

Writeup - Assignment 2

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The performance for the multithreaded server is faster than the single threaded server.

The bottleneck in the system are the global variables: queue and the global_log_offset. We must use a mutex_lock and enter a critical region whenever we want to access these variables in order to make sure our requests stay synchronized.

Concurrency is not available for the dispatcher because we only want to pop one thing off the queue at a time. There are multiple worker threads that can do various client requests concurrently. When determining the global_log_offset we must enter a critical region to reserve space for the log but the actually writing to the log file can happen concurrently.

We can not increase concurrency further because we must enter into critical regions to make sure the requests can stay synchronized. The only way to increase concurrency is to have more cores on the computer to actually be able to run more threads at once.