 2000 -s 25000  
PING 172.30.0.3 (172.30.0.3) 25000(25028) bytes of data.  
.....  
.....  
----- 172.30.0.3 ping statistics -----  
2000 packets transmitted, 1757 received, 12% packet loss, time 35992ms  
rtt min/avg/max/mdev = 20.853/76.872/82.463/6.376 ms, pipe 6, ipg/ewma 18.005/76.577 ms  
root@switch3:~#
```

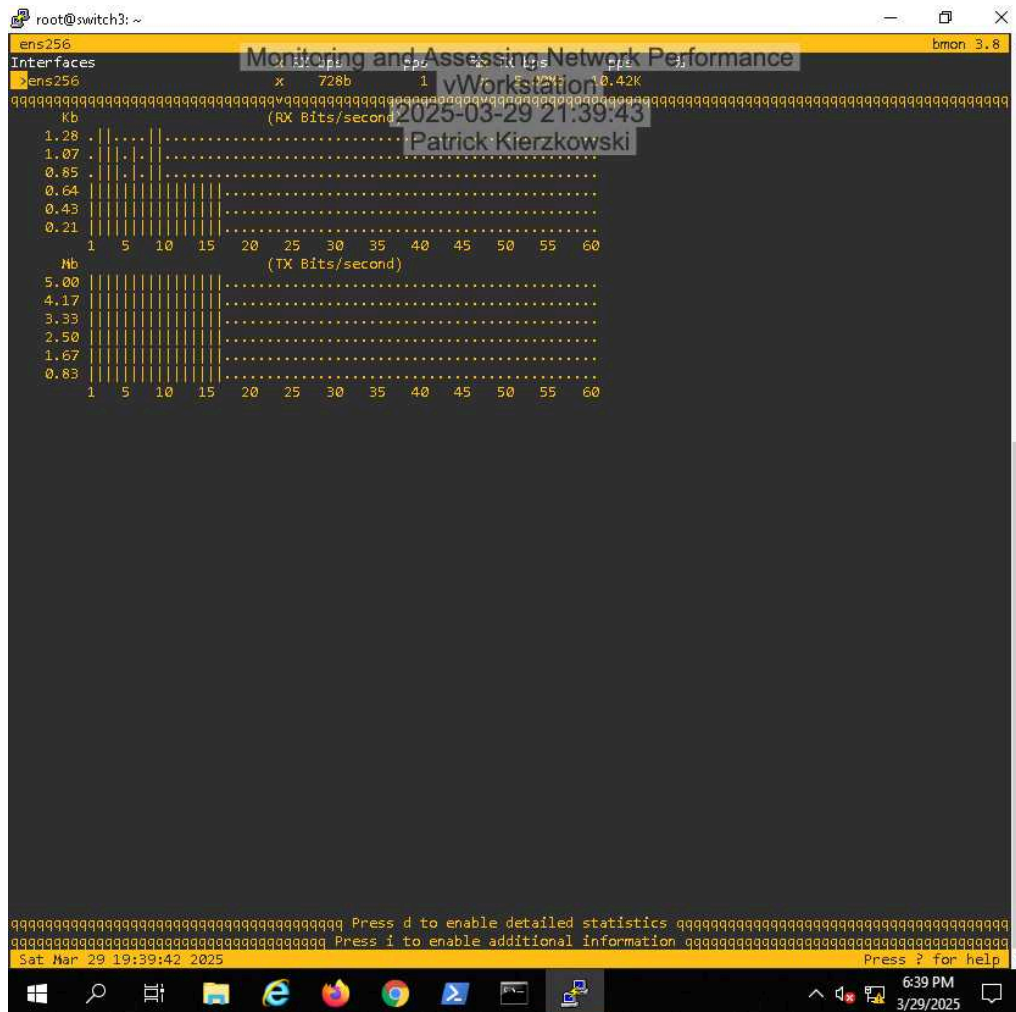
The screenshot shows a Windows 10 desktop environment. The taskbar at the bottom includes icons for File Explorer, Edge, Firefox, Chrome, and other applications. The system tray shows the time as 6:31 PM on 3/29/2025. The desktop background is dark. The terminal window is open, displaying the results of network performance tests. The tests show a ping flood from Switch3 to Switch1, resulting in a 12% packet loss and a throughput of approximately 9585.87 Mbps. The netperf test also shows a throughput of approximately 9585.87 Mbps.

24. Make a screen capture showing the result of your ping flood from Switch1 => Switch3.

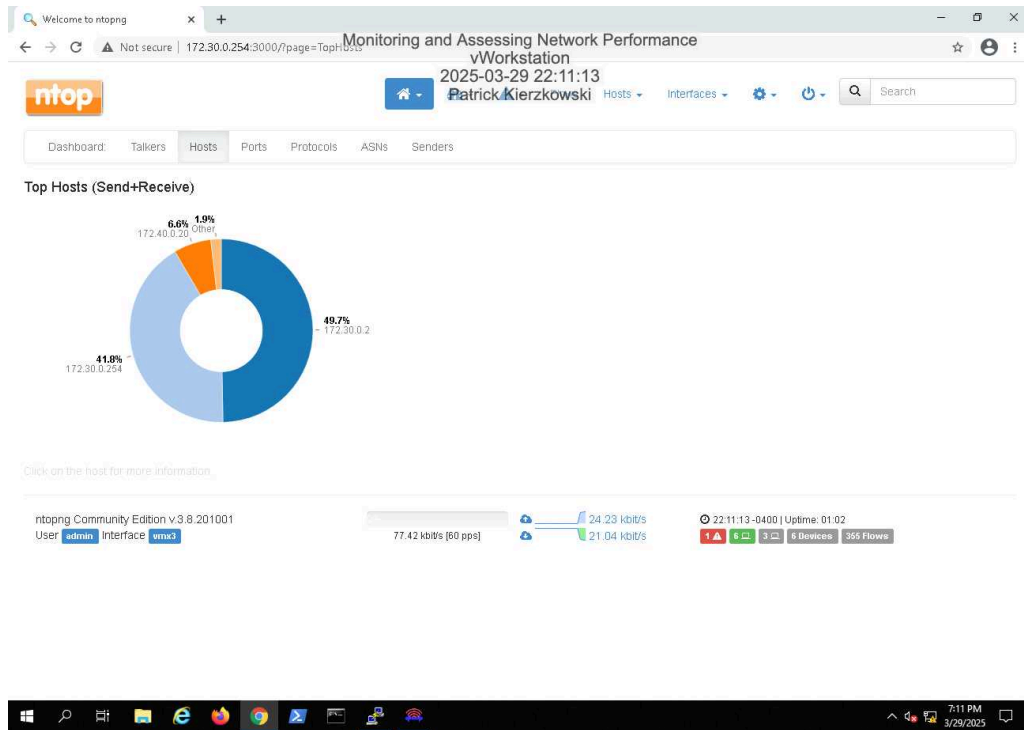


Part 2: Assess Network Performance with Passive Monitoring Tools

8. Make a screen capture showing the **bmon** output for the **ens256** interface.



29. Make a screen capture showing the Top Hosts view in ntopng.



33. Make a screen capture showing the tabulated application protocol data in ntopng.

The screenshot shows the ntopng web interface with the 'Hosts' tab selected. The 'Hosts' view is partially visible, showing a donut chart with 95.8% Web traffic. Below the chart, the 'Application Protocol' data is displayed in a table. The table has columns: Application Protocol, Duration, Sent, Received, Breakdown, and Total. The data is as follows:

Application Protocol	Duration	Sent	Received	Breakdown	Total
Total	02:00	497.84 kB	2.65 MB	Sent Recv	3.13 MB
DNS	02:00	36.45 kB	47.57 kB	Sent Recv	84.02 kB, 2.62 %
HTTP	02:00	458.47 kB	2.56 MB	Sent Recv	3.01 MB, 95.95 %
ICMP	00:20	440 Bytes	0 Bytes	Sent	440 Bytes, 0.01 %
LLMNR	00:10	256 Bytes	0 Bytes	Sent	256 Bytes, 0.01 %
MDNS	00:15	560 Bytes	0 Bytes	Sent	560 Bytes, 0.02 %
SSDP	00:05	864 Bytes	0 Bytes	Sent	864 Bytes, 0.03 %
Unknown	00:30	864 Bytes	564 Bytes	Sent Recv	1.39 kB, 0.04 %
sFlow	02:00	0 Bytes	42.45 kB	Recv	42.45 kB, 1.32 %

Below the table, there is a summary table for 'Application Protocol Category':

Application Protocol Category	Duration	Total
Total	02:00	3.13 MB
Network	02:00	127.69 kB, 3.98 %
System	00:05	864 Bytes, 0.03 %
Unspecified	00:30	1.39 kB, 0.04 %
Web	02:00	3.01 MB, 95.95 %

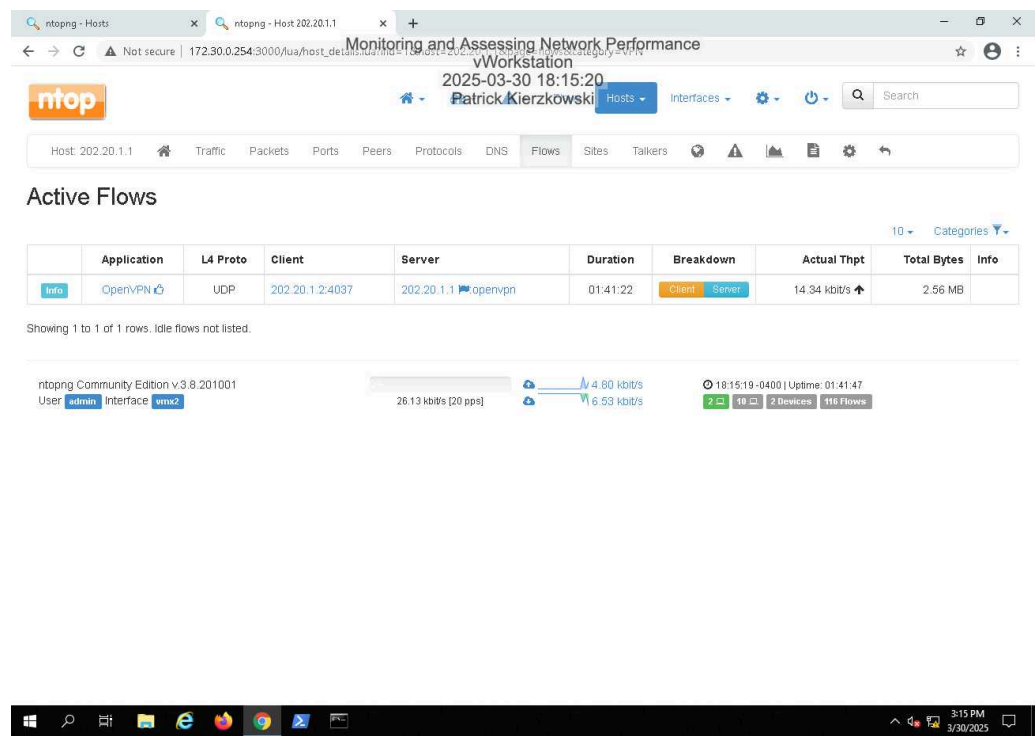
Section 3: Challenge and Analysis

Part 1: Monitor Incoming Traffic on the WAN

Record the IP address of the mysterious host.

202.20.8.2

Make a screen capture showing the breakdown of the flow between the legitimate VPN endpoint and the firewall.

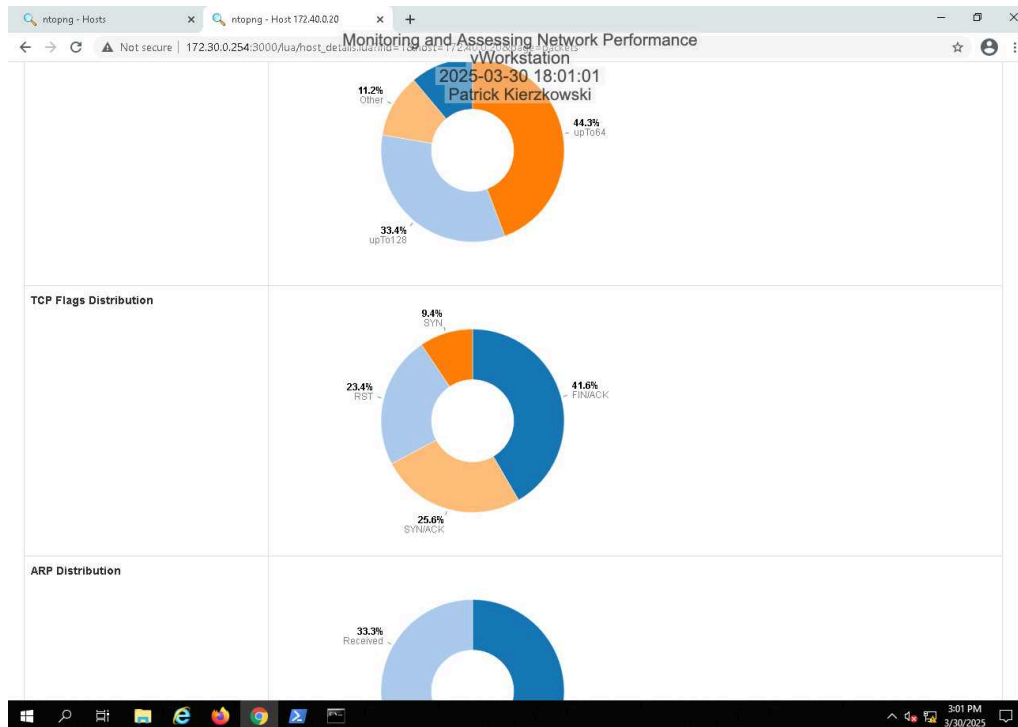


Part 2: Analyze Incoming Traffic on the WAN

Monitoring and Assessing Network Performance

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Make a screen capture showing the **RST flag percentage** in the **TCP Flags Distribution** section.



Record the five top server ports being probed by the suspicious target.

80, 22, 443, 21, and 23