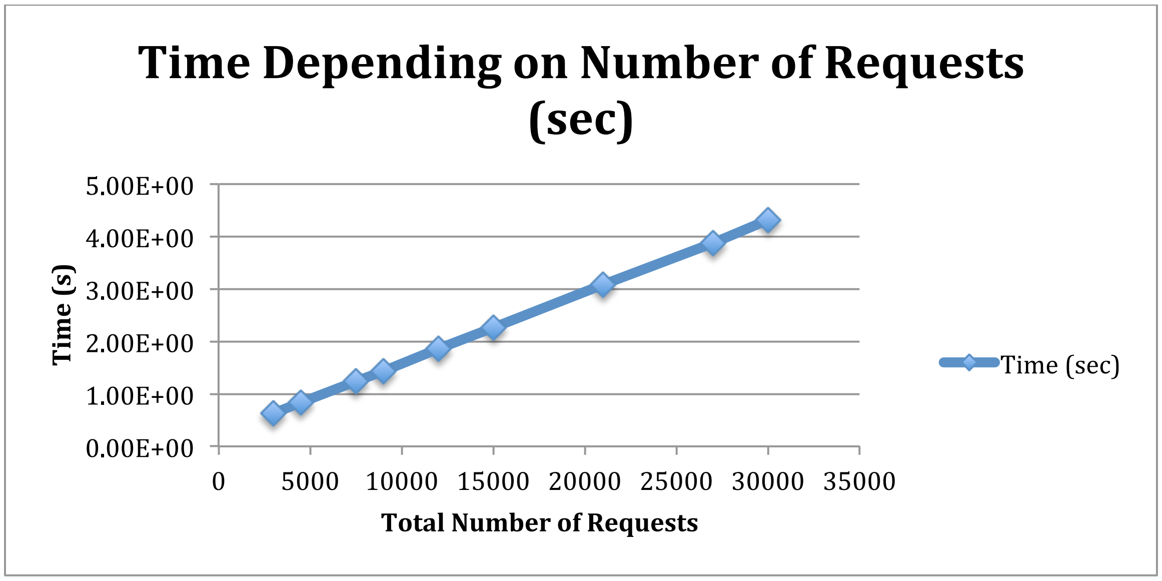
Jonathan Westerfield
Bettati
224005649

Machine Problem 5 Analysis

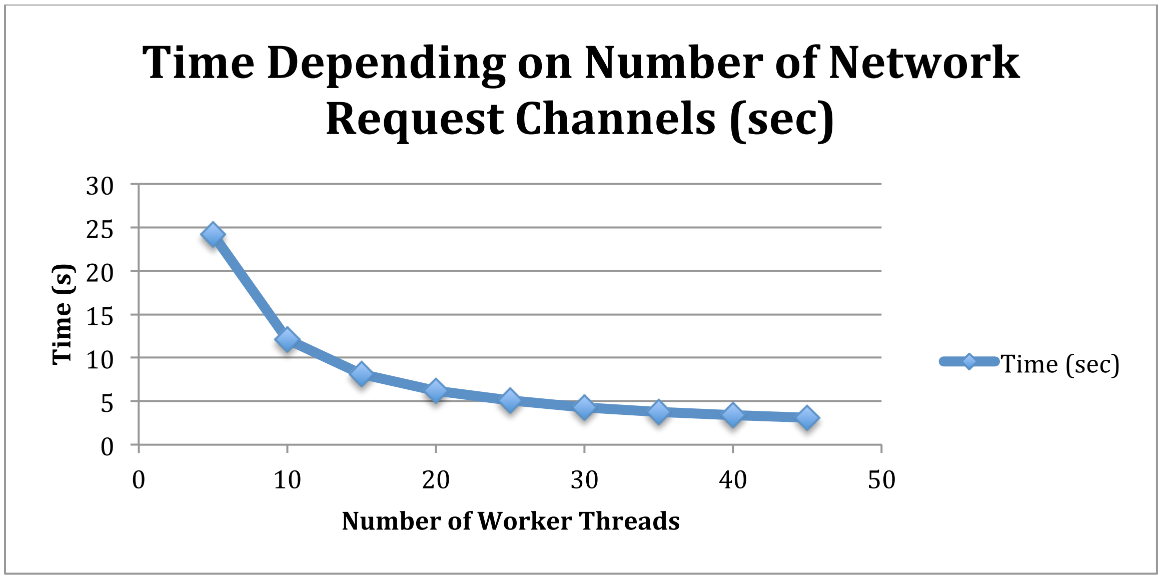
I performed my implementation using a similar design to MP4. Instead of multiple reqChannels, I used multiple Network Request Channels. This is because MP4's implementation performed better than MP3's threaded design.

I ran all of my tests on my machine. When changing the number of requests, I got the results shown below. The test was performed with 30 request channels, a bounded request buffer of size 500 and a server backlog of 100. As you can see, as the number of requests increase, the time it takes to complete all of the requests (provided everything else stays the same), will increase in a linear fashion.

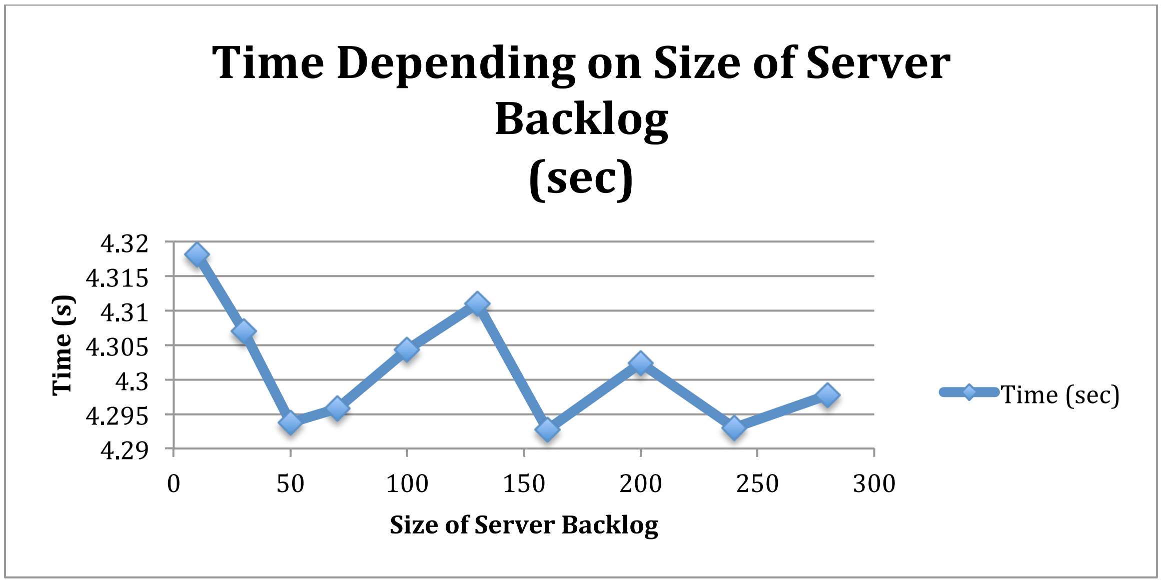


The next set of tests focused on the time changes whenever changing the number of request channels present. The tests were performed with 30000 requests (1000 per request thread), a bounded request buffer of size 500 and a server backlog of 100. When changing the number of network request channels. As you can see from the graph below, increasing the number of channels increased performance exponentially at first. Then as more channels were added, the law of diminishing returns kicked it and adding more channels started to improve performance less and less.

Jonathan Westerfield
Bettati
224005649



The next set of tests dealt with changing the size of the server backlog. The tests were performed with 30000 requests (10000 per request thread) and 30 network request channels and a bounded buffer of size 500. As you can see from the graph below, increasing the size of the backlog really did not have a predictable effect on performance. While there is a noticeable downward trend, the times were very erratic. In addition, the improvements weren't really anything special. They only improved by milliseconds and didn't offer any substantial improvement. In conclusion, increasing the size of the backlog does not really have any bearing on performance.


Time Depending on Size of Server Backlog (sec)
Time (s)
Size of Server Backlog
Time (sec)