ASSIGNMENT – 7

TCP FLOW THROUGHPUT

> sudo mn --topo single,2

```
csg@Ubuntu1:~$ sudo mn --topo single,2
[sudo] password for csg:
*** Creating network
*** Adding controller
*** Adding hosts:
h1 h2
*** Adding switches:
s1
*** Adding links:
(h1, s1) (h2, s1)
*** Configuring hosts
h1 h2
*** Starting controller
c0
*** Starting 1 switches
s1 ...
*** Starting CLI:
mininet> xterm h1 h2
mininet>
```

On xterm window h2 :

> iperf -s -p 5566 -i 1 > output1

On xterm window h1 :

> iperf -c 10.0.0.2 -p 5566 -t 15

On xterm window h2 :

> more output 1

```
root@Ubuntu1:/home/csg# iperf -s -p 5566 -i 1 > output1
^Croot@Ubuntu1:/home/csg# more output1
------------------------------------------------------------
Server listening on TCP port 5566
TCP window size: 85.3 KByte (default)
------------------------------------------------------------
[  6] local 10.0.0.2 port 5566 connected with 10.0.0.1 port 51872
[ ID] Interval       Transfer     Bandwidth
[  6]  0.0- 1.0 sec  4.34 GBytes  37.2 Gbits/sec
[  6]  1.0- 2.0 sec  5.41 GBytes  46.5 Gbits/sec
[  6]  2.0- 3.0 sec  4.96 GBytes  42.6 Gbits/sec
[  6]  3.0- 4.0 sec  5.01 GBytes  43.0 Gbits/sec
[  6]  4.0- 5.0 sec  5.11 GBytes  43.9 Gbits/sec
[  6]  5.0- 6.0 sec  5.13 GBytes  44.0 Gbits/sec
[  6]  6.0- 7.0 sec  4.93 GBytes  42.4 Gbits/sec
[  6]  7.0- 8.0 sec  5.46 GBytes  46.9 Gbits/sec
[  6]  8.0- 9.0 sec  5.16 GBytes  44.3 Gbits/sec
[  6]  9.0-10.0 sec  5.32 GBytes  45.7 Gbits/sec
[  6] 10.0-11.0 sec  5.46 GBytes  46.9 Gbits/sec
[  6] 11.0-12.0 sec  5.22 GBytes  44.9 Gbits/sec
[  6] 12.0-13.0 sec  5.50 GBytes  47.2 Gbits/sec
[  6] 13.0-14.0 sec  5.37 GBytes  46.1 Gbits/sec
[  6] 14.0-15.0 sec  5.51 GBytes  47.3 Gbits/sec
[  6]  0.0-15.0 sec  77.9 GBytes  44.6 Gbits/sec
root@Ubuntu1:/home/csg# cat output1 | grep sec | head -15 | tr - " " | awk '{pr
int $4,$8}' > output2
root@Ubuntu1:/home/csg# more output2
1.0 37.2
2.0 46.5
3.0 42.6
4.0 43.0
5.0 43.9
6.0 44.0
7.0 42.4
8.0 46.9
9.0 44.3
10.0 45.7
11.0 46.9
12.0 44.9
13.0 47.2
14.0 46.1
15.0 47.3
```

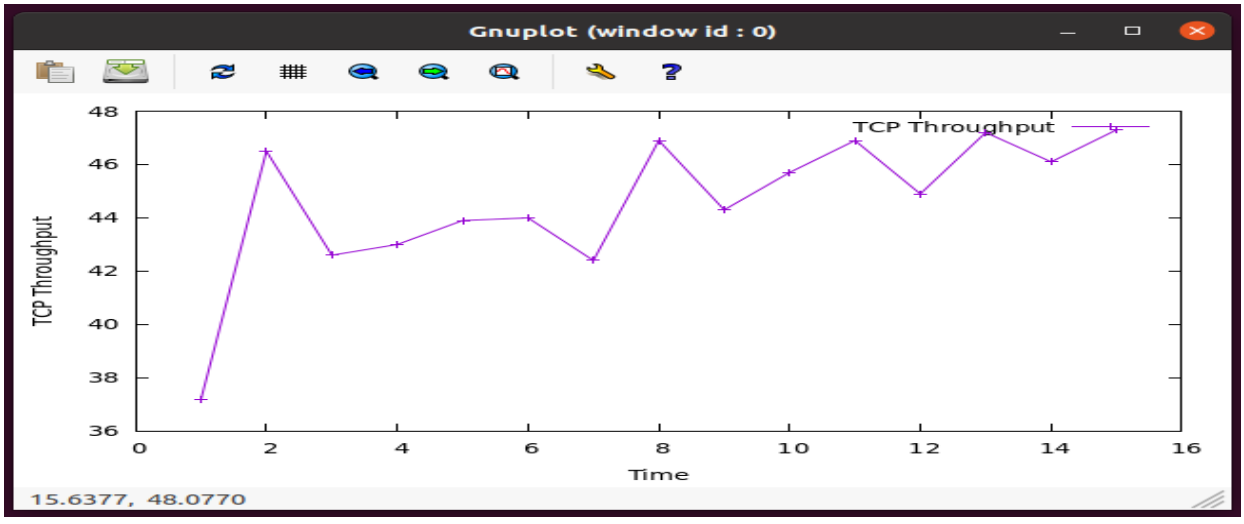
> gnuplot

> plot “output2” title “TCP Throughput” with linespoints

> set xlabel “Time”

> set ylabel “TCP Throughput”

> replot



UDP FLOW THROUGHPUT

On xterm window h2 :

> iperf -s -u -p 5566 -i 1 > output3

On xterm window h1 :

> iperf -c 10.0.0.2 -u -b 10.5M -p 5566 -t 15

On xterm window h2 :

> more output 3

```
root@Ubuntu1:/home/csg# iperf -s -u -p 5566 -i 1 > output3
^Croot@Ubuntu1:/home/csgmore output3
------------------------------------------------------------
Server listening on UDP port 5566
Receiving 1470 byte datagrams
UDP buffer size:  208 KByte (default)
------------------------------------------------------------
[  5] local 10.0.0.2 port 5566 connected with 10.0.0.1 port 60892
[ ID] Interval       Transfer     Bandwidth        Jitter   Lost/Total Datagrams
[  5]  0.0- 1.0 sec  1.25 MBytes  10.5 Mbits/sec   0.083 ms    0/  893 (0%)
[  5]  1.0- 2.0 sec  1.25 MBytes  10.5 Mbits/sec   0.150 ms    0/  892 (0%)
[  5]  2.0- 3.0 sec  1.25 MBytes  10.5 Mbits/sec   0.248 ms    0/  891 (0%)
[  5]  3.0- 4.0 sec  1.25 MBytes  10.5 Mbits/sec   0.155 ms    0/  892 (0%)
[  5]  4.0- 5.0 sec  1.25 MBytes  10.5 Mbits/sec   0.156 ms    0/  889 (0%)
[  5]  5.0- 6.0 sec  1.25 MBytes  10.5 Mbits/sec   0.013 ms    0/  894 (0%)
[  5]  6.0- 7.0 sec  1.25 MBytes  10.5 Mbits/sec   0.014 ms    0/  892 (0%)
[  5]  7.0- 8.0 sec  1.25 MBytes  10.5 Mbits/sec   0.009 ms    0/  892 (0%)
[  5]  8.0- 9.0 sec  1.25 MBytes  10.5 Mbits/sec   0.014 ms    0/  891 (0%)
[  5]  9.0-10.0 sec  1.25 MBytes  10.5 Mbits/sec   0.010 ms    0/  892 (0%)
[  5] 10.0-11.0 sec  1.25 MBytes  10.5 Mbits/sec   0.018 ms    0/  891 (0%)
[  5] 11.0-12.0 sec  1.25 MBytes  10.5 Mbits/sec   0.013 ms    0/  892 (0%)
[  5] 12.0-13.0 sec  1.25 MBytes  10.5 Mbits/sec   0.013 ms    0/  891 (0%)
[  5] 13.0-14.0 sec  1.25 MBytes  10.5 Mbits/sec   0.005 ms    0/  891 (0%)
[  5]  0.0-15.0 sec  18.8 MBytes  10.5 Mbits/sec   0.014 ms    0/13375 (0%)
root@Ubuntu1:/home/csg# cat output3 | grep sec | head -15 | tr - " " | awk '{pr
int $4,$8}' > output4
root@Ubuntu1:/home/csg# more output4
1.0 10.5
2.0 10.5
3.0 10.5
4.0 10.5
5.0 10.5
6.0 10.5
7.0 10.5
8.0 10.5
9.0 10.5
10.0 10.5
11.0 10.5
12.0 10.5
13.0 10.5
14.0 10.5
15.0 10.5
```

> gnuplot

> plot “output4” title “UDP Throughput” with linespoints

> set xlabel “Time”

> set ylabel “UDP Throughput”

> replot