CS655 PA1

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**Part 1**

Logistics:

The part one implement a very simple client and server app where server echo back the message it get from client.

Server:

To start the server, go to pa1part1 and type in

python server.py <port number>

You can pick any port number you like. I usually pick 58989. The server will create a socket that bind to that port number and ip address of 0.0.0.0 which would bind to all interface. The server will constantly listening and reply back any message it receives.

Client:

python server.py <ip address> <port number>

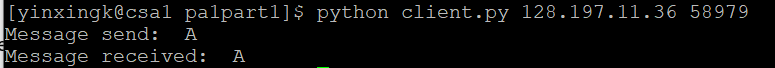
client.py takes 2 command line argument for ip and port number. It will create a socket to connect to the ip and port and send a message. It will the receive the message. Socket errors are catched.

I run server on csa2:

Text

Description automatically generated

While client is run on a different machine, namely csa1:



**Part 2**

This part consists of 3 phases, CSP, MP and CTP phase.

For all the experiments and graphs, there are 10 probes and the rtt and throughput is calculated as the average of the 10 probes.

For the experiment, I use my own machine as the client and CSA2 as the server. I tried to use CSA1 as the client but the rtt is too small, probably due to the close distance between CSA1 and CSA2.

Latency vs. message size, own machine client to CSA2 server

Chart, line chart

Description automatically generated

Due to the small size of the message size, bandwidth is not the main issue. Neither is queueing delay. Propagation delay probably cause the main part of the latency resulting in the volatile shape although we can still see an upward growth of the latency as the message size grows.

Throughput vs. message size

Chart, line chart

Description automatically generated

We can see a smooth grwoth in the throughput as the message size increase. This is probably due to the biggest data size here, 32K, is still not significant compare to the network capacity so the main delay is still propagation delay. The propagation delay is roughly the same for all message as the distance is fixed, and therefore as the message size grow, so does the throughput.

The same experiments are also conduct on a test server, I choose:

pcvm1-24.instageni.utdallas.edu 50000

Latency vs. message size, pcvm1-24.instageni.utdallas.edu 50000

Chart, line chart

Description automatically generated

Throughput vs. message size

Chart, line chart

Description automatically generated

The result of the experiment towards the testing server show similar result. The rtt graph has a volatile shape through we can still see a rough upward trend raise of RTT as the message size grow. The throughput graph also show similar growth pattern as the one between own machine and CSA2