Pinging the Raspberry PI from the lab machine 10 times at 100ms.

```
manc2957@engs-labb27:~/CWM-ProgNets/assignment2$ ping 192.168.10.1 -c 10 -i 0.1
PING 192.168.10.1 (192.168.10.1) 56(84) bytes of data.
ping: cannot flood; minimal interval allowed for user is 200ms
```

We are unable to ping at an interval of 100 ms. (Probably because we lack root permission on the Lab Machine)

Pinging the Raspberry PI from the lab machine 10 times at 200ms.

```
manc2957@engs-labb27:~/CWM-ProgNets/assignment2$ ping 192.168.10.2 -c 10 -i 0.2
PING 192.168.10.2 (192.168.10.2) 56(84) bytes of data.
64 bytes from 192.168.10.2: icmp_seq=1 ttl=64 time=0.427 ms
64 bytes from 192.168.10.2: icmp_seq=2 ttl=64 time=0.423 ms
64 bytes from 192.168.10.2: icmp_seq=3 ttl=64 time=0.409 ms
64 bytes from 192.168.10.2: icmp_seq=4 ttl=64 time=0.402 ms
64 bytes from 192.168.10.2: icmp_seq=5 ttl=64 time=0.417 ms
64 bytes from 192.168.10.2: icmp_seq=6 ttl=64 time=0.439 ms
64 bytes from 192.168.10.2: icmp_seq=7 ttl=64 time=0.403 ms
64 bytes from 192.168.10.2: icmp_seq=8 ttl=64 time=0.406 ms
64 bytes from 192.168.10.2: icmp_seq=9 ttl=64 time=0.409 ms
64 bytes from 192.168.10.2: icmp_seq=10 ttl=64 time=0.470 ms

--- 192.168.10.2 ping statistics ---
10 packets transmitted, 10 received, 0% packet loss, time 1840ms
rtt min/avg/max/mdev = 0.402/0.420/0.470/0.019 ms
```

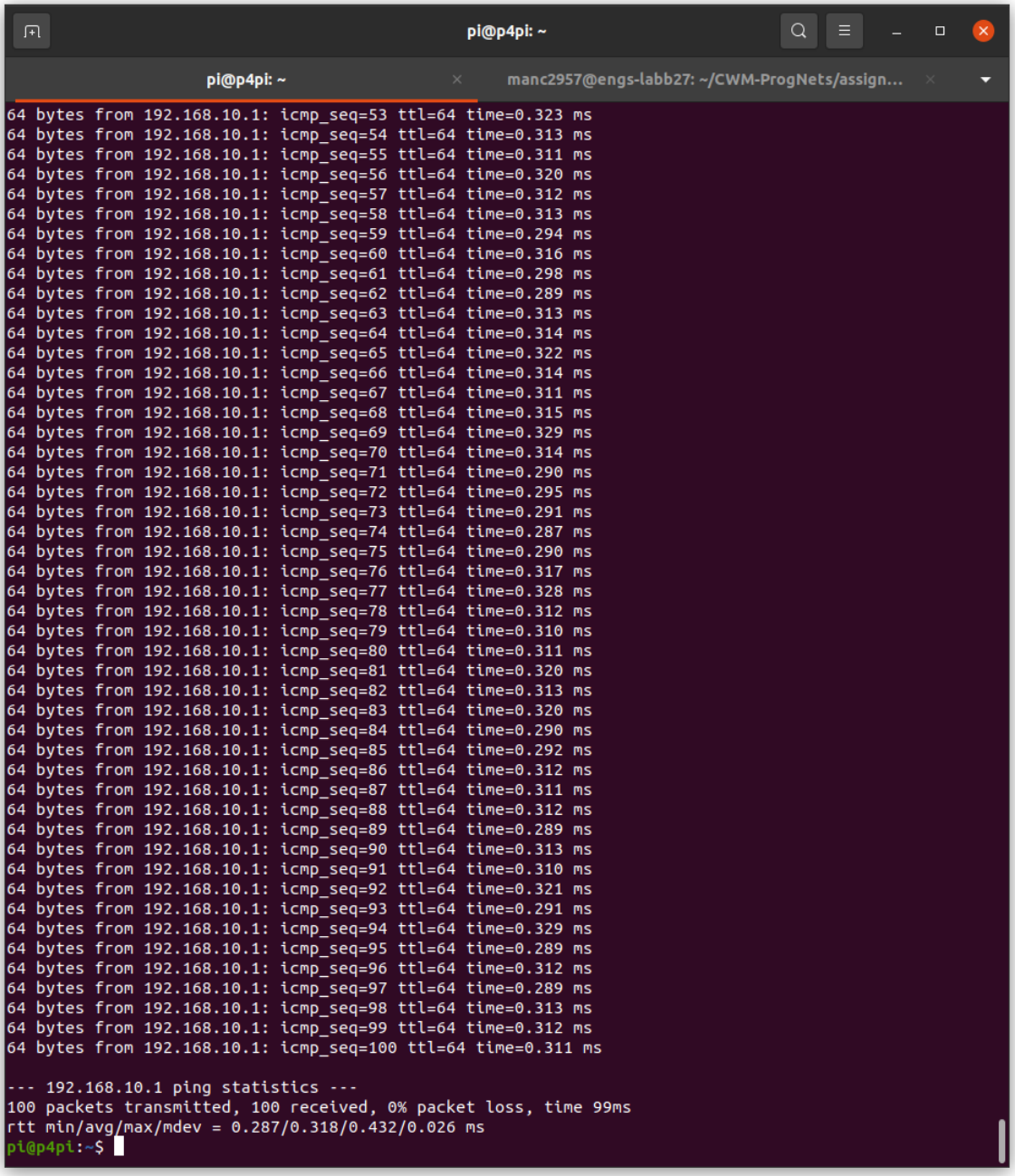
We see it takes about 400ms for each packet to be received.

Pinging the lab machine from the Raspberry PI 10 times at 100 ms.

```
pi@p4pi:~$ sudo ping 192.168.10.1 -c 10 -i 0.1
PING 192.168.10.1 (192.168.10.1) 56(84) bytes of data.
64 bytes from 192.168.10.1: icmp_seq=1 ttl=64 time=0.415 ms
64 bytes from 192.168.10.1: icmp_seq=2 ttl=64 time=0.552 ms
64 bytes from 192.168.10.1: icmp_seq=3 ttl=64 time=0.584 ms
64 bytes from 192.168.10.1: icmp_seq=4 ttl=64 time=0.592 ms
64 bytes from 192.168.10.1: icmp_seq=5 ttl=64 time=0.491 ms
64 bytes from 192.168.10.1: icmp_seq=6 ttl=64 time=0.585 ms
64 bytes from 192.168.10.1: icmp_seq=7 ttl=64 time=0.554 ms
64 bytes from 192.168.10.1: icmp_seq=8 ttl=64 time=0.590 ms
64 bytes from 192.168.10.1: icmp_seq=9 ttl=64 time=0.598 ms
64 bytes from 192.168.10.1: icmp_seq=10 ttl=64 time=0.500 ms

--- 192.168.10.1 ping statistics ---
10 packets transmitted, 10 received, 0% packet loss, time 939ms
rtt min/avg/max/mdev = 0.415/0.546/0.598/0.056 ms
```

We see that it takes about half a second for each packet to be received. This is about the same time as above.

Pinging the lab machine from the Raspberry PI 100 times at 1 ms.



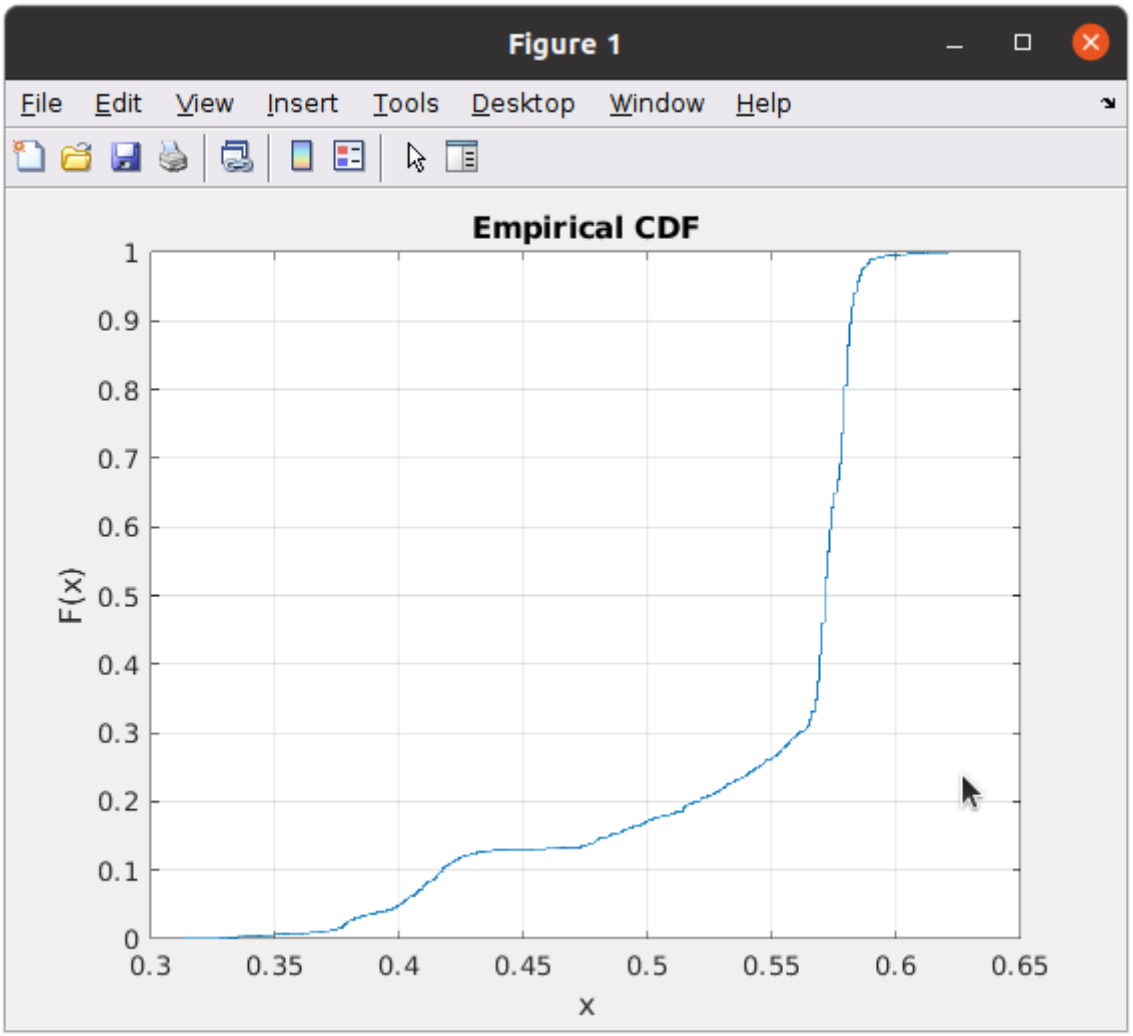
We see that it takes about 300 ms for each packet to be received. Minimum round trip time is 287 ms, maximum round trip time is 432 ms. Standard deviation is 26 ms. We see that the variance of RTT is actually quite significant, this becomes apparent when we observe a larger sample size of data packets.

Pinging the lab machine from the Raspberry PI 10000 times with flooding.

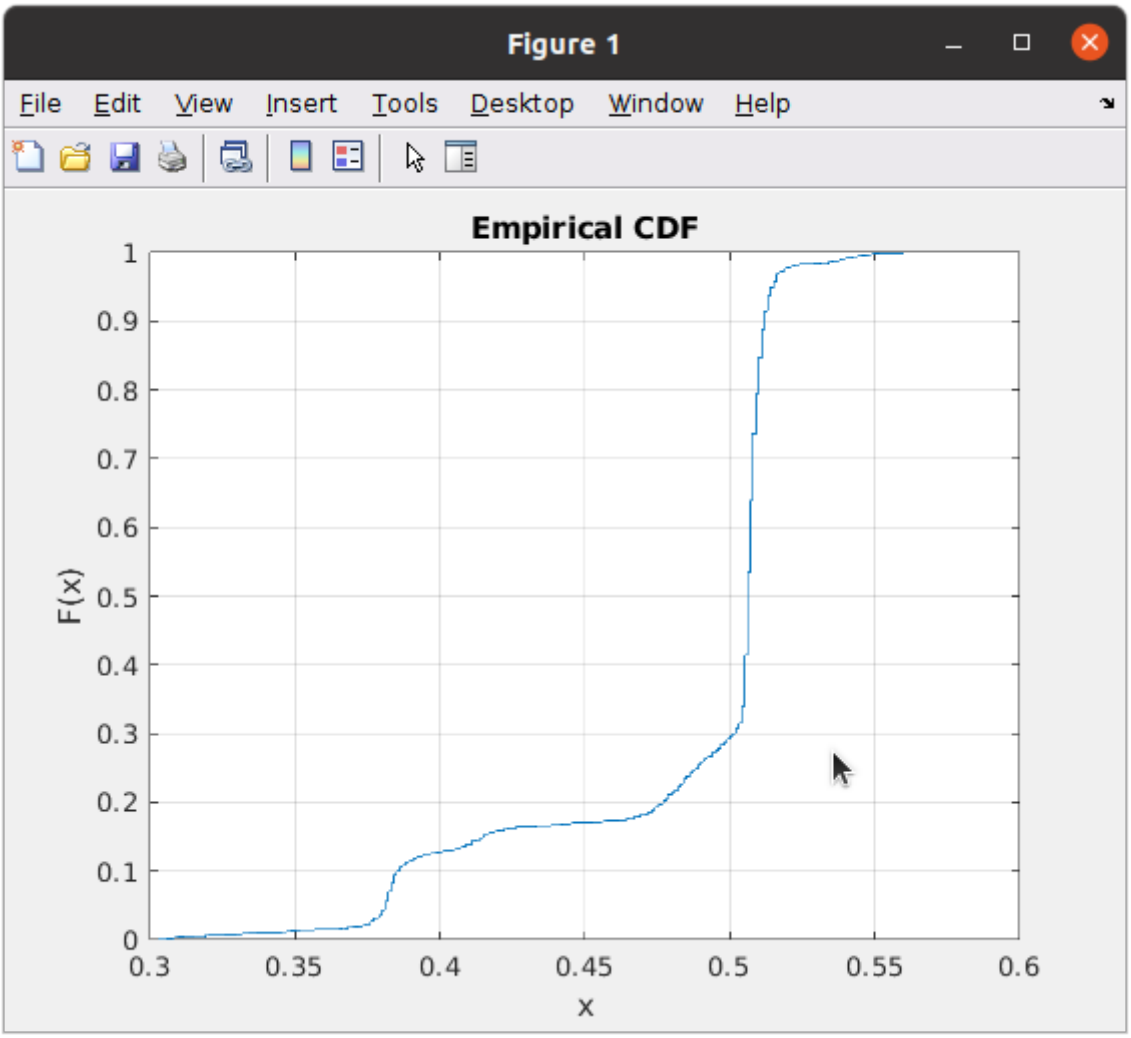
```
pi@p4pi:~/daoxin/CWM-ProgNets/assignment2$ sudo ping 192.168.10.1 -c 10000 -f
PING 192.168.10.1 (192.168.10.1) 56(84) bytes of data.

--- 192.168.10.1 ping statistics ---
10000 packets transmitted, 10000 received, 0% packet loss, time 3684ms
rtt min/avg/max/mdev = 0.157/0.312/0.692/0.021 ms, ipg/ewma 0.368/0.321 ms
```

We still see the same average RTT around 300ms.

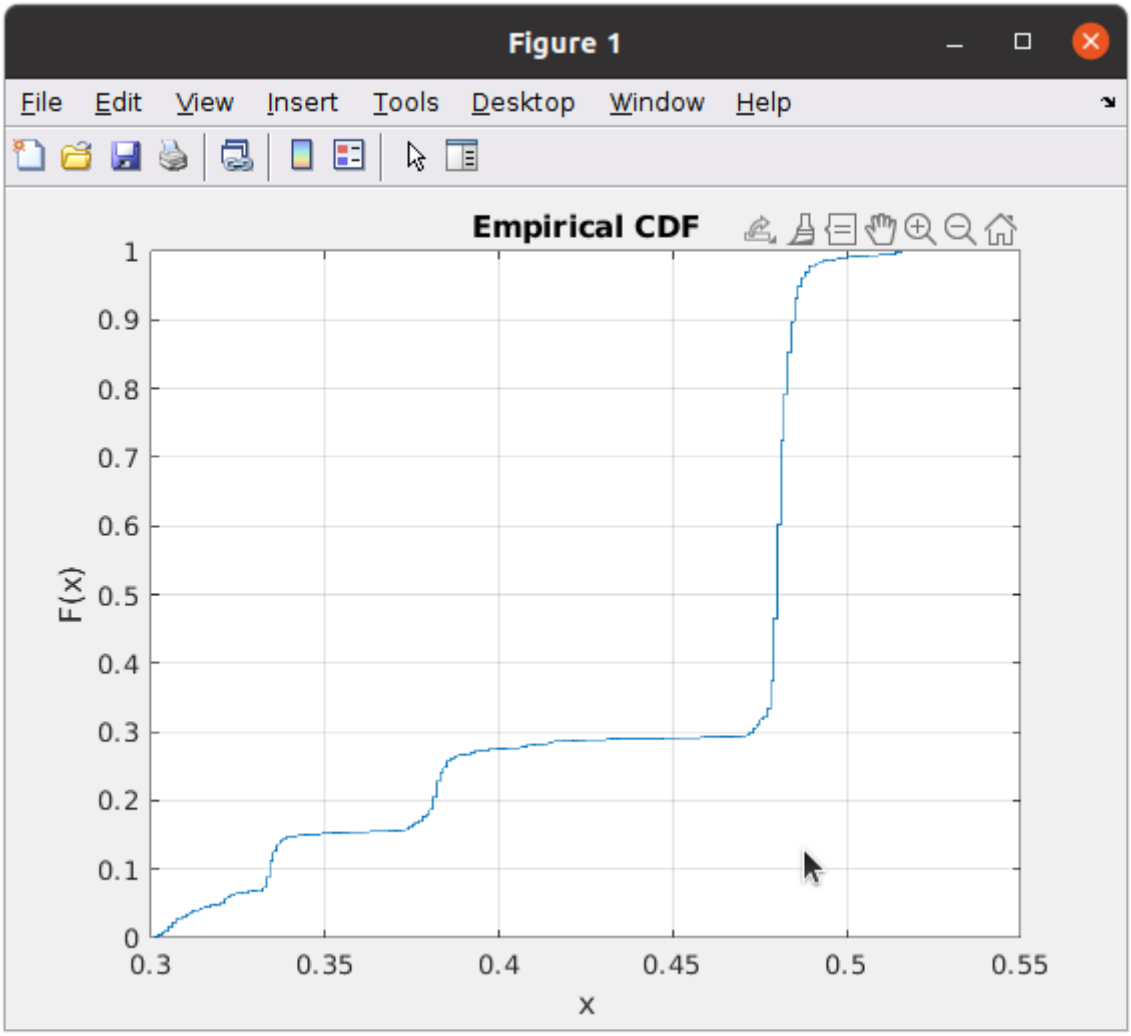
Pinging the lab machine from the Raspberry PI 2000 times at 10 ms.
rtt min/avg/max/mdev = 0.313/0.543/0.621/0.060 ms



Pinging the lab machine from the Raspberry PI 2000 times at 1 ms.
rtt min/avg/max/mdev = 0.303/0.485/0.560/0.046 ms



Pinging the lab machine from the Raspberry PI 2000 times at 0.1 ms.
rtt min/avg/max/mdev = 0.301/0.444/0.516/0.060 ms



The longer RTT for the lower interval experiment can most likely be attributed some higher layer process going on beyond the transport layers. There may be some delay within the Lab computer OS that comes minimised when it is pinged at shorter interval.

Latency is the time it takes for data to travel between the sending endpoint and receiving endpoint alone. Hence, it ignores any higher level delay. Thus the experiment at 0.1ms interval gives a more accurate estimate of latency.

Setting the Lab Machine as the iperf server and the Raspberry PI as the client.

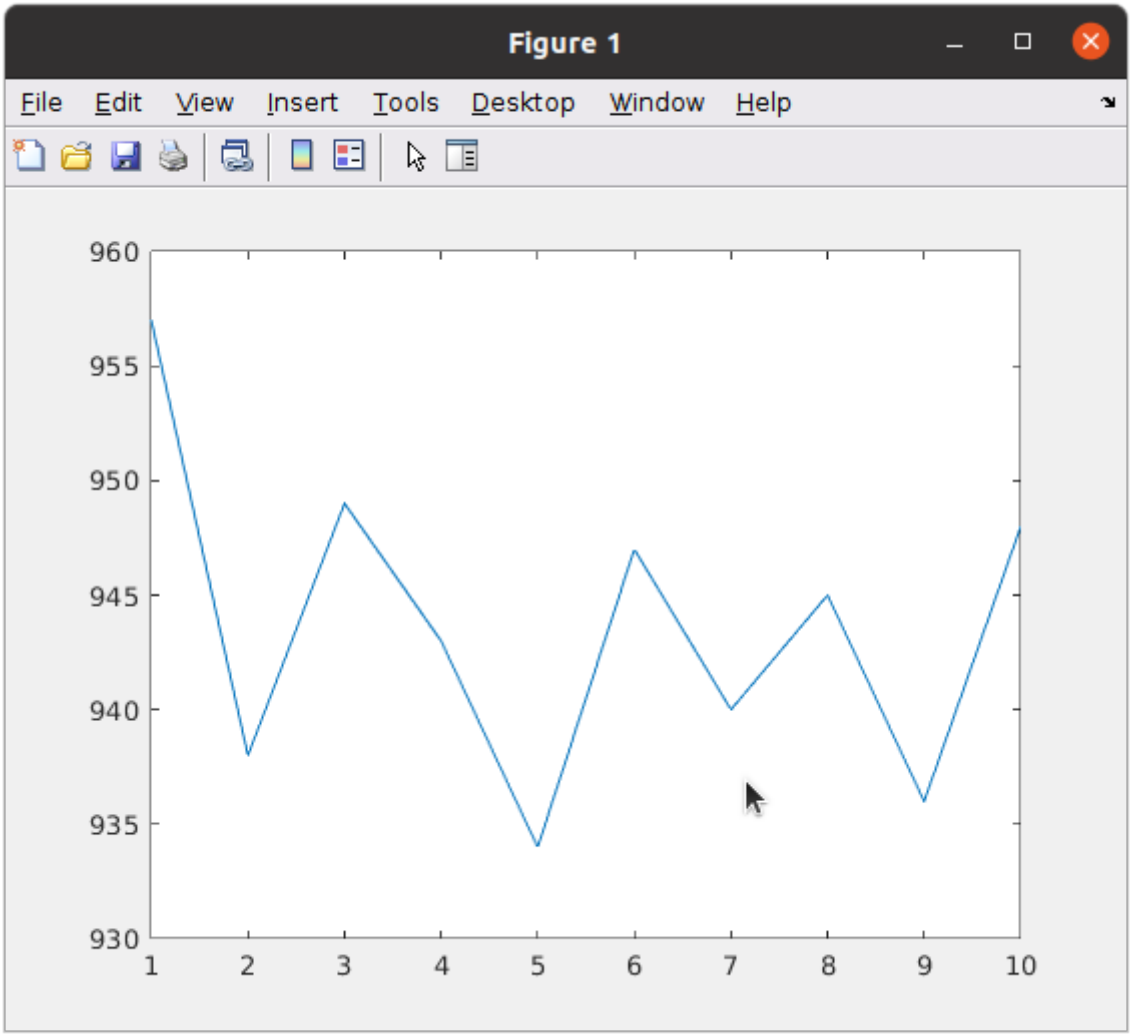
```
pi@p4pi:~/daoxin/CWM-ProgNets/assignment2$ iperf -c 192.168.10.1 -i 1 -t 10
------------------------------------------------------------
Client connecting to 192.168.10.1, TCP port 5001
TCP window size: 85.0 KByte (default)
------------------------------------------------------------
[  3] local 192.168.10.2 port 39188 connected with 192.168.10.1 port 5001
[ ID] Interval       Transfer     Bandwidth
[  3] 0.0000-1.0000 sec   114 MBytes   954 Mbits/sec
[  3] 1.0000-2.0000 sec   112 MBytes   938 Mbits/sec
[  3] 2.0000-3.0000 sec   112 MBytes   944 Mbits/sec
[  3] 3.0000-4.0000 sec   112 MBytes   944 Mbits/sec
[  3] 4.0000-5.0000 sec   112 MBytes   936 Mbits/sec
[  3] 5.0000-6.0000 sec   112 MBytes   941 Mbits/sec
[  3] 6.0000-7.0000 sec   112 MBytes   941 Mbits/sec
[  3] 7.0000-8.0000 sec   113 MBytes   946 Mbits/sec
[  3] 8.0000-9.0000 sec   112 MBytes   943 Mbits/sec
[  3] 9.0000-10.0000 sec   112 MBytes   942 Mbits/sec
[  3] 10.0000-10.0080 sec   256 KBytes   263 Mbits/sec
[  3] 0.0000-10.0080 sec  1.10 GBytes   942 Mbits/sec
```

We see that the effective bandwidth of the PI to the Lab Machine is around 942 Mbits/s. Not quite sure about the strange dip to 256 Mbits/s at the 9 sec mark.

Setting the Raspberry PI as the iperf server and the as the Lab Machine client.

```
manc2957@engs-labb27:~/CWM-ProgNets/assignment2$ iperf -c 192.168.10.2 -i 1 -t 10 > iperf_no_b.log
manc2957@engs-labb27:~/CWM-ProgNets/assignment2$ ls -al
total 444
drwxrwxr-x 2 manc2957 manc2957   4096 Jun 13 16:37 .
drwxrwxr-x 9 manc2957 manc2957   4096 Jun 13 10:30 ..
-rw-rw-r-- 1 manc2957 manc2957    866 Jun 13 16:38 iperf_no_b.log
-rw-rw-r-- 1 manc2957 manc2957    207 Jun 13 16:16 parser.py
-rw-rw-r-- 1 manc2957 manc2957  14000 Jun 13 16:16 ping_0.1ms.csv
-rw-r--r-- 1 manc2957 manc2957 125129 Jun 13 15:20 ping_0.1ms.log
-rw-rw-r-- 1 manc2957 manc2957  14000 Jun 13 16:12 ping_10ms.csv
-rw-r--r-- 1 manc2957 manc2957 125106 Jun 13 15:20 ping_10ms.log
-rw-rw-r-- 1 manc2957 manc2957  14000 Jun 13 16:14 ping_1ms.csv
-rw-r--r-- 1 manc2957 manc2957 125105 Jun 13 15:20 ping_1ms.log
-rw-rw-r-- 1 manc2957 manc2957     83 Jun 13 16:16 plot_graph.m
-rw-r--r-- 1 manc2957 manc2957     61 Jun 13 15:20 README.md
```

Graphing the Bandwidth.

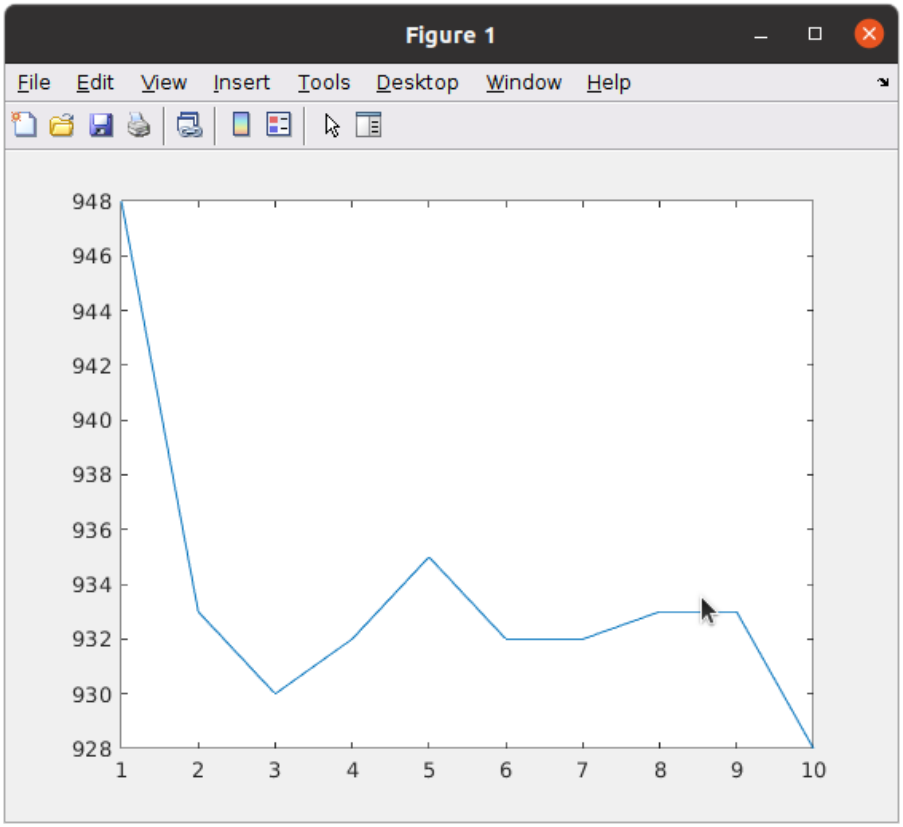


Setting the Raspberry PI as the iperf server and the as the Lab Machine client, **with bi-directional iperf**.

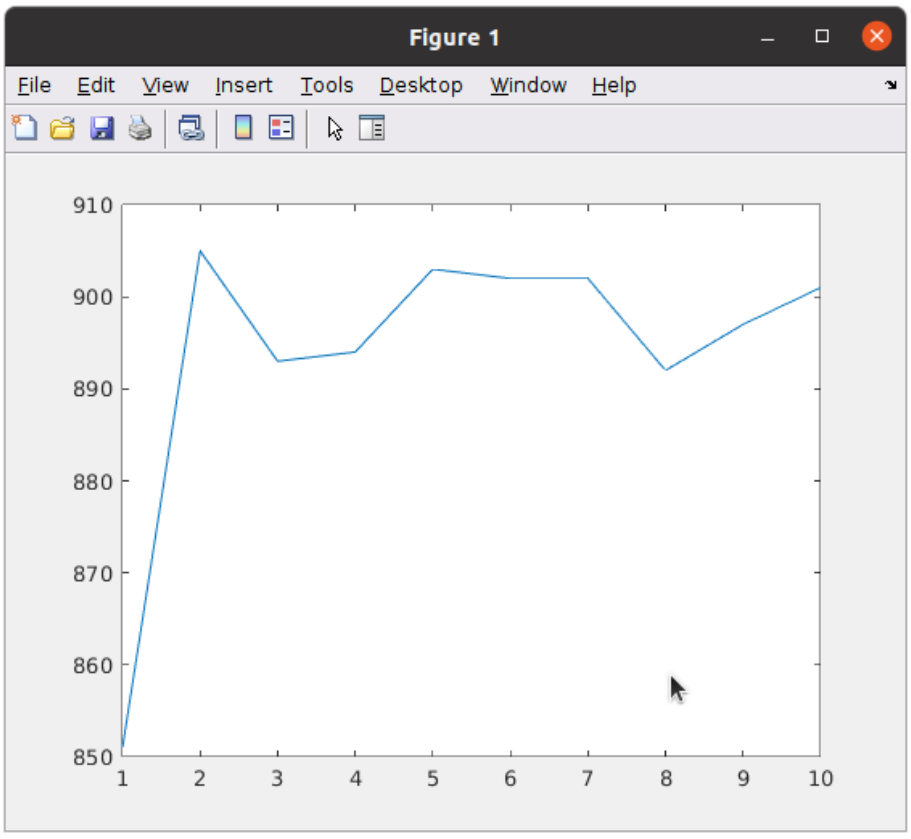
```
^Cmanc2957@engs-labb27:~/CWM-ProgNets/assignment2$ iperf -c 192.168.10.2 -i 1 -t 10 -d
------------------------------------------------------------
Server listening on TCP port 5001
TCP window size: -1.00 Byte (default)
------------------------------------------------------------
------------------------------------------------------------
Client connecting to 192.168.10.2, TCP port 5001
TCP window size:  400 KByte (default)
------------------------------------------------------------
[  4] local 192.168.10.1 port 37986 connected with 192.168.10.2 port 5001
[  5] local 192.168.10.1 port 5001 connected with 192.168.10.2 port 39200
[ ID] Interval       Transfer     Bandwidth
[  4]  0.0- 1.0 sec   113 MBytes   948 Mbits/sec
[  5]  0.0- 1.0 sec   101 MBytes   851 Mbits/sec
[  5]  1.0- 2.0 sec   108 MBytes   905 Mbits/sec
[  4]  1.0- 2.0 sec   111 MBytes   933 Mbits/sec
[  4]  2.0- 3.0 sec   111 MBytes   930 Mbits/sec
[  5]  2.0- 3.0 sec   107 MBytes   893 Mbits/sec
[  4]  3.0- 4.0 sec   111 MBytes   932 Mbits/sec
[  5]  3.0- 4.0 sec   107 MBytes   894 Mbits/sec
[  4]  4.0- 5.0 sec   112 MBytes   935 Mbits/sec
[  5]  4.0- 5.0 sec   108 MBytes   903 Mbits/sec
[  5]  5.0- 6.0 sec   108 MBytes   902 Mbits/sec
[  4]  5.0- 6.0 sec   111 MBytes   932 Mbits/sec
[  4]  6.0- 7.0 sec   111 MBytes   932 Mbits/sec
[  5]  6.0- 7.0 sec   108 MBytes   902 Mbits/sec
[  4]  7.0- 8.0 sec   111 MBytes   933 Mbits/sec
[  5]  7.0- 8.0 sec   106 MBytes   892 Mbits/sec
[  4]  8.0- 9.0 sec   111 MBytes   933 Mbits/sec
[  5]  8.0- 9.0 sec   107 MBytes   897 Mbits/sec
[  4]  9.0-10.0 sec   111 MBytes   928 Mbits/sec
[  4]  0.0-10.0 sec  1.09 GBytes   934 Mbits/sec
[  5]  9.0-10.0 sec   107 MBytes   901 Mbits/sec
[  5]  0.0-10.0 sec  1.04 GBytes   894 Mbits/sec
[SUM]  0.0-10.0 sec  1.14 GBytes   979 Mbits/sec
```

Link 4 is the forward connection (from Lab Machine to Raspberry Pi). Link 5 is the backward connection (from Raspberry Pi to the Lab Machine). Note the backward connection is now slower, at 900ms.

Graph of forward connection speed.



Graph of backward connection speed.



Setting the Raspberry Pi as a one way iperf **UDP** server and the Lab Machine as the client.

At 100kbits/s,

```
manc2957@engs-labb27:~/CWM-ProgNets/assignment2$ iperf -u -c 192.168.10.2 -i 0.5 -t 5 -b 100k
------------------------------------------------------------
Client connecting to 192.168.10.2, UDP port 5001
Sending 1470 byte datagrams, IPG target: 117600.00 us (kalman adjust)
UDP buffer size:  208 KByte (default)
------------------------------------------------------------
[  3] local 192.168.10.1 port 48335 connected with 192.168.10.2 port 5001
[ ID] Interval       Transfer     Bandwidth
[  3]  0.0- 0.5 sec  8.61 KBytes   141 Kbits/sec
[  3]  0.5- 1.0 sec  5.74 KBytes  94.1 Kbits/sec
[  3]  1.0- 1.5 sec  5.74 KBytes  94.1 Kbits/sec
[  3]  1.5- 2.0 sec  7.18 KBytes   118 Kbits/sec
[  3]  2.0- 2.5 sec  5.74 KBytes  94.1 Kbits/sec
[  3]  2.5- 3.0 sec  5.74 KBytes  94.1 Kbits/sec
[  3]  3.0- 3.5 sec  5.74 KBytes  94.1 Kbits/sec
[  3]  3.5- 4.0 sec  7.18 KBytes   118 Kbits/sec
[  3]  4.0- 4.5 sec  5.74 KBytes  94.1 Kbits/sec
[  3]  0.0- 5.1 sec  61.7 KBytes   100 Kbits/sec
[  3] Sent 43 datagrams
[  3] Server Report:
[  3]  0.0- 5.1 sec  61.7 KBytes   100 Kbits/sec   0.003 ms    0/   43 (0%)
```

At 1 Mbits/s,

```
manc2957@engs-labb27:~/CWM-ProgNets/assignment2$ iperf -u -c 192.168.10.2 -i 0.5 -t 5 -b 1m
------------------------------------------------------------
Client connecting to 192.168.10.2, UDP port 5001
Sending 1470 byte datagrams, IPG target: 11760.00 us (kalman adjust)
UDP buffer size:  208 KByte (default)
------------------------------------------------------------
[  3] local 192.168.10.1 port 42698 connected with 192.168.10.2 port 5001
[ ID] Interval       Transfer     Bandwidth
[  3]  0.0- 0.5 sec  63.2 KBytes  1.03 Mbits/sec
[  3]  0.5- 1.0 sec  61.7 KBytes  1.01 Mbits/sec
[  3]  1.0- 1.5 sec  60.3 KBytes   988 Kbits/sec
[  3]  1.5- 2.0 sec  61.7 KBytes  1.01 Mbits/sec
[  3]  2.0- 2.5 sec  60.3 KBytes   988 Kbits/sec
[  3]  2.5- 3.0 sec  61.7 KBytes  1.01 Mbits/sec
[  3]  3.0- 3.5 sec  60.3 KBytes   988 Kbits/sec
[  3]  3.5- 4.0 sec  61.7 KBytes  1.01 Mbits/sec
[  3]  4.0- 4.5 sec  60.3 KBytes   988 Kbits/sec
[  3]  0.0- 5.0 sec   612 KBytes  1000 Kbits/sec
[  3] Sent 426 datagrams
[  3] Server Report:
[  3]  0.0- 5.0 sec   612 KBytes  1.00 Mbits/sec   0.003 ms    0/  426 (0%)
```

At 100 Mbits/s,

```
manc2957@engs-labb27:~/CWM-ProgNets/assignment2$ iperf -u -c 192.168.10.2 -i 0.5 -t 5 -b 100m
------------------------------------------------------------
Client connecting to 192.168.10.2, UDP port 5001
Sending 1470 byte datagrams, IPG target: 117.60 us (kalman adjust)
UDP buffer size:  208 KByte (default)
------------------------------------------------------------
[  3] local 192.168.10.1 port 48216 connected with 192.168.10.2 port 5001
[ ID] Interval       Transfer     Bandwidth
[  3]  0.0- 0.5 sec  5.96 MBytes   100 Mbits/sec
[  3]  0.5- 1.0 sec  5.96 MBytes   100 Mbits/sec
[  3]  1.0- 1.5 sec  5.96 MBytes   100 Mbits/sec
[  3]  1.5- 2.0 sec  5.96 MBytes   100 Mbits/sec
[  3]  2.0- 2.5 sec  5.96 MBytes   100 Mbits/sec
[  3]  2.5- 3.0 sec  5.96 MBytes   100 Mbits/sec
[  3]  3.0- 3.5 sec  5.96 MBytes   100 Mbits/sec
[  3]  3.5- 4.0 sec  5.96 MBytes   100 Mbits/sec
[  3]  4.0- 4.5 sec  5.96 MBytes   100 Mbits/sec
[  3]  0.0- 5.0 sec  59.6 MBytes   100 Mbits/sec
[  3] Sent 42517 datagrams
[  3] Server Report:
[  3]  0.0- 5.0 sec  59.6 MBytes   100 Mbits/sec   0.001 ms    0/42517 (0%)
```

All 3 trials saw no packets dropped. However, if we were to push up the transmission bandwidth to value beyond the carrying bandwidth of the connection (at 10 Gbits/s), we can see some of the packets dropping.

```
manc2957@engs-labb27:~/CWM-ProgNets/assignment2$ iperf -c 192.168.10.2 -i 0.5 -t 5 -b 10G -u
------------------------------------------------------------
Client connecting to 192.168.10.2, UDP port 5001
Sending 1470 byte datagrams, IPG target: 1.10 us (kalman adjust)
UDP buffer size:  208 KByte (default)
------------------------------------------------------------
[  3] local 192.168.10.1 port 41682 connected with 192.168.10.2 port 5001
[ ID] Interval       Transfer     Bandwidth
[  3]  0.0- 0.5 sec  57.1 MBytes   957 Mbits/sec
[  3]  0.5- 1.0 sec  57.0 MBytes   957 Mbits/sec
[  3]  1.0- 1.5 sec  57.0 MBytes   957 Mbits/sec
[  3]  1.5- 2.0 sec  57.0 MBytes   957 Mbits/sec
[  3]  2.0- 2.5 sec  57.0 MBytes   957 Mbits/sec
[  3]  2.5- 3.0 sec  57.1 MBytes   957 Mbits/sec
[  3]  3.0- 3.5 sec  57.0 MBytes   957 Mbits/sec
[  3]  3.5- 4.0 sec  57.0 MBytes   957 Mbits/sec
[  3]  4.0- 4.5 sec  57.0 MBytes   957 Mbits/sec
[  3]  4.5- 5.0 sec  57.0 MBytes   957 Mbits/sec
[  3]  0.0- 5.0 sec   570 MBytes   957 Mbits/sec
[  3] Sent 406866 datagrams
[  3] Server Report:
[  3]  0.0- 5.2 sec   201 MBytes   322 Mbits/sec  15.576 ms 263355/406867 (65%)
```

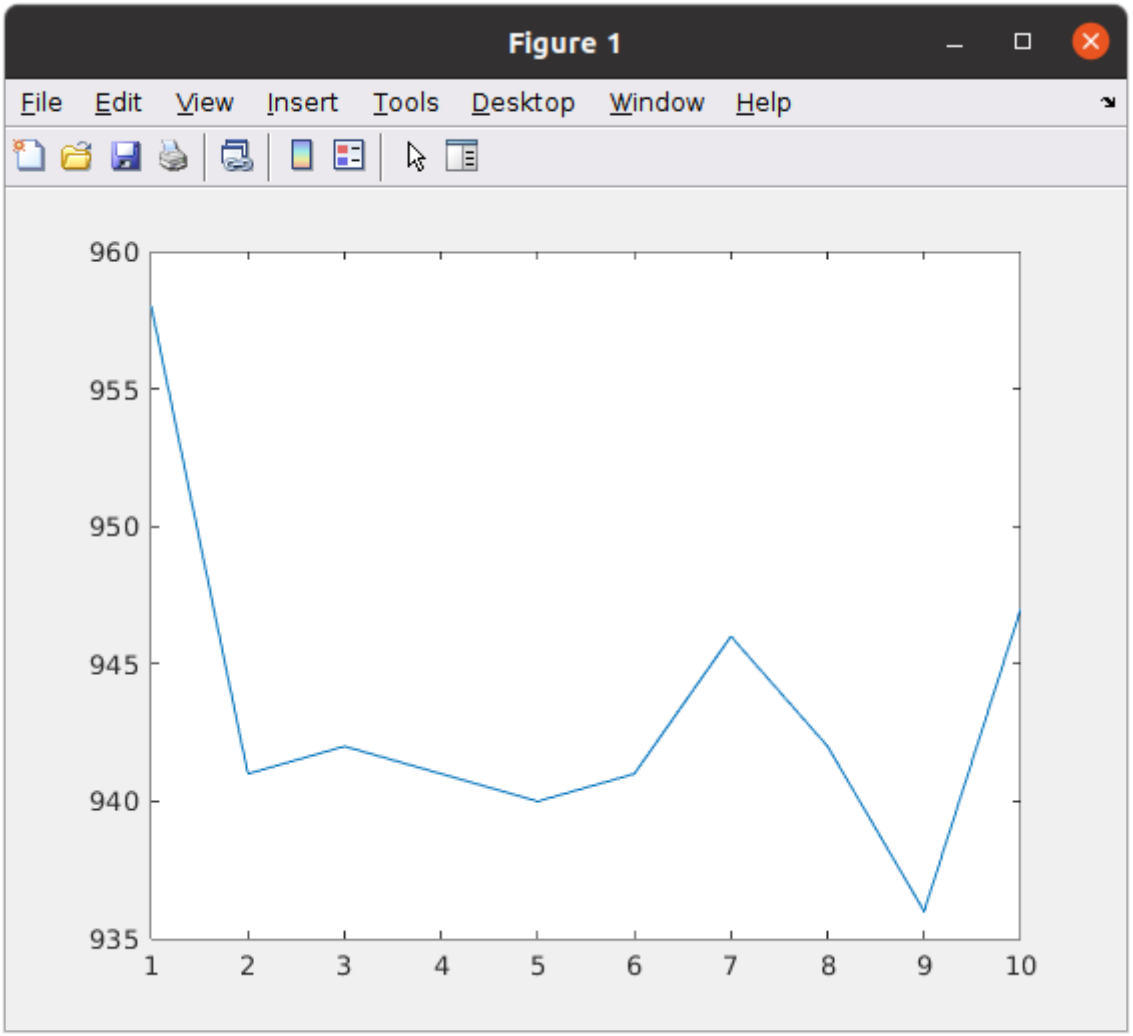
Setting up the Raspberry PI as the **iperf3** server and the Lab Machine as the client.

Sending a message across via TCP.

```
manc2957@engs-labb27:~/CWM-ProgNets/assignment2$ iperf3 -c 192.168.10.2 -i 1 -t 10
Connecting to host 192.168.10.2, port 5201
[  5] local 192.168.10.1 port 51450 connected to 192.168.10.2 port 5201
[ ID] Interval           Transfer     Bitrate         Retr  Cwnd
[  5]   0.00-1.00   sec   114 MBytes   958 Mbits/sec    0    465 KBytes
[  5]   1.00-2.00   sec   112 MBytes   941 Mbits/sec    0    465 KBytes
[  5]   2.00-3.00   sec   112 MBytes   942 Mbits/sec    0    465 KBytes
[  5]   3.00-4.00   sec   112 MBytes   941 Mbits/sec    0    465 KBytes
[  5]   4.00-5.00   sec   112 MBytes   940 Mbits/sec    0    465 KBytes
[  5]   5.00-6.00   sec   112 MBytes   941 Mbits/sec    0    465 KBytes
[  5]   6.00-7.00   sec   113 MBytes   946 Mbits/sec    0    465 KBytes
[  5]   7.00-8.00   sec   112 MBytes   942 Mbits/sec    0    489 KBytes
[  5]   8.00-9.00   sec   112 MBytes   936 Mbits/sec    0    489 KBytes
[  5]   9.00-10.00  sec   113 MBytes   947 Mbits/sec    0    489 KBytes
- - - - - - - - - - - - - - - - - - - - - - - - -
[ ID] Interval           Transfer     Bitrate         Retr
[  5]   0.00-10.00  sec  1.10 GBytes   943 Mbits/sec    0             sender
[  5]   0.00-10.01  sec  1.10 GBytes   940 Mbits/sec                  receiver

iperf Done.
```

The bandwidth of the connection is around 940 Mbits/s.

Graphing the bandwidth.



Sending a message across via UDP at 100kbits/s.

```
manc2957@engs-labb27:~/CWM-ProgNets/assignment2$ iperf3 -c 192.168.10.2 -i 1 -t 10 -u -b 100k
Connecting to host 192.168.10.2, port 5201
[  5] local 192.168.10.1 port 39874 connected to 192.168.10.2 port 5201
[ ID] Interval           Transfer     Bitrate         Total Datagrams
[  5]   0.00-1.00   sec  12.7 KBytes   104 Kbits/sec  9
[  5]   1.00-2.00   sec  12.7 KBytes   104 Kbits/sec  9
[  5]   2.00-3.00   sec  11.3 KBytes  92.7 Kbits/sec  8
[  5]   3.00-4.00   sec  12.7 KBytes   104 Kbits/sec  9
[  5]   4.00-5.00   sec  12.7 KBytes   104 Kbits/sec  9
[  5]   5.00-6.00   sec  11.3 KBytes  92.7 Kbits/sec  8
[  5]   6.00-7.00   sec  12.7 KBytes   104 Kbits/sec  9
[  5]   7.00-8.00   sec  12.7 KBytes   104 Kbits/sec  9
[  5]   8.00-9.00   sec  11.3 KBytes  92.7 Kbits/sec  8
[  5]   9.00-10.00  sec  12.7 KBytes   104 Kbits/sec  9
- - - - - - - - - - - - - - - - - - - - - - - - -
[ ID] Interval           Transfer     Bitrate         Jitter    Lost/Total Datagrams
[  5]   0.00-10.00  sec   123 KBytes   101 Kbits/sec  0.000 ms  0/87 (0%)  sender
[  5]   0.00-10.00  sec   123 KBytes   101 Kbits/sec  0.017 ms  0/87 (0%)  receiver

iperf Done.
```

Sending a message across via UDP at 1 Mbits/s.

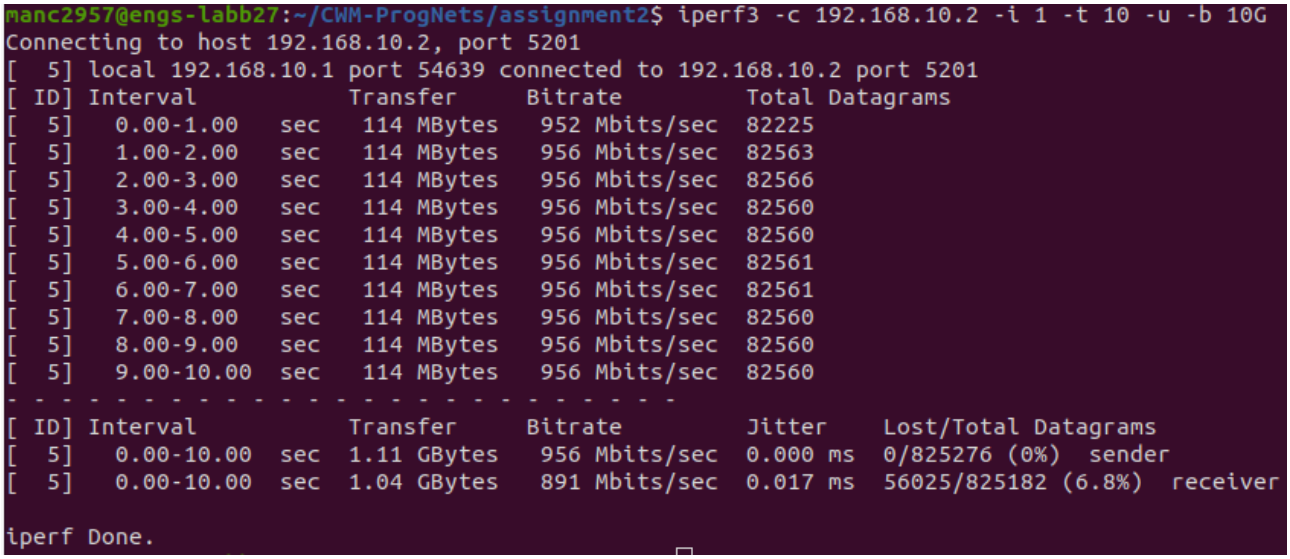
```
manc2957@engs-labb27:~/CWM-ProgNets/assignment2$ iperf3 -c 192.168.10.2 -i 1 -t 10 -u -b 1m
Connecting to host 192.168.10.2, port 5201
[  5] local 192.168.10.1 port 38232 connected to 192.168.10.2 port 5201
[ ID] Interval           Transfer     Bitrate         Total Datagrams
[  5]   0.00-1.00   sec   123 KBytes  1.01 Mbits/sec  87
[  5]   1.00-2.00   sec   122 KBytes   996 Kbits/sec  86
[  5]   2.00-3.00   sec   122 KBytes   996 Kbits/sec  86
[  5]   3.00-4.00   sec   123 KBytes  1.01 Mbits/sec  87
[  5]   4.00-5.00   sec   122 KBytes   996 Kbits/sec  86
[  5]   5.00-6.00   sec   122 KBytes   996 Kbits/sec  86
[  5]   6.00-7.00   sec   123 KBytes  1.01 Mbits/sec  87
[  5]   7.00-8.00   sec   122 KBytes   996 Kbits/sec  86
[  5]   8.00-9.00   sec   122 KBytes   996 Kbits/sec  86
[  5]   9.00-10.00  sec   123 KBytes  1.01 Mbits/sec  87
- - - - - - - - - - - - - - - - - - - - - - - - -
[ ID] Interval           Transfer     Bitrate         Jitter    Lost/Total Datagrams
[  5]   0.00-10.00  sec  1.19 MBytes  1.00 Mbits/sec  0.000 ms  0/864 (0%)  sender
[  5]   0.00-10.00  sec  1.19 MBytes  1.00 Mbits/sec  0.005 ms  0/864 (0%)  receiver

iperf Done.
```

Sending a message across via UDP at 100 Mbits/s.

```
manc2957@engs-labb27:~/CWM-ProgNets/assignment2$ iperf3 -c 192.168.10.2 -i 1 -t 10 -u -b 100m
Connecting to host 192.168.10.2, port 5201
[  5] local 192.168.10.1 port 45989 connected to 192.168.10.2 port 5201
[ ID] Interval           Transfer     Bitrate         Total Datagrams
[  5]   0.00-1.00   sec  11.9 MBytes  99.9 Mbits/sec  8626
[  5]   1.00-2.00   sec  11.9 MBytes   100 Mbits/sec  8634
[  5]   2.00-3.00   sec  11.9 MBytes   100 Mbits/sec  8633
[  5]   3.00-4.00   sec  11.9 MBytes   100 Mbits/sec  8631
[  5]   4.00-5.00   sec  11.9 MBytes   100 Mbits/sec  8633
[  5]   5.00-6.00   sec  11.9 MBytes   100 Mbits/sec  8631
[  5]   6.00-7.00   sec  11.9 MBytes   100 Mbits/sec  8635
[  5]   7.00-8.00   sec  11.9 MBytes   100 Mbits/sec  8632
[  5]   8.00-9.00   sec  11.9 MBytes   100 Mbits/sec  8633
[  5]   9.00-10.00  sec  11.9 MBytes   100 Mbits/sec  8632
- - - - - - - - - - - - - - - - - - - - - - - - -
[ ID] Interval           Transfer     Bitrate         Jitter    Lost/Total Datagrams
[  5]   0.00-10.00  sec   119 MBytes   100 Mbits/sec  0.000 ms  0/86320 (0%)  sender
[  5]   0.00-10.00  sec   119 MBytes   100 Mbits/sec  0.010 ms  0/86320 (0%)  receiver

iperf Done.
```

Once again because the data rate is so much smaller than no bandwidth, no packets are lost.

Interestingly if we send data over at 10 Gbits/s again.



```
manc2957@engs-labb27:~/CWM-ProgNets/assignment2$ iperf3 -c 192.168.10.2 -i 1 -t 10 -u -b 10G
Connecting to host 192.168.10.2, port 5201
[  5] local 192.168.10.1 port 54639 connected to 192.168.10.2 port 5201
[ ID] Interval           Transfer     Bitrate         Total Datagrams
[  5]   0.00-1.00   sec   114 MBytes   952 Mbits/sec  82225
[  5]   1.00-2.00   sec   114 MBytes   956 Mbits/sec  82563
[  5]   2.00-3.00   sec   114 MBytes   956 Mbits/sec  82566
[  5]   3.00-4.00   sec   114 MBytes   956 Mbits/sec  82560
[  5]   4.00-5.00   sec   114 MBytes   956 Mbits/sec  82560
[  5]   5.00-6.00   sec   114 MBytes   956 Mbits/sec  82561
[  5]   6.00-7.00   sec   114 MBytes   956 Mbits/sec  82561
[  5]   7.00-8.00   sec   114 MBytes   956 Mbits/sec  82560
[  5]   8.00-9.00   sec   114 MBytes   956 Mbits/sec  82560
[  5]   9.00-10.00  sec   114 MBytes   956 Mbits/sec  82560
- - - - - - - - - - - - - - - - - - - - - - - - -
[ ID] Interval           Transfer     Bitrate         Jitter    Lost/Total Datagrams
[  5]   0.00-10.00  sec  1.11 GBytes   956 Mbits/sec  0.000 ms  0/825276 (0%)  sender
[  5]   0.00-10.00  sec  1.04 GBytes   891 Mbits/sec  0.017 ms  56025/825182 (6.8%)  receiver

iperf Done.
```

We notice that our link has a much lower lost rate than before.