

1)

A:

```
(type mn -h for details)

mn: error: no such option: --mac,
mininet@mininet-vm:~$ ^C
mininet@mininet-vm:~$ sudo mn --topo linear,4 --mac --link tc,bw=15
*** Creating network
*** Adding controller
*** Adding hosts:
h1 h2 h3 h4
*** Adding switches:
s1 s2 s3 s4
*** Adding links:
(15.00Mbit) (15.00Mbit) (h1, s1) (15.00Mbit) (15.00Mbit) (h2, s2) (15.00Mbit) (1
5.00Mbit) (h3, s3) (15.00Mbit) (15.00Mbit) (h4, s4) (15.00Mbit) (15.00Mbit) (s2,
s1) (15.00Mbit) (15.00Mbit) (s3, s2) (15.00Mbit) (15.00Mbit) (s4, s3)
*** Configuring hosts
h1 h2 h3 h4
*** Starting controller
c0
*** Starting 4 switches
s1 s2 s3 s4 ... (15.00Mbit) (15.00Mbit) (15.00Mbit) (15.00Mbit) (15.00Mbit) (15.0
0Mbit) (15.00Mbit) (15.00Mbit) (15.00Mbit) (15.00Mbit)
*** Starting CLI:
mininet> █
```

B:

```
mininet> h1 ifconfig -a
h1-eth0   Link encap:Ethernet  HWaddr 00:00:00:00:00:01
          inet addr:10.0.0.1  Bcast:10.255.255.255  Mask:255.0.0.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

mininet> h2 ifconfig -a
h2-eth0   Link encap:Ethernet  HWaddr 00:00:00:00:00:02
          inet addr:10.0.0.2  Bcast:10.255.255.255  Mask:255.0.0.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
```

```

mininet> h3 ifconfig -a
h3-eth0  Link encap:Ethernet  HWaddr 00:00:00:00:00:03
         inet addr:10.0.0.3  Bcast:10.255.255.255  Mask:255.0.0.0
         UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

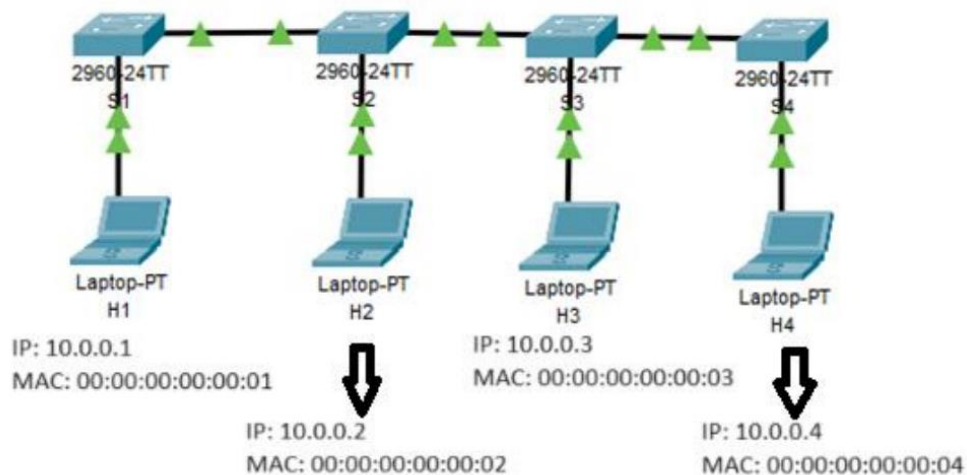
lo       Link encap:Local Loopback
         inet addr:127.0.0.1  Mask:255.0.0.0
         UP LOOPBACK RUNNING  MTU:65536  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

mininet> h4 ifconfig -a
h4-eth0  Link encap:Ethernet  HWaddr 00:00:00:00:00:04
         inet addr:10.0.0.4  Bcast:10.255.255.255  Mask:255.0.0.0
         UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lo       Link encap:Local Loopback
         inet addr:127.0.0.1  Mask:255.0.0.0
         UP LOOPBACK RUNNING  MTU:65536  Metric:1

```

C:



D:

```

h1 h2 h3 h4
*** Adding switches:
s1 s2 s3 s4
*** Adding links:
(15.00Mbit) (15.00Mbit) (h1, s1) (15.00Mbit) (15.00Mbit) (h2, s2) (15.00Mbit) (15.00
Mbit) (h3, s3) (15.00Mbit) (15.00Mbit) (h4, s4) (15.00Mbit) (15.00Mbit) (s2, s1) (15
.00Mbit) (15.00Mbit) (s3, s2) (15.00Mbit) (15.00Mbit) (s4, s3)
*** Configuring hosts
h1 h2 h3 h4
*** Starting controller
c0
*** Starting 4 switches
s1 s2 s3 s4 ... (15.00Mbit) (15.00Mbit) (15.00Mbit) (15.00Mbit) (15.00Mbit) (15.00Mbi
t) (15.00Mbit) (15.00Mbit) (15.00Mbit) (15.00Mbit)
*** Starting CLI:
mininet> xterm h1 h2 h3 h4
mininet> pingall
*** Ping: testing ping reachability
h1 -> h2 h3 h4
h2 -> h1 h3 h4
h3 -> h1 h2 h4
h4 -> h1 h2 h3
*** Results: 0% dropped (12/12 received)
mininet>

```

```

h1 h2 h3 h4
*** Adding switches:
s1 s2 s3 s4
*** Adding links:
(15.00Mbit) (15.00Mbit) (h1, s1) (15.00Mbit) (15.00Mbit) (h2, s2) (15.00Mbit) (15.00
Mbit) (h3, s3) (15.00Mbit) (15.00Mbit) (h4, s4) (15.00Mbit) (15.00Mbit) (s2, s1) (15
.00Mbit) (15.00Mbit) (s3, s2) (15.00Mbit) (15.00Mbit) (s4, s3)
*** Configuring hosts
h1 h2 h3 h4
*** Starting controller
c0
*** Starting 4 switches
s1 s2 s3 s4 ... (15.00Mbit) (15.00Mbit) (15.00Mbit) (15.00Mbit) (15.00Mbit) (15.00Mbi
t) (15.00Mbit) (15.00Mbit) (15.00Mbit) (15.00Mbit)
*** Starting CLI:
mininet> xterm h1 h2 h3 h4
mininet> pingall
*** Ping: testing ping reachability
h1 -> h2 h3 h4
h2 -> h1 h3 h4
h3 -> h1 h2 h4
h4 -> h1 h2 h3
*** Results: 0% dropped (12/12 received)

```

```

09:57:20.611696 IP 10.0.0.1 > 10.0.0.3: ICMP echo request, id 4947, seq 1, length 64
    0x0000: 0000 0000 0003 0000 0000 0001 0800 4500 .....E.
    0x0010: 0054 abff 4000 4001 7aa6 0a00 0001 0a00 .T..@.z.....
    0x0020: 0003 0800 5071 1353 0001 f0dc 2b66 0000 ....Pq.S....+f..
    0x0030: 0000 b024 0900 0000 0000 1011 1213 1415 ...$.
    0x0040: 1617 1819 1a1b 1c1d 1e1f 2021 2223 2425 .....!"#%$
    0x0050: 2627 2829 2a2b 2c2d 2e2f 3031 3233 3435 &'()*+,-./012345
    0x0060: 3637 67
09:57:20.611718 IP 10.0.0.3 > 10.0.0.1: ICMP echo reply, id 4947, seq 1, length 64
    0x0000: 0000 0000 0001 0000 0000 0003 0800 4500 .....E.
    0x0010: 0054 73fc 0000 4001 f2a9 0a00 0003 0a00 .Ts...@.....
    0x0020: 0001 0000 5871 1353 0001 f0dc 2b66 0000 ....Xq.S....+f..
    0x0030: 0000 b024 0900 0000 0000 1011 1213 1415 ...$.
    0x0040: 1617 1819 1a1b 1c1d 1e1f 2021 2223 2425 .....!"#%$
    0x0050: 2627 2829 2a2b 2c2d 2e2f 3031 3233 3435 &'()*+,-./012345
    0x0060: 3637 67
09:57:20.622228 ARP, Request who-has 10.0.0.4 tell 10.0.0.1, length 28
    0x0000: ffff ffff ffff 0000 0000 0001 0806 0001 .....
    0x0010: 0800 0604 0001 0000 0000 0001 0a00 0001 .....
    0x0020: 0000 0000 0000 0a00 0004 .....
09:57:20.652457 ARP, Request who-has 10.0.0.3 tell 10.0.0.2, length 28
    0x0000: ffff ffff ffff 0000 0000 0002 0806 0001 .....
    0x0020: 0000 0000 0001 0a00 0001 .....
09:57:20.585586 IP 10.0.0.1 > 10.0.0.2: ICMP echo request, id 4945, seq 1, length 64
    0x0000: 0000 0000 0002 0000 0000 0001 0800 4500 .....E.
    0x0010: 0054 9013 4000 4001 9693 0a00 0001 0a00 .T..@.z.....
    0x0020: 0002 0800 11b8 1351 0001 f0dc 2b66 0000 .....Q....+f..
    0x0030: 0000 efd8 0800 0000 0000 1011 1213 1415 .....
    0x0040: 1617 1819 1a1b 1c1d 1e1f 2021 2223 2425 .....!"#%$
    0x0050: 2627 2829 2a2b 2c2d 2e2f 3031 3233 3435 &'()*+,-./012345
    0x0060: 3637 67
09:57:20.596535 IP 10.0.0.2 > 10.0.0.1: ICMP echo reply, id 4945, seq 1, length 64
    0x0000: 0000 0000 0001 0000 0000 0002 0800 4500 .....E.
    0x0010: 0054 fcb4 0000 4001 69f2 0a00 0002 0a00 .T....@.i.....
    0x0020: 0001 0000 19b8 1351 0001 f0dc 2b66 0000 .....Q....+f..
    0x0030: 0000 efd8 0800 0000 0000 1011 1213 1415 .....
    0x0040: 1617 1819 1a1b 1c1d 1e1f 2021 2223 2425 .....!"#%$
    0x0050: 2627 2829 2a2b 2c2d 2e2f 3031 3233 3435 &'()*+,-./012345
    0x0060: 3637 67
09:57:20.599249 ARP, Request who-has 10.0.0.3 tell 10.0.0.1, length 28
    0x0000: ffff ffff ffff 0000 0000 0001 0806 0001 .....
    0x0010: 0800 0604 0001 0000 0000 0001 0a00 0001 .....
    0x0020: 0000 0000 0000 0a00 0003 .....
09:57:20.605632 ARP, Reply 10.0.0.3 is-at 00:00:00:00:00:03, length 28

```



```

0x0000: 0000 0000 0002 0000 0000 0003 0806 0001 .....
0x0010: 0800 0604 0002 0000 0000 0003 0a00 0003 .....
0x0020: 0000 0000 0002 0a00 0002 .....
09:57:20.656301 IP 10.0.0.2 > 10.0.0.3: ICMP echo request, id 4950, seq 1, length 64
0x0000: 0000 0000 0003 0000 0000 0002 0800 4500 .....E.
0x0010: 0054 3204 4000 4001 f4a0 0a00 0002 0a00 .T2.@.@.....
0x0020: 0003 0800 abac 1356 0001 f0dc 2b66 0000 .....V....+f..
0x0030: 0000 54e6 0900 0000 0000 1011 1213 1415 ..T.....
0x0040: 1617 1819 1a1b 1c1d 1e1f 2021 2223 2425 .....!"#%$
0x0050: 2627 2829 2a2b 2c2d 2e2f 3031 3233 3435 &'()*+,-./012345
0x0060: 3637 67
09:57:20.666396 IP 10.0.0.3 > 10.0.0.2: ICMP echo reply, id 4950, seq 1, length 64
0x0000: 0000 0000 0002 0000 0000 0003 0800 4500 .....E.
0x0010: 0054 9679 0000 4001 d02b 0a00 0003 0a00 .T.y..@..+.....
0x0020: 0002 0000 b3ac 1356 0001 f0dc 2b66 0000 .....V....+f..
0x0030: 0000 54e6 0900 0000 0000 1011 1213 1415 ..T.....
0x0040: 1617 1819 1a1b 1c1d 1e1f 2021 2223 2425 .....!"#%$
0x0050: 2627 2829 2a2b 2c2d 2e2f 3031 3233 3435 &'()*+,-./012345
0x0060: 3637 67
09:57:20.827247 ARP, Request who-has 10.0.0.4 tell 10.0.0.2, length 28
0x0000: ffff ffff ffff 0000 0000 0002 0806 0001 .....
0x0010: 0800 0604 0001 0000 0000 0002 0a00 0002 .....
09:57:20.830757 ARP, Reply 10.0.0.4 is-at 00:00:00:00:00:04, length 28
0x0000: 0000 0000 0002 0000 0000 0004 0806 0001 .....
0x0010: 0800 0604 0002 0000 0000 0004 0a00 0004 .....
0x0020: 0000 0000 0002 0a00 0002 .....
09:57:20.846363 IP 10.0.0.2 > 10.0.0.4: ICMP echo request, id 4951, seq 1, length 64
0x0000: 0000 0000 0004 0000 0000 0002 0800 4500 .....E.
0x0010: 0054 1aaa 4000 4001 0bfa 0a00 0002 0a00 .T..@.@.....
0x0020: 0004 0800 a5f2 1357 0001 f0dc 2b66 0000 .....W....+f..
0x0030: 0000 579f 0c00 0000 0000 1011 1213 1415 ..W.....
0x0040: 1617 1819 1a1b 1c1d 1e1f 2021 2223 2425 .....!"#%$
0x0050: 2627 2829 2a2b 2c2d 2e2f 3031 3233 3435 &'()*+,-./012345
0x0060: 3637 67
09:57:20.846379 IP 10.0.0.4 > 10.0.0.2: ICMP echo reply, id 4951, seq 1, length 64
0x0000: 0000 0000 0002 0000 0000 0004 0800 4500 .....E.
0x0010: 0054 bd1e 0000 4001 a985 0a00 0004 0a00 .T....@.....
0x0020: 0002 0000 adf2 1357 0001 f0dc 2b66 0000 .....W....+f..
0x0030: 0000 579f 0c00 0000 0000 1011 1213 1415 ..W.....
0x0040: 1617 1819 1a1b 1c1d 1e1f 2021 2223 2425 .....!"#%$
0x0050: 2627 2829 2a2b 2c2d 2e2f 3031 3233 3435 &'()*+,-./012345
0x0060: 3637 67
09:57:20.870101 ARP, Request who-has 10.0.0.4 tell 10.0.0.3, length 28
0x0000: ffff ffff ffff 0000 0000 0003 0806 0001 .....

```

E:

```
root@mininet-vm:~# iperf -s -p 5555 -i 1
```

```
-----  
Server listening on TCP port 5555  
TCP window size: 85.3 KByte (default)  
-----
```

```
[ 24] local 10.0.0.1 port 5555 connected with 10.0.0.2 port 47506  
[ ID] Interval      Transfer    Bandwidth  
[ 24] 0.0- 1.0 sec   119 KBytes  973 Kbits/sec  
[ 24] 1.0- 2.0 sec   119 KBytes  973 Kbits/sec  
[ 24] 2.0- 3.0 sec   116 KBytes  950 Kbits/sec  
[ 24] 3.0- 4.0 sec   116 KBytes  950 Kbits/sec  
[ 24] 4.0- 5.0 sec   116 KBytes  950 Kbits/sec  
[ 24] 5.0- 6.0 sec   117 KBytes  961 Kbits/sec  
[ 24] 6.0- 7.0 sec   116 KBytes  950 Kbits/sec  
[ 24] 7.0- 8.0 sec   119 KBytes  973 Kbits/sec  
[ 24] 8.0- 9.0 sec   116 KBytes  950 Kbits/sec  
[ 24] 9.0-10.0 sec   116 KBytes  950 Kbits/sec  
[ 24] 10.0-11.0 sec   119 KBytes  973 Kbits/sec  
[ 24] 11.0-12.0 sec   115 KBytes  938 Kbits/sec  
[ 24] 12.0-13.0 sec   119 KBytes  973 Kbits/sec  
[ 24] 0.0-13.1 sec   1.50 MBytes  958 Kbits/sec  
█
```

```
root@mininet-vm:~# iperf -c 10.0.0.1 -p 5555 -i 1 -t 10
```

```
-----  
Client connecting to 10.0.0.1, TCP port 5555  
TCP window size: 85.3 KByte (default)  
-----
```

```
[ 23] local 10.0.0.2 port 47506 connected with 10.0.0.1 port 5555  
[ ID] Interval      Transfer    Bandwidth  
[ 23] 0.0- 1.0 sec   256 KBytes  2.10 Mbits/sec  
[ 23] 1.0- 2.0 sec   256 KBytes  2.10 Mbits/sec  
[ 23] 2.0- 3.0 sec   128 KBytes  1.05 Mbits/sec  
[ 23] 3.0- 4.0 sec   128 KBytes  1.05 Mbits/sec  
[ 23] 4.0- 5.0 sec    0.00 Bytes  0.00 bits/sec  
[ 23] 5.0- 6.0 sec   128 KBytes  1.05 Mbits/sec  
[ 23] 6.0- 7.0 sec   128 KBytes  1.05 Mbits/sec  
[ 23] 7.0- 8.0 sec   128 KBytes  1.05 Mbits/sec  
[ 23] 8.0- 9.0 sec   128 KBytes  1.05 Mbits/sec  
[ 23] 9.0-10.0 sec   128 KBytes  1.05 Mbits/sec  
[ 23] 0.0-12.1 sec   1.50 MBytes  1.04 Mbits/sec  
root@mininet-vm:~# █
```

F: 3MPS

```

root@mininet-vn:~# iperf -s -p 5555 -i 1
-----
Server listening on TCP port 5555
TCP window size: 85.3 KByte (default)
-----
[ 24] local 10.0.0.1 port 5555 connected with 10.0.0.2 port 47478
[ ID] Interval      Transfer    Bandwidth
[ 24] 0.0- 1.0 sec   352 KBytes  2.88 Mbits/sec
[ 24] 1.0- 2.0 sec   351 KBytes  2.87 Mbits/sec
[ 24] 2.0- 3.0 sec   349 KBytes  2.86 Mbits/sec
[ 24] 3.0- 4.0 sec   351 KBytes  2.87 Mbits/sec
[ 24] 4.0- 5.0 sec   352 KBytes  2.88 Mbits/sec
[ 24] 5.0- 6.0 sec   348 KBytes  2.85 Mbits/sec
[ 24] 6.0- 7.0 sec   352 KBytes  2.88 Mbits/sec
[ 24] 7.0- 8.0 sec   351 KBytes  2.87 Mbits/sec
[ 24] 8.0- 9.0 sec   349 KBytes  2.86 Mbits/sec
[ 24] 9.0-10.0 sec   351 KBytes  2.87 Mbits/sec
[ 24] 10.0-11.0 sec   349 KBytes  2.86 Mbits/sec
[ 24] 0.0-11.3 sec   3.88 MBytes 2.87 Mbits/sec

```

```

root@mininet-vn:~# iperf -c 10.0.0.1 -p 5555 -i 1 -t 10
-----
Client connecting to 10.0.0.1, TCP port 5555
TCP window size: 85.3 KByte (default)
-----
[ 23] local 10.0.0.2 port 47478 connected with 10.0.0.1 port 5555
[ ID] Interval      Transfer    Bandwidth
[ 23] 0.0- 1.0 sec   640 KBytes  5.24 Mbits/sec
[ 23] 1.0- 2.0 sec   384 KBytes  3.15 Mbits/sec
[ 23] 2.0- 3.0 sec   384 KBytes  3.15 Mbits/sec
[ 23] 3.0- 4.0 sec   256 KBytes  2.10 Mbits/sec
[ 23] 4.0- 5.0 sec   384 KBytes  3.15 Mbits/sec
[ 23] 5.0- 6.0 sec   384 KBytes  3.15 Mbits/sec
[ 23] 6.0- 7.0 sec   384 KBytes  3.15 Mbits/sec
[ 23] 7.0- 8.0 sec   256 KBytes  2.10 Mbits/sec
[ 23] 8.0- 9.0 sec   384 KBytes  3.15 Mbits/sec
[ 23] 9.0-10.0 sec   384 KBytes  3.15 Mbits/sec
[ 23] 0.0-10.6 sec   3.88 MBytes 3.07 Mbits/sec
root@mininet-vn:~#

```

12MPS:

```
root@mininet-vm:~# iperf -c 10.0.0.1 -p 5555 -i 1 -t 10
```

```
-----  
Client connecting to 10.0.0.1, TCP port 5555  
TCP window size: 85.3 KByte (default)
```

```
-----  
[ 23] local 10.0.0.2 port 47458 connected with 10.0.0.1 port 5555  
[ ID] Interval      Transfer    Bandwidth  
[ 23] 0.0- 1.0 sec   1.75 MBytes 14.7 Mbits/sec  
[ 23] 1.0- 2.0 sec   1.25 MBytes 10.5 Mbits/sec  
[ 23] 2.0- 3.0 sec   1.38 MBytes 11.5 Mbits/sec  
[ 23] 3.0- 4.0 sec   1.25 MBytes 10.5 Mbits/sec  
[ 23] 4.0- 5.0 sec   1.38 MBytes 11.5 Mbits/sec  
[ 23] 5.0- 6.0 sec   1.38 MBytes 11.5 Mbits/sec  
[ 23] 6.0- 7.0 sec   1.38 MBytes 11.5 Mbits/sec  
[ 23] 7.0- 8.0 sec   1.25 MBytes 10.5 Mbits/sec  
[ 23] 8.0- 9.0 sec   1.38 MBytes 11.5 Mbits/sec  
[ 23] 9.0-10.0 sec   1.38 MBytes 11.5 Mbits/sec  
[ 23] 0.0-10.1 sec   13.9 MBytes 11.5 Mbits/sec
```

```
root@mininet-vm:~# █
```

```
root@mininet-vm:~# iperf -s -p 5555 -i 1
```

```
-----  
Server listening on TCP port 5555  
TCP window size: 85.3 KByte (default)
```

```
-----  
[ 24] local 10.0.0.1 port 5555 connected with 10.0.0.2 port 47458  
[ ID] Interval      Transfer    Bandwidth  
[ 24] 0.0- 1.0 sec   1.35 MBytes 11.3 Mbits/sec  
[ 24] 1.0- 2.0 sec   1.35 MBytes 11.3 Mbits/sec  
[ 24] 2.0- 3.0 sec   1.34 MBytes 11.3 Mbits/sec  
[ 24] 3.0- 4.0 sec   1.35 MBytes 11.3 Mbits/sec  
[ 24] 4.0- 5.0 sec   1.33 MBytes 11.2 Mbits/sec  
[ 24] 5.0- 6.0 sec   1.32 MBytes 11.1 Mbits/sec  
[ 24] 6.0- 7.0 sec   1.34 MBytes 11.3 Mbits/sec  
[ 24] 7.0- 8.0 sec   1.35 MBytes 11.3 Mbits/sec  
[ 24] 8.0- 9.0 sec   1.35 MBytes 11.3 Mbits/sec  
[ 24] 9.0-10.0 sec   1.35 MBytes 11.4 Mbits/sec  
[ 24] 0.0-10.3 sec   13.9 MBytes 11.3 Mbits/sec
```

```
█
```

18MPS:


```
root@mininet-vm:~# iperf -c 10.0.0.1 -p 5555 -i 1 -t 10
```

```
-----  
Client connecting to 10.0.0.1, TCP port 5555  
TCP window size: 85.3 KByte (default)  
-----
```

```
[ 23] local 10.0.0.2 port 47430 connected with 10.0.0.1 port 5555  
[ ID] Interval      Transfer    Bandwidth  
[ 23] 0.0- 1.0 sec   2.25 MBytes 18.9 Mbits/sec  
[ 23] 1.0- 2.0 sec   2.00 MBytes 16.8 Mbits/sec  
[ 23] 2.0- 3.0 sec   2.00 MBytes 16.8 Mbits/sec  
[ 23] 3.0- 4.0 sec   2.12 MBytes 17.8 Mbits/sec  
[ 23] 4.0- 5.0 sec   2.00 MBytes 16.8 Mbits/sec  
[ 23] 5.0- 6.0 sec   2.12 MBytes 17.8 Mbits/sec  
[ 23] 6.0- 7.0 sec   2.00 MBytes 16.8 Mbits/sec  
[ 23] 7.0- 8.0 sec   2.12 MBytes 17.8 Mbits/sec  
[ 23] 8.0- 9.0 sec   2.00 MBytes 16.8 Mbits/sec  
[ 23] 9.0-10.0 sec   2.12 MBytes 17.8 Mbits/sec  
[ 23] 0.0-10.2 sec   20.9 MBytes 17.2 Mbits/sec  
root@mininet-vm:~#
```

```
root@mininet-vm:~# iperf -s -p 5555 -i 1
```

```
-----  
Server listening on TCP port 5555  
TCP window size: 85.3 KByte (default)  
-----
```

```
[ 24] local 10.0.0.1 port 5555 connected with 10.0.0.2 port 47430  
[ ID] Interval      Transfer    Bandwidth  
[ 24] 0.0- 1.0 sec   2.01 MBytes 16.8 Mbits/sec  
[ 24] 1.0- 2.0 sec   2.01 MBytes 16.8 Mbits/sec  
[ 24] 2.0- 3.0 sec   2.02 MBytes 17.0 Mbits/sec  
[ 24] 3.0- 4.0 sec   2.03 MBytes 17.0 Mbits/sec  
[ 24] 4.0- 5.0 sec   2.03 MBytes 17.1 Mbits/sec  
[ 24] 5.0- 6.0 sec   2.04 MBytes 17.1 Mbits/sec  
[ 24] 6.0- 7.0 sec   2.02 MBytes 16.9 Mbits/sec  
[ 24] 7.0- 8.0 sec   2.02 MBytes 17.0 Mbits/sec  
[ 24] 8.0- 9.0 sec   2.03 MBytes 17.0 Mbits/sec  
[ 24] 9.0-10.0 sec   2.03 MBytes 17.0 Mbits/sec  
[ 24] 0.0-10.3 sec   20.9 MBytes 17.0 Mbits/sec  
█
```