LAPORAN TUGAS BESAR
JARINGAN KOMPUTER
TAHUN AJARAN 2021/2022
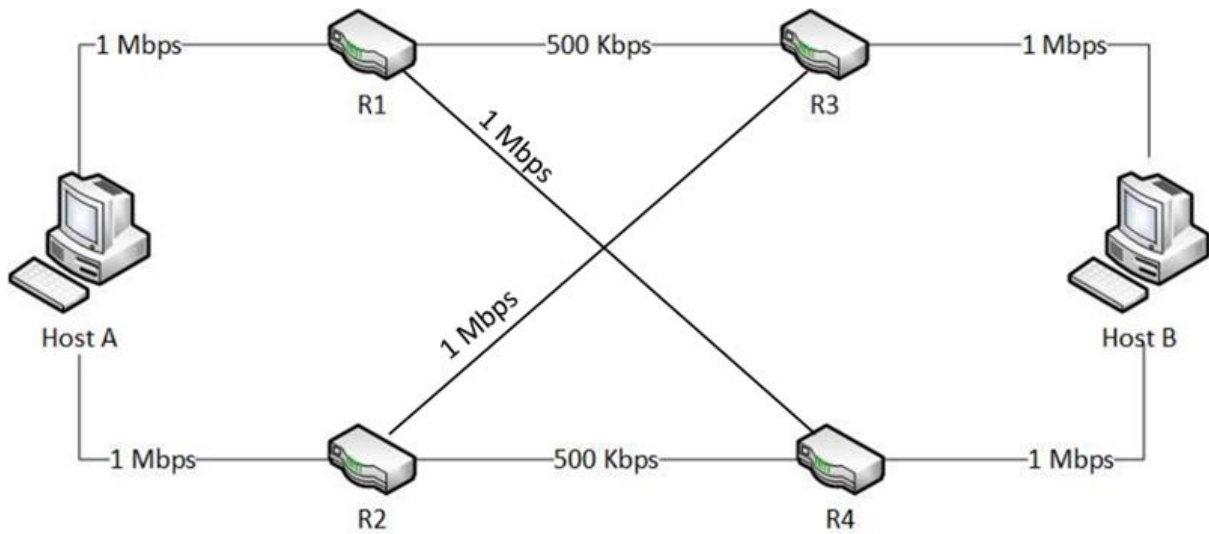
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2022

Gambar 12.1 Topologi untuk tugas besar

1) CLO 1

Pada CLO ini terdapat spesifikasi pengerjaan dan kriteria penilaian yang akan dilakukan.

- **Goal :** Build topology sesuai dengan soal.
  - Desain subnet masing-masing network.
  - Assign IP sesuai subnet.
  - Uji konektivitas dengan ping antara 2 host yang berada dalam 1 network.

- **Penilaian yang akan dilakukan adalah :**
  - Kesesuaian topologi yang dibangun dengan soal yang diberikan (30).
  - Ketepatan penjelasan topologi yang dibangun (50).
  - Konektivitas antar host yang berada pada subnet yang sama (20).
  - NILAI TOTAL = 100.

2) CLO 2

Pada CLO ini terdapat spesifikasi pengerjaan dan kriteria penilaian yang akan dilakukan.

- **Goal :** Mengimplementasikan mekanisme Routing pada topologi yang ada.
  - Uji konektivitas menggunakan ping.
  - Membuat tabel routing di semua host, dibuktikan dengan ping antar host.
  - Menganalisis routing yang digunakan menggunakan traceroute

- **Penilaian yang akan dilakukan adalah :**
  - Ketepatan implementasi routing sesuai spesifikasi yang ada (30).
  - Ketepatan penjelasan proses routing yang diimplementasikan (50).
  - Konektivitas antar host yang berada pada subnet berbeda (20).

3) CLO 3

Pada CLO ini terdapat spesifikasi pengerjaan dan kriteria penilaian yang akan dilakukan.

- **Goal :** Membuktikan bahwa TCP telah diimplementasikan dengan benar pada topologi.
  - Generate *traffic* menggunakan iPerf.
  - Capture trafik menggunakan custom script atau Wireshark untuk diinspeksi, dibuktikan dengan trafik di Wireshark/tcpdump.

- **Penilaian yang akan dilakukan adalah :**
  - Ketepatan implementasi trafik TCP (40).
  - Ketepatan penjelasan apa itu trafik TCP dan perbedaannya dengan UDP (60).

4) CLO 4

Pada CLO ini terdapat spesifikasi pengerjaan dan kriteria penilaian yang akan dilakukan.

- **Goal :** Menginspeksi penggunaan queue pada router jaringan.
  - Generate *traffic* menggunakan iPerf.
  - Set ukuran buffer pada router : 20, 40, 60 dan 100.
  - Capture pengaruh ukuran buffer terhadap *delay.*
  - Analisis eksperimen hasil variasi ukuran buffer.
  - Mahasiswa mengerti caranya mengubah buffer dan mengenai pengaruh .besar buffer.

- **Penilaian yang akan dilakukan adalah :**
  - Ketepatan skenario perubahan besar buffer (40).
 - Ketepatan penjelasan pengaruh besar buffer (60).

BAB II

PEMBAHASAN

1. Tabel Subnetting

Subnet Name	Needed Size	Allocated Size	Address	Mask	Dec Mask	Assignable Range	Broadcast
HOST 1	2	2	192.100.0.0	/30	255.255.255.252	192.100.0.1 - 192.100.0.2	192.100.0.3
HOST 1.2	2	2	192.100.0.4	/30	255.255.255.252	192.100.0.5 - 192.100.0.6	192.100.0.7
HOST 2	2	2	192.100.0.8	/30	255.255.255.252	192.100.0.9 - 192.100.0.10	192.100.0.11
HOST 2.2	2	2	192.100.0.12	/30	255.255.255.252	192.100.0.13 - 192.100.0.14	192.100.0.15
ROUTER 1	2	2	192.100.0.16	/30	255.255.255.252	192.100.0.17 - 192.100.0.18	192.100.0.19
ROUTER 2	2	2	192.100.0.20	/30	255.255.255.252	192.100.0.21 - 192.100.0.22	192.100.0.23
ROUTER 3	2	2	192.100.0.24	/30	255.255.255.252	192.100.0.25 - 192.100.0.26	192.100.0.27
ROUTER 4	2	2	192.100.0.28	/30	255.255.255.252	192.100.0.29 - 192.100.0.30	192.100.0.31

2. Desain Topologi
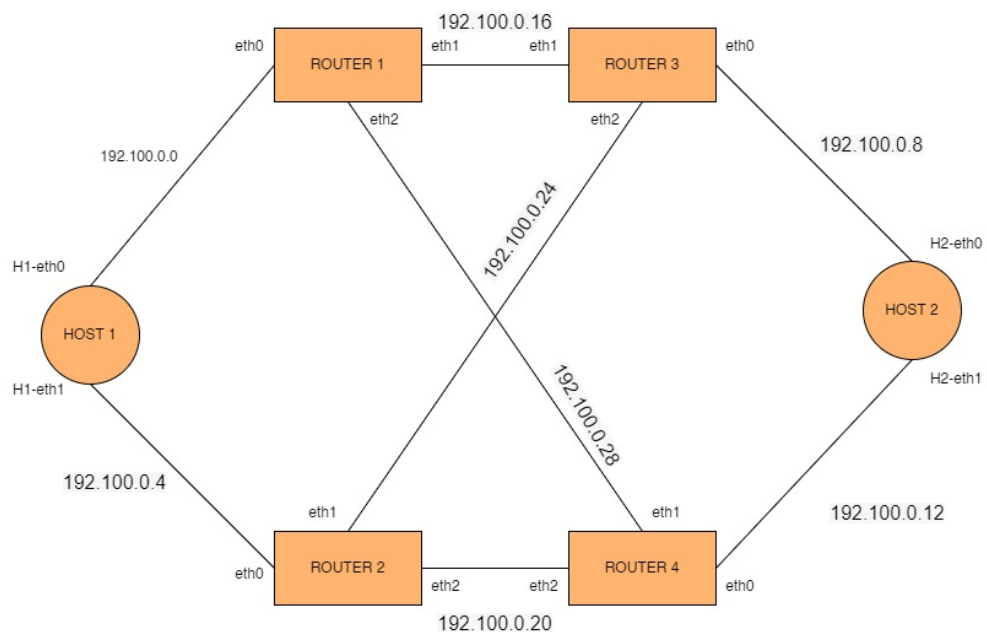
3. Implementasi Kode dalam Mininet

```
print( stdout= , stdout, stderr= ,stderr)

#membangun topology
Host1 = net.addHost('Host1')
Host2 = net.addHost('Host2')
Router1 = net.addHost('Router1')
Router2 = net.addHost('Router2')
Router3 = net.addHost('Router3')
Router4 = net.addHost('Router4')

#MemilihBandwith (1MBPS, 500kb)
bandwithA={'bw':1}
bandwithB={'bw':0.5}

#connectdevice
```

```python
#connectdevice
net.addLink(Host1,Router1,intfName1 = 'Host1-eth0', intfName2='Router1-eth0',cls=TCLink, **bandwithA)
net.addLink(Host1,Router2,intfName1 = 'Host1-eth1', intfName2='Router2-eth0', cls=TCLink, **bandwithA)
###
net.addLink(Host2,Router3,intfName1= 'Host2-eth0', intfName2='Router3-eth0',cls=TCLink, **bandwithA)
net.addLink(Host2,Router4,intfName1= 'Host2-eth1', intfName2='Router4-eth0',cls=TCLink, **bandwithA)
##
net.addLink(Router1,Router3,intfName1= 'Router1-eth1', intfName2='Router3-eth1',cls=TCLink, **bandwithB)
net.addLink(Router1,Router4,intfName1= 'Router1-eth2', intfName2='Router4-eth1',cls=TCLink, **bandwithA)
##
net.addLink(Router2,Router3,intfName1='Router2-eth1', intfName2='Router3-eth2',cls=TCLink, **bandwithA)
net.addLink(Router2,Router4,intfName1='Router2-eth2', intfName2='Router4-eth2',cls=TCLink, **bandwithB)

net.build()

Router1.cmd("echo 1>/proc/sys/net/ipv4/ip_forward")
Router2.cmd("echo 1>/proc/sys/net/ipv4/ip_forward")
Router3.cmd("echo 1>/proc/sys/net/ipv4/ip_forward")
Router4.cmd("echo 1>/proc/sys/net/ipv4/ip_forward")


#Assign IP ADDRESS HOST
Host1.cmd("ifconfig Host1-eth0 0")
Host1.cmd("ifconfig Host1-eth1 0")
Host1.cmd("ifconfig Host1-eth0 192.100.0.1 netmask 255.255.255.252")
Host1.cmd("ifconfig Host1-eth1 192.100.0.5 netmask 255.255.255.252")

Host2.cmd("ifconfig Host2-eth0 0")
Host2.cmd("ifconfig Host2-eth1 0")
Host2.cmd("ifconfig Host2-eth0 192.100.0.9 netmask 255.255.255.252")
Host2.cmd("ifconfig Host2-eth1 192.100.0.13 netmask 255.255.255.252")

#Assign IP ADDRESS ROUTER1

Router1.cmd("ifconfig Router1-eth0 0")
Router1.cmd("ifconfig Router1-eth1 0")
Router1.cmd("ifconfig Router1-eth2 0")
Router1.cmd("ifconfig Router1-eth0 192.100.0.2 netmask 255.255.255.252")
Router1.cmd("ifconfig Router1-eth1 192.100.0.17 netmask 255.255.255.252")
Router1.cmd("ifconfig Router1-eth2 192.100.0.25 netmask 255.255.255.252")

#Assign IP ADDRESS ROUTER2
Router2.cmd("ifconfig Router2-eth0 0")
Router2.cmd("ifconfig Router2-eth1 0")
Router2.cmd("ifconfig Router2-eth2 0")
Router2.cmd("ifconfig Router2-eth0 192.100.0.6 netmask 255.255.255.252")
Router2.cmd("ifconfig Router2-eth1 192.100.0.29 netmask 255.255.255.252")
Router2.cmd("ifconfig Router2-eth2 192.100.0.21 netmask 255.255.255.252")
```

```
35
36        #Assign IP ADDRESS Router3
37        Router3.cmd("ifconfig Router3-eth0 0")
38        Router3.cmd("ifconfig Router3-eth1 0")
39        Router3.cmd("ifconfig Router3-eth2 0")
90        Router3.cmd("ifconfig Router3-eth0 192.100.0.10 netmask 255.255.255.252")
91        Router3.cmd("ifconfig Router3-eth1 192.100.0.18 netmask 255.255.255.252")
92        Router3.cmd("ifconfig Router3-eth2 192.100.0.30 netmask 255.255.255.252")
93
94        #Assign IP ADDRESS Router4
95        Router4.cmd("ifconfig Router4-eth0 0")
96        Router4.cmd("ifconfig Router4-eth1 0")
97        Router4.cmd("ifconfig Router4-eth2 0")
98        Router4.cmd("ifconfig Router4-eth0 192.100.0.14 netmask 255.255.255.252")
99        Router4.cmd("ifconfig Router4-eth1 192.100.0.26 netmask 255.255.255.252")
90        Router4.cmd("ifconfig Router4-eth2 192.100.0.22 netmask 255.255.255.252")
91
92
93
94        CLI(net)
95 net.stop()
96
```

4. Tes Konektivitas

```
mininet> Host1 ping Router1
PING 192.100.0.2 (192.100.0.2) 56(84) bytes of data.
64 bytes from 192.100.0.2: icmp_seq=1 ttl=64 time=0.070 ms
64 bytes from 192.100.0.2: icmp_seq=2 ttl=64 time=0.051 ms
64 bytes from 192.100.0.2: icmp_seq=3 ttl=64 time=0.051 ms
64 bytes from 192.100.0.2: icmp_seq=4 ttl=64 time=0.053 ms
64 bytes from 192.100.0.2: icmp_seq=5 ttl=64 time=0.051 ms
64 bytes from 192.100.0.2: icmp_seq=6 ttl=64 time=0.052 ms
^C
--- 192.100.0.2 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5122ms
rtt min/avg/max/mdev = 0.051/0.054/0.070/0.006 ms
```

```
mininet> Host1 ping Router2
PING 192.100.0.6 (192.100.0.6) 56(84) bytes of data.
64 bytes from 192.100.0.6: icmp_seq=1 ttl=64 time=0.066 ms
64 bytes from 192.100.0.6: icmp_seq=2 ttl=64 time=0.062 ms
64 bytes from 192.100.0.6: icmp_seq=3 ttl=64 time=0.078 ms
64 bytes from 192.100.0.6: icmp_seq=4 ttl=64 time=0.061 ms
64 bytes from 192.100.0.6: icmp_seq=5 ttl=64 time=0.051 ms
^C
--- 192.100.0.6 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4091ms
rtt min/avg/max/mdev = 0.051/0.063/0.078/0.008 ms
```

```
mininet> Host2 ping Router3
PING 192.100.0.10 (192.100.0.10) 56(84) bytes of data.
64 bytes from 192.100.0.10: icmp_seq=1 ttl=64 time=0.069 ms
64 bytes from 192.100.0.10: icmp_seq=2 ttl=64 time=0.049 ms
64 bytes from 192.100.0.10: icmp_seq=3 ttl=64 time=0.055 ms
64 bytes from 192.100.0.10: icmp_seq=4 ttl=64 time=0.063 ms
64 bytes from 192.100.0.10: icmp_seq=5 ttl=64 time=0.051 ms
^C
--- 192.100.0.10 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4089ms
rtt min/avg/max/mdev = 0.049/0.057/0.069/0.007 ms
```

```
mininet> Host2 ping Router4
PING 192.100.0.14 (192.100.0.14) 56(84) bytes of data.
64 bytes from 192.100.0.14: icmp_seq=1 ttl=64 time=0.071 ms
64 bytes from 192.100.0.14: icmp_seq=2 ttl=64 time=0.053 ms
64 bytes from 192.100.0.14: icmp_seq=3 ttl=64 time=0.080 ms
64 bytes from 192.100.0.14: icmp_seq=4 ttl=64 time=0.064 ms
64 bytes from 192.100.0.14: icmp_seq=5 ttl=64 time=0.055 ms
^C
--- 192.100.0.14 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4086ms
rtt min/avg/max/mdev = 0.053/0.064/0.080/0.010 ms
```

```
mininet> Host1 ping Host2
PING 192.100.0.9 (192.100.0.9) 56(84) bytes of data.
64 bytes from 192.100.0.9: icmp_seq=1 ttl=62 time=0.090 ms
64 bytes from 192.100.0.9: icmp_seq=2 ttl=62 time=0.127 ms
64 bytes from 192.100.0.9: icmp_seq=3 ttl=62 time=0.095 ms
64 bytes from 192.100.0.9: icmp_seq=4 ttl=62 time=0.113 ms
64 bytes from 192.100.0.9: icmp_seq=5 ttl=62 time=0.103 ms
^C
--- 192.100.0.9 ping statistics ---
```

```
PING 192.100.0.1 (192.100.0.1) 56(84) bytes of data.
64 bytes from 192.100.0.1: icmp_seq=1 ttl=62 time=0.084 ms
64 bytes from 192.100.0.1: icmp_seq=2 ttl=62 time=0.124 ms
64 bytes from 192.100.0.1: icmp_seq=3 ttl=62 time=0.121 ms
64 bytes from 192.100.0.1: icmp_seq=4 ttl=62 time=0.095 ms
64 bytes from 192.100.0.1: icmp_seq=5 ttl=62 time=0.094 ms
^C
--- 192.100.0.1 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4076ms
rtt min/avg/max/mdev = 0.084/0.103/0.124/0.015 ms
```

5. ROUTING

```
#Routing Host1
Host1.cmd("ip rule add from 192.100.0.1 table 1")
Host1.cmd("ip rule add from 192.100.0.5 table 2")
Host1.cmd("ip route add 192.100.0.0/30 dev Host1-eth0 scope link table 1")
Host1.cmd("ip route add default via 192.100.0.2 dev Host1-eth0 table 1")
Host1.cmd("ip route add 192.100.0.4/30 dev Host1-eth1 scope link table 2")
Host1.cmd("ip route add default via 192.100.0.6 dev Host1-eth1 table 2")
Host1.cmd("ip route add default scope global nexthop via 192.100.0.2 dev Host1-eth0")

#routing Host2
Host2.cmd("ip rule add from 192.100.0.9 table 1")
Host2.cmd("ip rule add from 192.100.0.13 table 2")
Host2.cmd("ip route add from 192.100.0.8/30 dev Host2-eth0 scope link table 1")
Host2.cmd("ip route add default via 192.100.0.10 dev Host2-eth0 table 1")
Host2.cmd("ip route add default 192.100.0.12/30 dev Host2-eth1 scope link table 2")
Host2.cmd("ip route add default via 192.100.0.14 dev Host2-eth1 table 2")
Host2.cmd("ip route add default scope global nexthop via 192.100.0.10 dev Host2-eth0")

#routing tonggo router1
Router1.cmd("ip rule add from 192.100.0.2 table 1")
Router1.cmd("ip rule add from 192.100.0.17 table 2")
Router1.cmd("ip rule add from 192.100.0.29 table 3")
Router1.cmd("ip route add 192.100.0.0/30 dev Router1-eth0 scope link table 1")
Router1.cmd("ip route add default via 192.100.0.1 dev Router1-eth0 table 1")
Router1.cmd("ip route add 192.100.0.16/30 dev Router1-eth1 table 2")
Router1.cmd("ip route add default via 192.100.0.18 dev Router1-eth1 table 2")
Router1.cmd("ip route add 192.100.0.28/30 dev Router1-eth2 scope link table 3")
Router1.cmd("ip route add default via 192.100.0.30 dev Router1-eth2 table 3")
Router1.cmd("ip route add default scope global nexthop via 192.100.0.1 dev Router1-eth0")
```

```
#routing tonggone router2
Router2.cmd("ip rule add from 192.100.0.6 table 1")
Router2.cmd("ip rule add from 192.100.0.25 table 2")
Router2.cmd("ip rule add from 192.100.0.21 table 3")
Router2.cmd("ip route add from 192.100.0.4/30 dev Router2-eth0 scope link table 1")
Router2.cmd("ip route add default via 192.100.0.5 Router2-eth0 table 1")
Router2.cmd("ip route add 192.100.0.24/30 dev Router2-eth1 scope link table 2")
Router2.cmd("ip route add default via 192.100.0.26 dev Router2-eth1 table 2")
Router2.cmd("ip route add default 192.100.0.20/30 dev Router2-eth2 table 3")
Router2.cmd("ip route add default via 192.100.0.22 dev Router2-eth2 table 3")
Router2.cmd("ip route add default scope global nexthop via 192.100.0.5 dev Router2-eth0")

#routing tonggone router3
Router3.cmd("ip rule add from 192.100.0.10 table 1")
Router3.cmd("ip rule add from 192.100.0.18 table 2")
Router3.cmd("ip rule add from 192.100.0.26 table 3")
Router3.cmd("ip route add 192.100.0.8/30 dev Router3-eth0 scope link table 1")
Router3.cmd("ip route add default via 192.100.0.9 dev Router3-eth0 table 1")
Router3.cmd("ip route add 192.100.0.16/30 dev Router3-eth1 scope link table 2")
Router3.cmd("ip route add default via 192.100.0.17 dev Router3-eth2 table 2")
Router3.cmd("ip route add 192.100.0.24/30 deb Router3-eth2 scope link table 3")
Router3.cmd("ip route add default via 192.100.0.25 dev Router3-eth2 table 3")
Router3.cmd("ip route add default scope global nexthop via 192.100.0.9 dev Router3-eth0")


#routing tonggone router4
Router4.cmd("ip rule add from 192.100.0.14 table 1")
Router4.cmd("ip rule add from 192.100.0.30 table 2")
Router4.cmd("ip rule add from 192.100.0.22 table 3")
Router4.cmd("ip route add 192.100.0.12/30 dev Router4-eth0 scope link table 1")
Router4.cmd("ip route add default via 192.100.0.13 dev Router4-eth0 table 1")
Router4.cmd("ip route add 192.100.0.28/30 dev Router4-eth0 scope link table 2")
Router4.cmd("ip route add default via 192.100.0.29 dev Router4-eth1 table 2")
Router4.cmd("ip route add 192.100.0.20/30 dev Router4-eth2 scope link table 3")
Router4.cmd("ip route add default via 192.100.0.21 dev Router4-eth2 table 3")
Router4.cmd("ip route add default scope global nexthop via 192.100.0.13 dev Router4-eth0")

#routing ruter1
Router1.cmd("route add -net 192.100.0.8/30 gw 192.100.0.18")
Router1.cmd("route add -net 192.100.0.12/30 gw 192.100.0.30")
Router1.cmd("route add -net 192.100.0.20/30 gw 192.100.0.30")
Router1.cmd("route add -net 192.100.0.4/30 gw 192.100.0.1")
Router1.cmd("route add -net 192.100.0.24/30 gw 192.100.0.18")

#routing router2
Router2.cmd("route add -net 192.100.0.0/30 gw 192.100.0.5")
Router2.cmd("route add -net 192.100.0.16/30 gw 192.100.0.26")
Router2.cmd("route add -net 192.100.0.8/30 gw 192.100.0.26")
Router2.cmd("route add -net 192.100.0.12/30 gw 192.100.0.22")
Router2.cmd("route add -net 192.100.0.28/30 gw 192.100.0.22")

#routing router3
Router3.cmd("route add -net 192.100.0.4/30 gw 192.100.0.25")
Router3.cmd("route add -net 192.100.0.0/30 gw 192.100.0.17")
Router3.cmd("route add -net 192.100.0.20/30 gw 192.100.0.25")
Router3.cmd("route add -net 192.100.0.12/30 gw 192.100.0.9")
Router3.cmd("route add -net 192.100.0.28/30 gw 192.100.0.17")


#routing router4
Router4.cmd("route add -net 192.100.0.0/30 gw 192.100.0.29")
Router4.cmd("route add -net 192.100.0.4/30 gw 192.100.0.21")
Router4.cmd("route add -net 192.100.0.8/30 gw 192.100.0.13")
Router4.cmd("route add -net 192.100.0.16/30 gw 192.100.0.29")
Router4.cmd("route add -net 192.100.0.24/30 gw 192.100.0.21")
```

6. TRACEROUTE ANTAR HOST

```
Starting CLI:
mininet> Host1 traceroute Host2
traceroute to 192.100.0.9 (192.100.0.9), 30 hops max, 60 byte packets
 1  192.100.0.2 (192.100.0.2)  0.081 ms  0.009 ms  0.011 ms
 2  192.100.0.18 (192.100.0.18)  0.037 ms  0.012 ms  0.011 ms
 3  192.100.0.9 (192.100.0.9)  0.033 ms  0.016 ms  0.015 ms
```

```
 3  192.100.0.9 (192.100.0.9)  0.033 ms  0.016 ms  0.015 ms
mininet> Host2 traceroute Host1
traceroute to 192.100.0.1 (192.100.0.1), 30 hops max, 60 byte packets
 1  192.100.0.10 (192.100.0.10)  0.406 ms  0.344 ms  0.326 ms
 2  192.100.0.17 (192.100.0.17)  0.310 ms  0.281 ms  0.262 ms
 3  192.100.0.1 (192.100.0.1)  0.245 ms  0.213 ms  0.193 ms
```

7. CAPTURE PAKET

```
#CLO3#
Host2.cmd("iperf -s &")

#wireshark
Host2.cmd("tcpdump -w Tubes-1301204303.pcap &")

#Client
Host1.cmd("iperf -c 192.100.0.9 -t 100 &")
time.sleep(10)
Host1.cmd("iperf -c 192.100.0.9")
```

```
"Node: Host1"

root@harvian-VirtualBox:/home/harvian# tcdump -w Tubespix.pcap -c 100
```
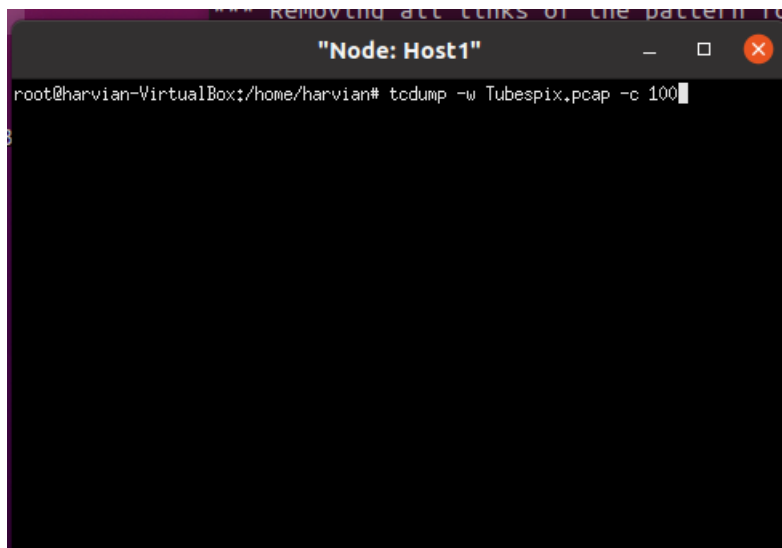
```
root@harvian-VirtualBox:/home/harvian# cd mininet
root@harvian-VirtualBox:/home/harvian/mininet# cd custom
root@harvian-VirtualBox:/home/harvian/mininet/custom# tcpdump -w tubesahaha.pca
p -c 100
tcpdump: listening on Host1-eth0, link-type EN10MB (Ethernet), capture size 2621
44 bytes
```


8. MENAMBAHKAN NILAI BUFFER
    -   20

```
#MemilihBandwith (1MBPS, 500kb)
#nilai buffer 20,40,60,100
bandwithA={'bw':1, "max_queue_size" :20}
bandwithB={'bw':0.5, "max_queue_size":20}
```

    -   40

```
#MemilihBandwith (1MBPS, 500kb)
#nilai buffer 20,40,60,100
bandwithA={'bw':1, "max_queue_size" :40}
bandwithB={'bw':0.5, "max_queue_size":40}
```

    -   60

```
#MemilihBandwith (1MBPS, 500kb)
#nilai buffer 20,40,60,100
bandwithA={'bw':1, "max_queue_size" :60}
bandwithB={'bw':0.5, "max_queue_size":60}
```

    -   100

```
#MemilihBandwith (1MBPS, 500kb)
#nilai buffer 20,40,60,100
bandwithA={'bw':1, "max_queue_size" :100
bandwithB={'bw':0.5, "max_queue_size":100}
```

9. BACKGROUND TRAFFIC

```
#clo4
Host2.cmd("iperf -s &")
Host1.cmd("iperf -t 60 -c 192.100.0.9")
```

10. EFEK BUFFER

- 20

```
*** Starting CLI:
mininet> Host1 ping Host2
PING 192.100.0.9 (192.100.0.9) 56(84) bytes of data.
64 bytes from 192.100.0.9: icmp_seq=1 ttl=62 time=0.088 ms
64 bytes from 192.100.0.9: icmp_seq=2 ttl=62 time=0.132 ms
64 bytes from 192.100.0.9: icmp_seq=3 ttl=62 time=0.122 ms
64 bytes from 192.100.0.9: icmp_seq=4 ttl=62 time=0.132 ms
^C
--- 192.100.0.9 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3075ms
rtt min/avg/max/mdev = 0.088/0.118/0.132/0.018 ms
mininet>
```

- 40

```
*** Starting CLI:
mininet> Host1 ping Host2
PING 192.100.0.9 (192.100.0.9) 56(84) bytes of data.
64 bytes from 192.100.0.9: icmp_seq=1 ttl=62 time=0.087 ms
64 bytes from 192.100.0.9: icmp_seq=2 ttl=62 time=0.128 ms
64 bytes from 192.100.0.9: icmp_seq=3 ttl=62 time=0.126 ms
64 bytes from 192.100.0.9: icmp_seq=4 ttl=62 time=0.129 ms
64 bytes from 192.100.0.9: icmp_seq=5 ttl=62 time=0.146 ms
^C
```

- 60

```
mininet> Host1 ping Host2
PING 192.100.0.9 (192.100.0.9) 56(84) bytes of data.
64 bytes from 192.100.0.9: icmp_seq=1 ttl=62 time=0.082 ms
64 bytes from 192.100.0.9: icmp_seq=2 ttl=62 time=0.092 ms
64 bytes from 192.100.0.9: icmp_seq=3 ttl=62 time=0.122 ms
64 bytes from 192.100.0.9: icmp_seq=4 ttl=62 time=0.105 ms
64 bytes from 192.100.0.9: icmp_seq=5 ttl=62 time=0.132 ms
^C
--- 192.100.0.9 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4089ms
rtt min/avg/max/mdev = 0.082/0.106/0.132/0.018 ms
```

- 100

```
mininet> Host1 ping Host2
PING 192.100.0.9 (192.100.0.9) 56(84) bytes of data.
64 bytes from 192.100.0.9: icmp_seq=1 ttl=62 time=0.090 ms
64 bytes from 192.100.0.9: icmp_seq=2 ttl=62 time=0.127 ms
64 bytes from 192.100.0.9: icmp_seq=3 ttl=62 time=0.095 ms
64 bytes from 192.100.0.9: icmp_seq=4 ttl=62 time=0.113 ms
64 bytes from 192.100.0.9: icmp_seq=5 ttl=62 time=0.103 ms
^C
--- 192.100.0.9 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4078ms
rtt min/avg/max/mdev = 0.090/0.105/0.127/0.013 ms
```

Pengaruh besar kecilnya buffer adalah menaikan atau melamakan proses iperf dikarenakan banyak data yang diolah. Tetapi tidak selalu ketika semakin banyak data maka semakin lama proses atau time yang dibutuhkan.