

PA1 Report

This program is a client server application that uses named pipes to communicate and transfer data between client and server processes.

This program consists of 4 methods.

1. Single Data Point Retrieval
2. Multiple Data Point Transfer to New File
3. File Transfer
4. New Channel Request

(1) At the single data point retrieval the user specifies a person, a time, and an ecg value (1 or 2). The flags “-p, -t, -e” followed by their respected argument must be entered to use this method. The (p) indicates person, (t) indicates time, and (e) indicates ecg value. The program will output to the user in the terminal the resulting data point.

(2) At the multiple data point transfer to the new file the user will input a person, time, and must put in 3 for the ecg value. The 3 indicates to the program to use this method. The method will get 1000 data points starting at time 0 for the user specified person and will create a file with the first 1000 entries including both ecg1 and ecg2 values.

(3) The file transfer method is initiated by using the command “./client -f <filename>”. This method will transfer an entire file from the BIMDC directory to the received directory. The program will communicate with the server making chunk requests and storing the chunk requests in the new file. Buffer size is set default to 256 bytes.

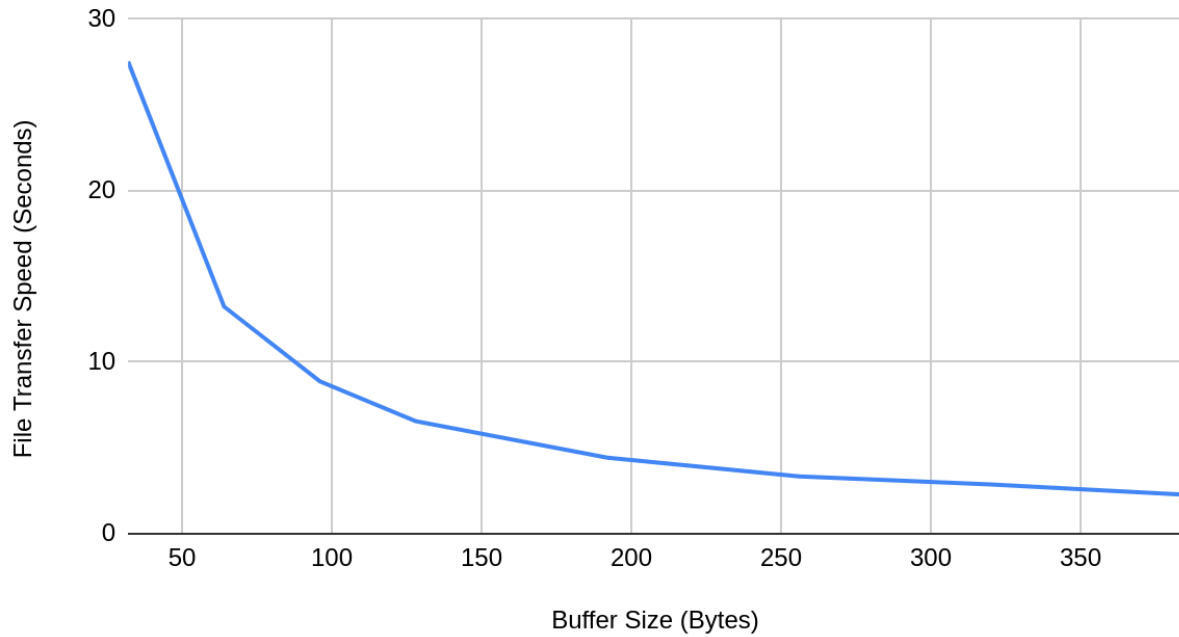
(4) The new channel request will initialize a new channel request to the server and is initiated by using the command “./client -c”. This method will open up a new channel, request a couple hard coded data points through the new channel, output the data to the user in the terminal, and then close the channel.

At the beginning of the program a channel “control” is initialized and then at the end of the program the channel is closed. To get the time taken to file transfer, the `gettimeofday()` function is used. Simple loops and conditional statements are used throughout the methods to get accurate transfer of data. The server file is ran as a child when the command “./client” is called by using `fork()`, `exec()`, and `wait()`. File transfer time graphs are on the following page.

Demo: <https://youtu.be/YFqG0FeOYZI>

Graphs

Speed vs. Buffer Size (File Size = 100MB)



Speed vs. File Size (Buffer Size = 256 bytes)

