Ryan Russell

Dr. Ahmed

CSCE 313.503

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Programming Assignment Four Report

Graphs

Data Transfer (N=15000)

|  |  |  |  |
| --- | --- | --- | --- |
| Request Buffer Capacity = 100 bytes | | Thread Count = 500 | |
| Thread Count | Time(s) | Request Buffer Capacity | Time(s) |
| 10 | 3.896879 | 10 | 1.724562 |
| 20 | 1.979917 | 20 | 1.72166 |
| 50 | 0.897162 | 50 | 1.650181 |
| 100 | 0.602448 | 100 | 1.797868 |
| 200 | 0.891767 | 200 | 1.804924 |
| 300 | 0.970631 | 300 | 1.816331 |
| 400 | 1.225395 | 400 | 1.503926 |
| 500 | 1.452209 | 500 | 1.848412 |
| 600 | 1.800248 | 600 | 1.929059 |
| 700 | 1.882595 | 700 | 2.16764 |
| 800 | 2.190201 | 800 | 1.813705 |
| 900 | 2.337041 | 900 | 1.815305 |
| 1000 | 2.48695 | 1000 | 1.810382 |

File Transfer (File = 10.csv, N = 15000)

|  |  |  |  |
| --- | --- | --- | --- |
| Request Buffer Capacity = 256 bytes | | Thread Count = 500 | |
| Thread Count | Time(s) | Request Buffer Capacity | Time(s) |
| 10 | 0.120422 | 10 | 1.133552 |
| 20 | 0.117299 | 20 | 1.157573 |
| 50 | 0.187515 | 50 | 1.318508 |
| 100 | 0.26606 | 100 | 1.317594 |
| 200 | 0.481558 | 200 | 1.315227 |
| 300 | 0.76108 | 300 | 1.314703 |
| 400 | 1.022285 | 400 | 1.313025 |
| 500 | 1.238381 | 500 | 1.312176 |
| 600 | 1.48098 | 600 | 1.311665 |
| 700 | 1.741916 | 700 | 1.310982 |
| 800 | 1.890763 | 800 | 1.310083 |
| 900 | 1.992895 | 900 | 1.30271 |
| 1000 | 2.091315 | 1000 | 1.29875 |

Data Requests Report

As thread count increases initially, time decreases. However, time starts to increase again between one hundred and two hundred thread count. This is most likely because having the memory to occupy and close a thread takes more time than actually speeding up the process. The scale for this relationship is inverse logarithmic. There is no correlation between request buffer capacity and time.

File Transfer Report

As thread count increases, time increases linearly. This is probably because having a file split up into multiple threads will speed up the process rather than slowing it down since the file is bigger than requesting simple data points. However, the relationship between message buffer capacity and time is complicated and represents more a logarithmic relationship.

Demo Video:

https://drive.google.com/file/d/1YxcJzW84QRlWgV0tj6HuYJ6gpn1Vukqb/view?usp=sharing