



**ELECTRICAL & COMPUTER
ENGINEERING**
TEXAS A&M UNIVERSITY

PA6: The Server Moved Out

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CSCE 313 – 512

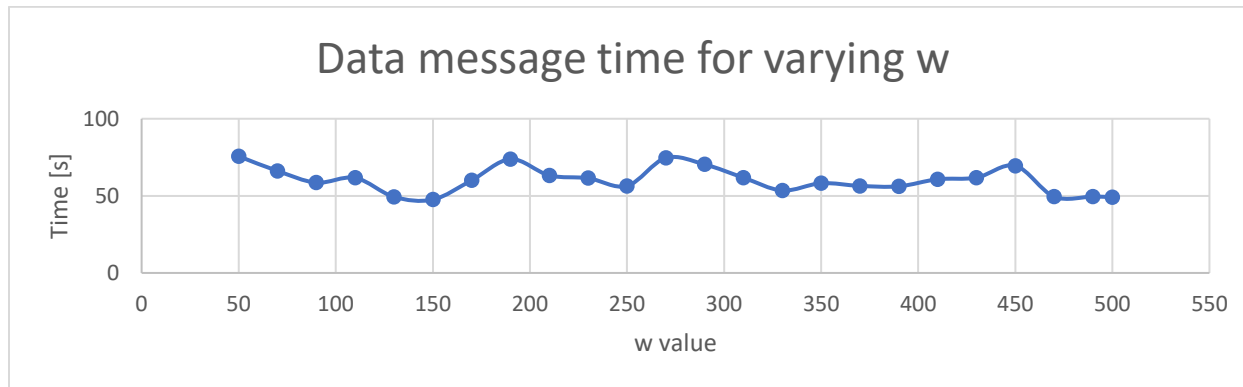
Due Date: November 22nd, 2020

Design:

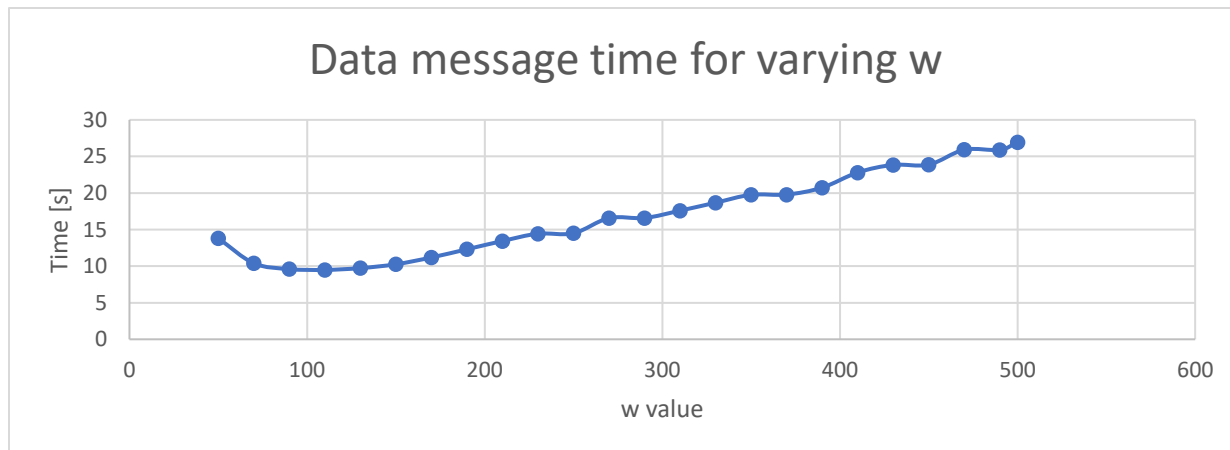
The design of this code builds on the code of PA5. An IPC class called TPCRequestChannel is added, and the client side end of a request channel is ran on one machine, while the server-side end of the channel is ran on another machine. The server program from PA5 was modified to handle incoming requests over network request channels instead of FIFO. The client is also modified to send requests over network request channels.

Time Graphs:

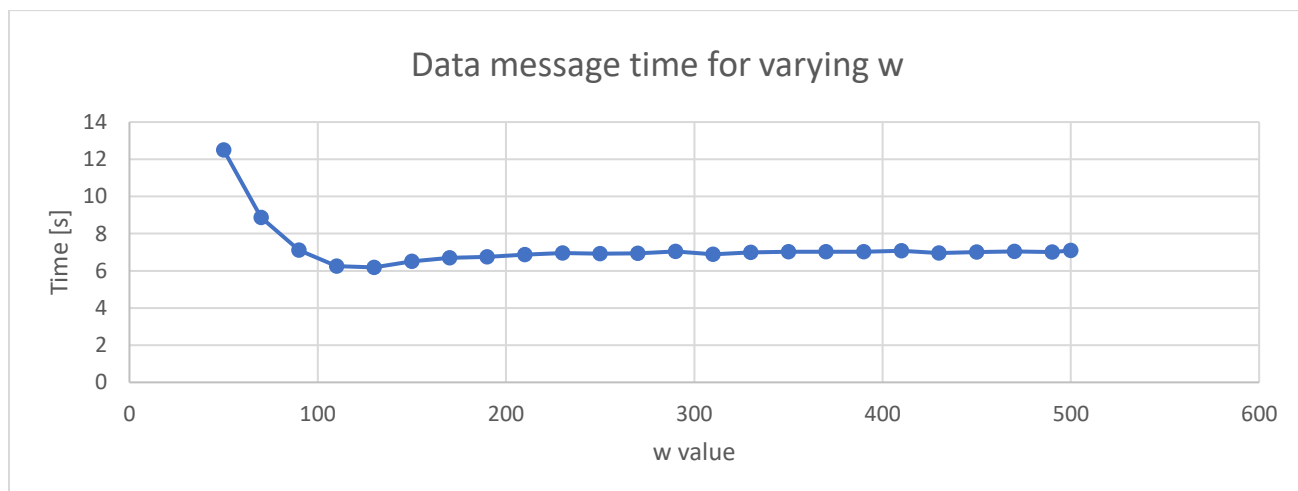
PA6 (running on two PC on the same network):



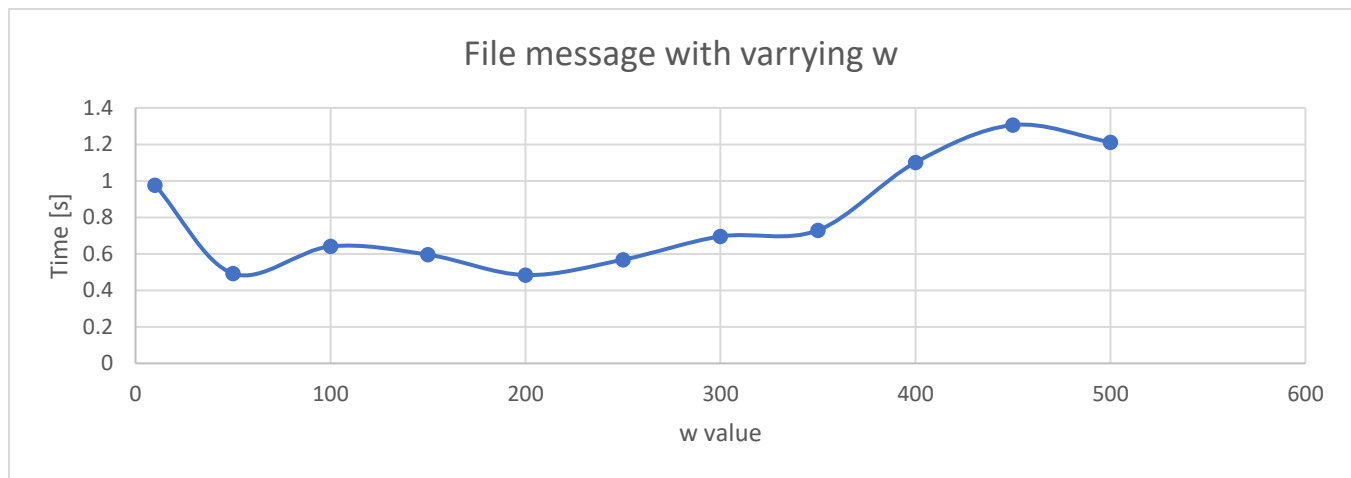
PA6 (running on localhost):



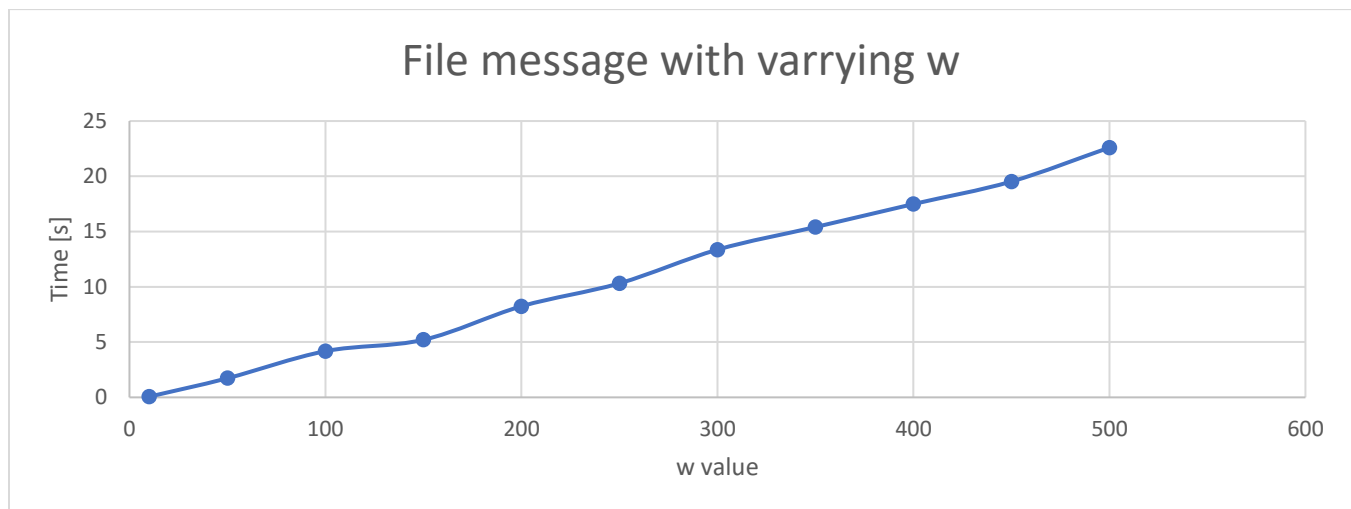
PA5:



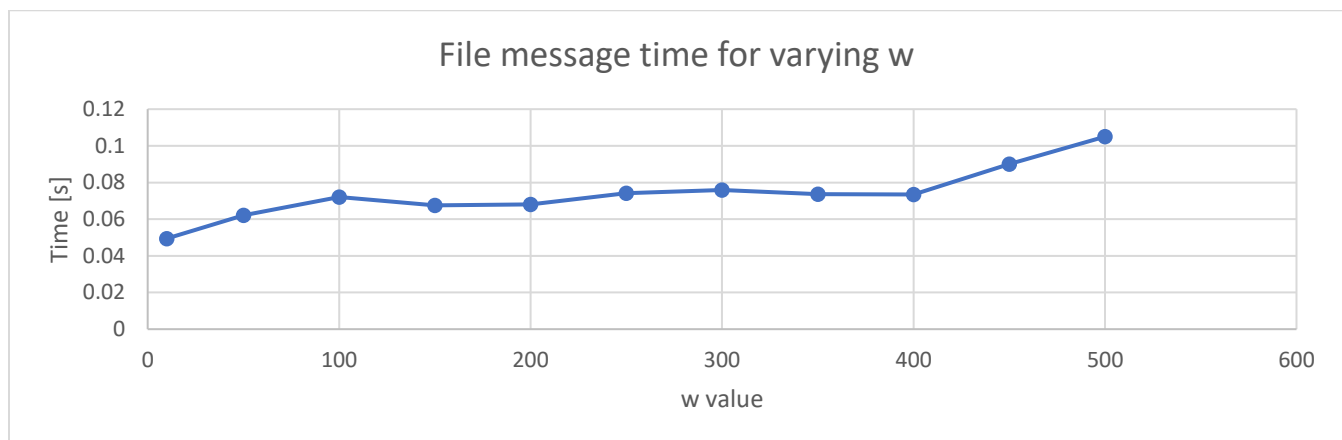
PA6(running on two PC on the same network):



PA6 (running on localhost):



PA5:



Results:

Comparing the results from PA5 where FIFO was used, the runtime for PA6, where TPC is used, is slower. I believe this difference is due to PA6 transferring data over a network rather than transferring data over the same computer with read and write functionality. When running the localhost, the runtime for PA6 is still slower, however, it resembles the times obtained in PA5 more closely. I believe that this is because the localhost is not transferring data over a network. The point of diminishing return for PA6 was about 150 worker threads when running the code on two PCs, and around 130 when running in localhost, which stayed roughly the same (around 130 for PA5). For the file transfers, PA6 solution is also slower. The maximum number of connections that we can create without changing the ulimit parameter is 1024 because that is the default value (can find this out by running `ulimit -a`). This is double of what it was for PA5 because FIFO requires 2 files for each thread, thus limiting the connections that we can create to 512 in PA5.

Google Drive Video Link:

<https://drive.google.com/file/d/14kXpbbqG-Rps6beyiMIY-MvDbB8EaTxz/view?usp=sharing>