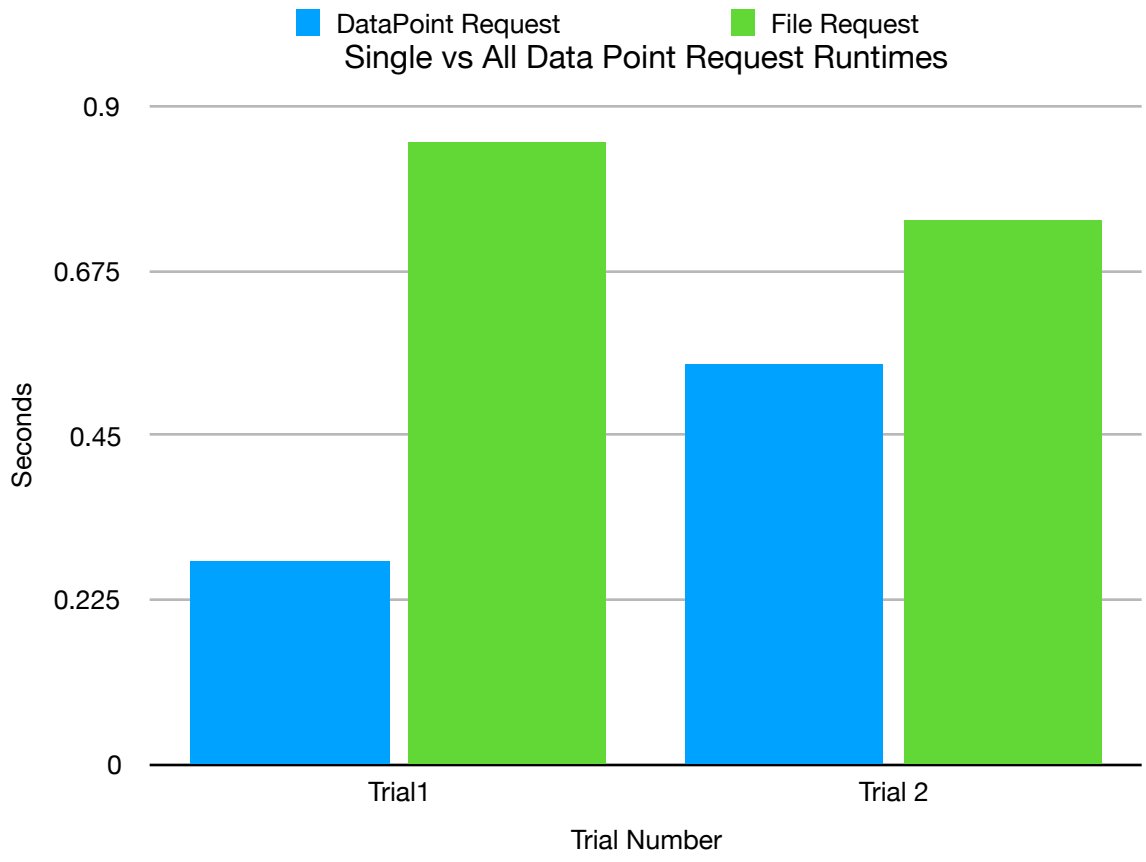
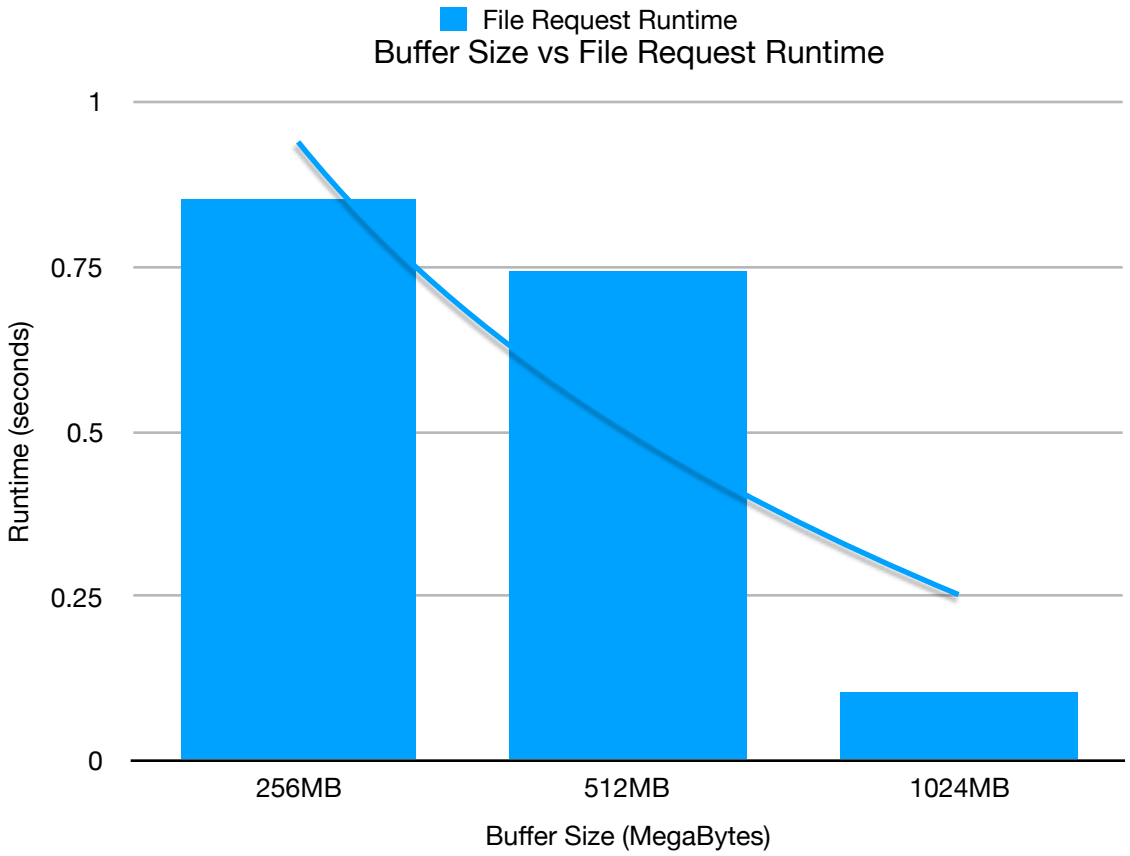
Rahul Shah PA2 Report

Introduction:

In this PA, we implemented properly structured data requests to a server via a pipe-based IPC (Inter-Process Communication) protocol. There are 3 kinds of messages , a “data message”, “file message”, and “new channel” message. These 3 kinds of messages allow the client to request a specific data point from a file, an entire file transmitted via fixed size buffer, or request the creation of a whole new communication channel to communicate across.

Timing Data:





Request All Data Points: **124.1024 seconds**

Analysis:

After conducting some tests, it is conclusive that the runtime of a file transfer is inversely proportional to the size of the buffer. The buffer size directly determines the number of packets that needs to be sent across the communication channel and by extension, the number of loop iterations. The time complexity will be O(N), where N is the number of packets that the file must be divided into. Minimizing this variable will ultimately minimize the runtime of the file transfer. Of course, doing so will increase the space needed to perform the packet transfer.