Tanner Bibb – ybw098
01.27.23
CS3873-001
Dr. Boppana

Lab 1a: Network Measurement

Use the ping and iperf tools to estimate the round-trip time (RTT) and throughput of a connection between a pair of hosts.

Use a CS 3873 VDI machine to estimate the RTTs and throughputs of connections to hosts 10.100. 230.46, 10.100.116.116, and 64.183.181.215. The first two are on a local network, and the third is on the Internet, running iperf servers at port 7575.

For each measurement, take ten estimates (see below for an example) and compute the average and standard deviation of the values obtained. Indicate the proper units for each measurement. Give screenshots of your experiments' outputs.

Complete the following tasks.

1. Estimate RTTs to the three IP addresses. Run ping to probe each remote host 11 times and use the times from the last ten probes to compute the RTT average and standard deviation. [Note: you need only the IP addresses for ping.]

10.100.230.46 – Avg: 0.16ms | Standard Deviation: 0.0284

10.100.116.116 – Avg: 50.79ms | Standard Deviation: 6.7271

64.183.181.215 – Avg: 21.127ms | Standard Deviation: 0.1104

2. Estimate TCP throughputs to each remote host with the default TCP window, read/write buffer size, and 1-second reporting intervals.

10.100.230.46 – 10.5 Gigabytes

10.100.116.116 – 642 Megabytes

64.183.181.215 - 444 Megabytes

3. Estimate UDP throughputs to each remote host with the default UDP datagram length and 1second reporting interval.

10.100.230.46 – 1.25 Megabytes

10.100.116.116 – 1.25 Megabytes

64.183.181.215 – 1.25 Megabytes

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4. What is the maximum TCP throughput you can achieve using -M and -w options?

   10.100.230.46 – 10.5 Gigabytes

   10.100.116.116 - 85 Megabytes

   64.183.181.215 - 150 Megabytes

```
install@cs3873lp2:~/Desktop/pySockets$ iperf -c 10.100.116.116 -p 7575 -i 1
------------------------------------------------------------
Client connecting to 10.100.116.116, TCP port 7575
TCP window size: 85.0 KByte (default)
------------------------------------------------------------
[  3] local 10.100.234.27 port 57160 connected with 10.100.116.116 port 7575
[ ID] Interval       Transfer     Bandwidth
[  3]  0.0- 1.0 sec  51.4 MBytes   431 Mbits/sec
[  3]  1.0- 2.0 sec  67.2 MBytes   564 Mbits/sec
[  3]  2.0- 3.0 sec  67.6 MBytes   567 Mbits/sec
[  3]  3.0- 4.0 sec  68.0 MBytes   570 Mbits/sec
[  3]  4.0- 5.0 sec  66.1 MBytes   555 Mbits/sec
[  3]  5.0- 6.0 sec  67.9 MBytes   569 Mbits/sec
[  3]  6.0- 7.0 sec  67.2 MBytes   564 Mbits/sec
[  3]  7.0- 8.0 sec  67.2 MBytes   564 Mbits/sec
[  3]  8.0- 9.0 sec  67.8 MBytes   568 Mbits/sec
[  3]  9.0-10.0 sec  67.8 MBytes   568 Mbits/sec
[  3]  0.0-10.0 sec   658 MBytes   552 Mbits/sec
install@cs3873lp2:~/Desktop/pySockets$
```