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Concurrent Web Server Analysis

In order to test the timing of my thread- and process-based web server implementations, I first created two test files, index.html and test.html. These files contain some basic webpage information, such as titles, headers, and general body content. I ran these through server_thread.c and server_proc.c first one at a time, testing both implementations once for each test file. The times logged into stats_thread.txt after this experiment were 0.0167 and 0.0148 seconds for index.html and test.html, respectively. The times logged into stats_proc.txt after this experiment were 0.1087 and 0.0200 seconds for index.html and test.html, respectively. In this instance, with webpage queries being made one at a time, server_thread.c was faster than server_proc.c.

I then ran both test files concurrently on each implementation using “lynx http://127.0.0.1/index.html & lynx http://127.0.0.1/index.html”, repeating the same for test.html with both server_proc.c and server_thread.c. The times logged into stats_thread.txt after this experiment were 0.0841 seconds for index.html and 0.0700 seconds for test.html. The times logged into stats_proc.txt after this experiment were 0.0542 and 0.0214 seconds for index.html and test.html. In this instance, with the same webpage being queried concurrently, server_proc.c was faster than server_thread.c.

Even though the results diverge across these two experiments, I would still say server_thread.c is generally the faster of the two implementations as it had the

greatest difference in elapsed time compared to server_proc.c when it came to one-by-one querying.

When it comes to the question of threaded versus threaded and cache-based, I ran each of the test files concurrently on each implementation, server_thread.c and server_cache.c, three times in order to determine which was faster. The times logged into stats_thread.txt after this experiment were 0.0252, 0.0239, and 0.0279 seconds for index.html and 0.0287, 0.0261, and 0.0206 seconds for test.html when ran through server_thread.c. The times logged into stats_thread.txt after this experiment were 0.0234, 0.0243, and 0.0277 seconds for index.html and 0.0267, 0.0277 and 0.0210 seconds for test.html when ran through server_cache.c. Both of the implementations were about on-par in this instance. However, I believe server_cache.c would only become faster as more requests are made in comparison to server_thread.c due to its cache-based implementation.