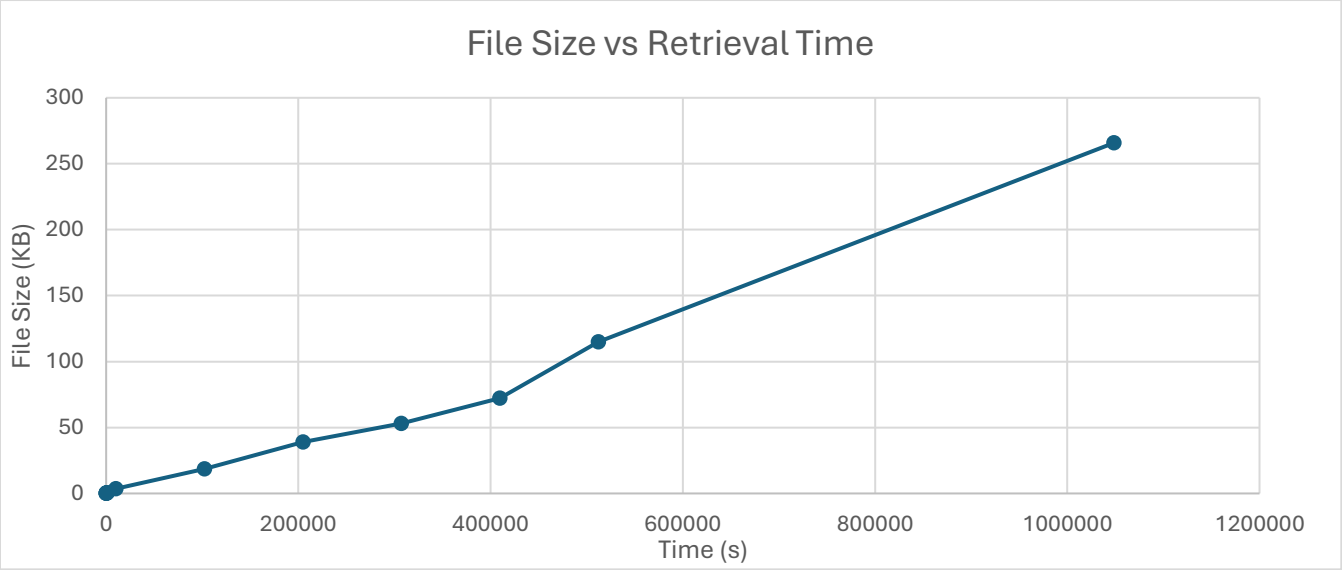
313 PA-1 Report

File Size (KB)	Real Time (s)
1	0.231
10	0.209
100	0.227
500	0.324
1024	0.44
10240	3.652
102400	18.574
204800	38.916
307200	52.994
409600	72.22
512000	114.976
1048576	265.809



Based on the data I collected, the most obvious insight is that as the file size increases, the time it takes to execute and transfer increases. This trend is noticeably linear.

With the files under 1 megabyte (the 1, 10 and 100KB), they all took around the same time, and all under a second. What this tells us is that the setup work is what likely takes up the time rather than the transfer itself. With files that are larger, especially from about 100MB to

1G, the setup is fast, while the execution and retrieval take more time. We even get up to 2 minutes for the 500MB file and 4 minutes for the 1GB.

The reason this happens, and the main bottleneck for this scenario, is that we have a buffer "-m" that we can identify in client.cpp, of size MAX_MESSAGE which is about 256 bytes. This buffer causes the transfer to execute 256bytes at a time, explaining why larger files take more time as it requires more requests between the client and server.