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## Report

This report will conduct an analysis on the improved performance of the client and dataserer by utilizing request threads, worker threads, and statistic threads. Before we had one single control channel, now we can create different channels for each worker thread. This allows for much faster data collection.

**NOTE:** To run program, use command “*make all*”, and then

“*./client -n <number\_of\_request> -b <buffer\_size> -w <number\_of\_worker\_threads>*”

**NOTE:** I provided default values if no input was provided. Default values were 10 data requests, 50 size of buffer, 10 worker threads.

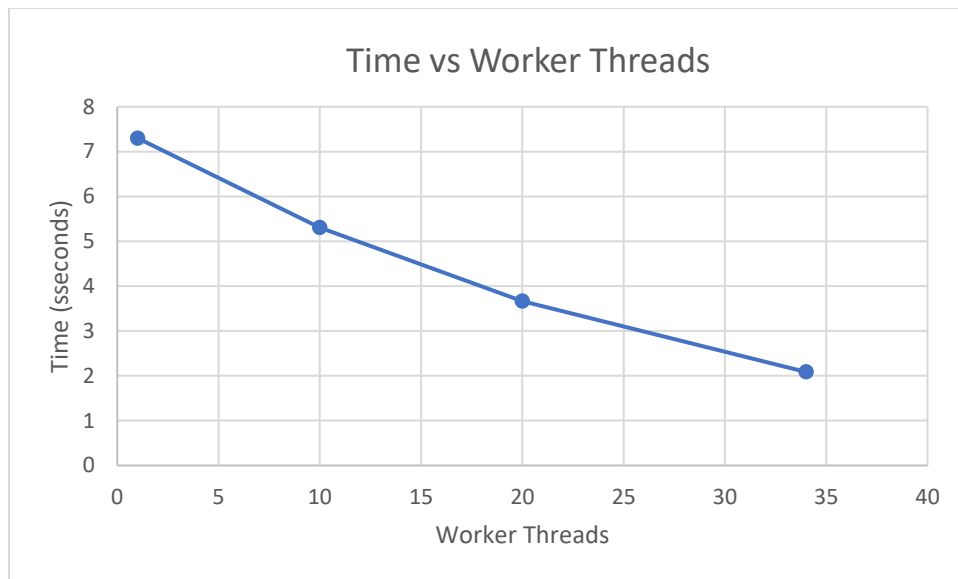
**NOTE:** The output of the server data clutters the terminal.

**NOTE:** I tested my program on the tamu server and found that I was limited on the number of threads I could create. So, my data was limited to 34 threads before I ran into segmentation faults.

## Varying the number of worker threads:

Number of request (constant) = 15000

Size of buffer(constant) = 50

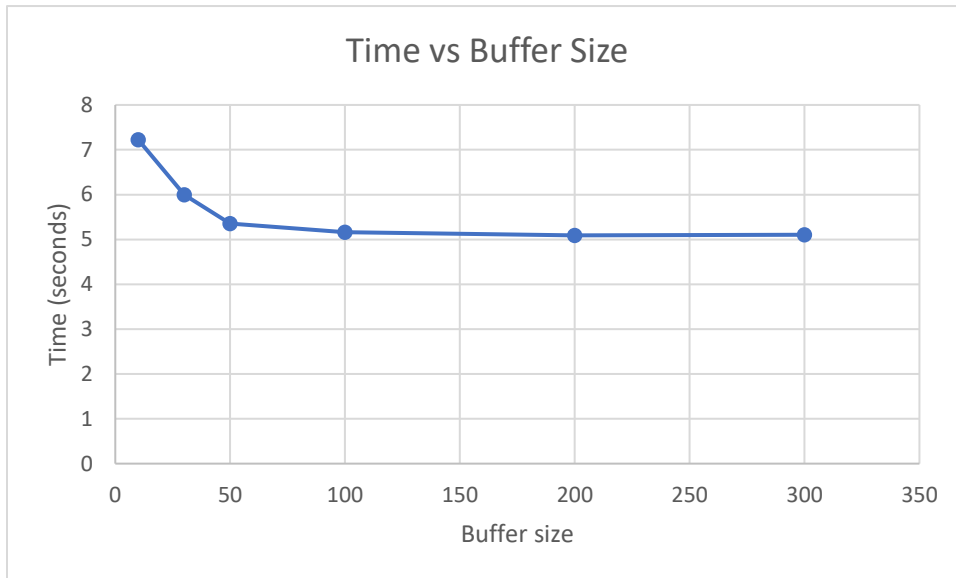


This demonstrates that the more worker threads, the less time it takes to receive data, thus the time for data transfer decreases as you increase the amount of worker threads. However, at some point, the number of worker threads is limited by the number of open file descriptors, and the data transfer time plateaus. So yes, increasing the number of worker threads does improve performance, up to a point. That point being the limit of open file descriptors.

## Varying the size of the buffer:

Number of Requests (constant) = 15000

Number of Worker Threads (constant) = 34



From the graph above we see that the size of the buffer does have an affect on the time for data transfer, however we see that it plateaus when increasing the buffer size. Having a bigger buffer size allows a bigger capacity for the buffer. This allows more data to be transferred, meaning that the speed of the data transfer increases. I believe it flatlines because the number of worker threads is fixed, if we were to increase the number of worker threads then the benefit of having a bigger buffer would actually keep decreasing the data transfer time.