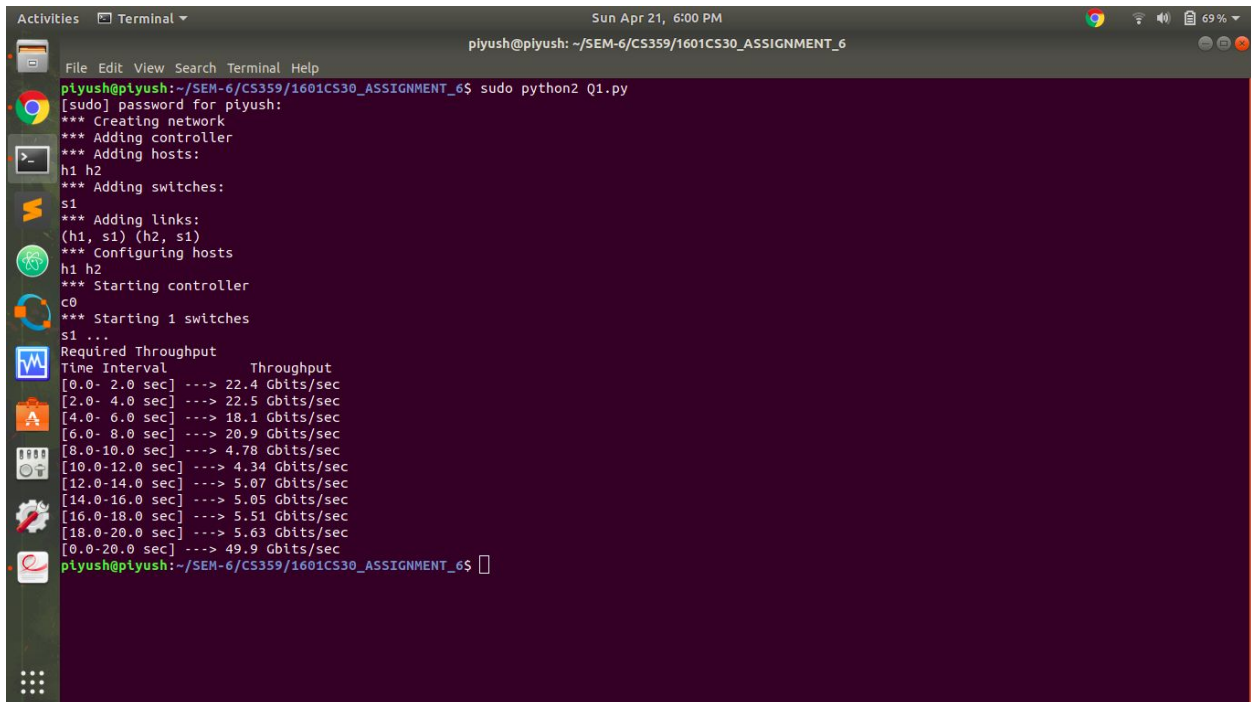


Assignment-6

Piyush Singh (1601CS30)

1

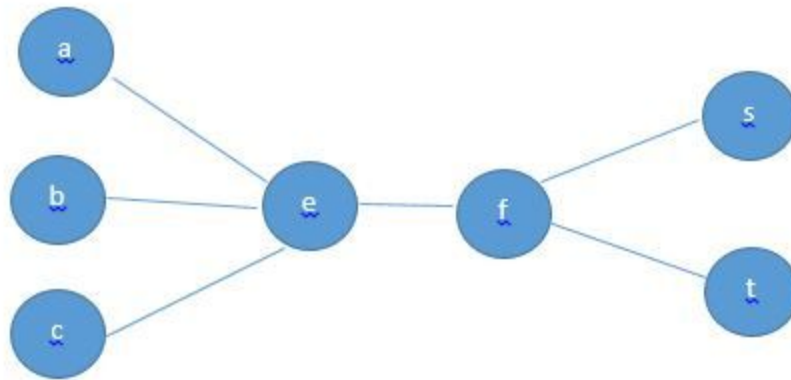
Using Mininet to create a topology which comprises of two hosts (h1, h2) connected to a single switch. The pair of hosts will transfer TCP packets among each other using sockets. The server host (h1) will have port number 5111 and monitor the results every 2 seconds (obtain the statistics after every 2 seconds). The client host (h2) will send packets for 20 seconds. The output is as follows :



```
Activities Terminal Sun Apr 21, 6:00 PM
piyush@piyush: ~/SEM-6/CS359/1601CS30_ASSIGNMENT_6
File Edit View Search Terminal Help
piyush@piyush:~/SEM-6/CS359/1601CS30_ASSIGNMENT_6$ sudo python2 Q1.py
[sudo] password for piyush:
*** 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 ...
Required Throughput
Time Interval      Throughput
[0.0- 2.0 sec] ---> 22.4 Gbits/sec
[2.0- 4.0 sec] ---> 22.5 Gbits/sec
[4.0- 6.0 sec] ---> 18.1 Gbits/sec
[6.0- 8.0 sec] ---> 20.9 Gbits/sec
[8.0-10.0 sec] ---> 4.78 Gbits/sec
[10.0-12.0 sec] ---> 4.34 Gbits/sec
[12.0-14.0 sec] ---> 5.07 Gbits/sec
[14.0-16.0 sec] ---> 5.05 Gbits/sec
[16.0-18.0 sec] ---> 5.51 Gbits/sec
[18.0-20.0 sec] ---> 5.63 Gbits/sec
[0.0-20.0 sec] ---> 49.9 Gbits/sec
piyush@piyush:~/SEM-6/CS359/1601CS30_ASSIGNMENT_6$
```

2

We created a network topology that comprises of 5 hosts namely, a, b, c, s and t, and two switches namely e and f and the links between them with setting the network with bandwidth between the hosts and the switch is 5Mbps with transmission delay of 3ms and 2% packet drop. The queue in the switch can accommodate a maximum of 300 packets. and the bandwidth between the switches is 15Mbps and has a transmission delay of 2ms.



In Output, we can see that connectivity of host and server as we saw in the figure of topology Packet from any of the host is reachable to every other host. So 0% of packets will be dropped.

```
Activities Terminal Sun Apr 21, 6:08 PM plyush@plyush: ~/SEM-6/CS359/1601CS30_ASSIGNMENT_6
File Edit View Search Terminal Help
s1 t1
*** Adding links:
(5.00Mbit 3ms delay 2% loss) (5.00Mbit 3ms delay 2% loss) (a, s1) (5.00Mbit 3ms delay 2% loss) (5.00Mbit 3ms delay 2% loss) (b, s1) (5.00Mbit 3ms delay 2% loss) (5.00Mbit 3ms delay 2% loss) (c, t1) (5.00Mbit 3ms delay 2% loss) (5.00Mbit 3ms delay 2% loss) (d, t1) (5.00Mbit 3ms delay 2% loss) (5.00Mbit 3ms delay 2% loss) (e, s1) (15.00Mbit 2ms delay) (15.00Mbit 2ms delay) (s1, t1) (5.00Mbit 3ms delay 2% loss) (5.00Mbit 3ms delay 2% loss) (u, t1)
*** Configuring hosts
a b c d e u
*** Starting controller
c0
*** Starting 2 switches
s1 t1 ... (5.00Mbit 3ms delay 2% loss) (5.00Mbit 3ms delay 2% loss) (5.00Mbit 3ms delay 2% loss) (15.00Mbit 2ms delay) (5.00Mbit 3ms delay 2% loss) (5.00Mbit 3ms delay 2% loss) (5.00Mbit 3ms delay 2% loss) (15.00Mbit 2ms delay)
Detailed Connections :
a a-eth0:s1-eth1
b b-eth0:s1-eth2
c c-eth0:t1-eth1
d d-eth0:t1-eth2
e e-eth0:s1-eth3
u u-eth0:t1-eth3
Ping Result to all nodes :
*** Ping: testing ping reachability
a -> b c d e u
b -> a c d e u
c -> a b d e u
d -> a b c e u
e -> a b c d u
u -> a b c d e
*** Results: 0% dropped (30/30 received)
*** Stopping 1 controllers
c0
*** Stopping 7 links
.....
*** Stopping 2 switches
s1 t1
*** Stopping 6 hosts
a b c d e u
*** Done
```