

CS 6847 : Cloud Computing

Assignment 1: Client-Server Socket Program in C & Java

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1. Socket Program in C

- Client is implemented as client.c and Server is implemented as server.c.
- Server program is configured to run on 127.0.0.1:1780.
- Client is configured to connect to above server.
- Single Client program does entire processing.
- All Processing consists of connecting multiple time to the server and during each connection doing 1000 times data transmission and receiving response.
- Server is Written as Multithreaded process. Each connection is handled via a separate thread.

Number of Connections	Average Processing Time	Processing time / Connection
100	2899 ms	28.99 ms
200	5366 ms	26.83 ms
500	13935 ms	27.87 ms
1000	27337 ms	27.34 ms
2000	53892 ms	26.95 ms
3000	80331 ms	26.77 ms
4000	107270 ms	26.82 ms

Table 1: Comparing the Processing time per request of C Server as number of clients increase.

2. Socket Program in Java

- Client is implemented as client.java and Server is implemented as server.java
- Sever is configured to run on 127.0.0.01:1800
- Client is configured to connect to above server.
- Single client program upon execution connects to the server and sends a pre-configured string and receives a response, this happens 1000 times and closes the connection.
- On the server side, each request is processed by different thread.
- Threads are managed using *Fixed Thread PoolExecutor* with number of threads = 8.

Number of Connection	Average Processing Time	Processing time / Connection
100	5063 ms	50.63 ms
200	10675 ms	50.34 ms
500	25245 ms	50.49 ms

1000	50185 ms	50.19 ms
2000	97004 ms	47 ms
3000	145256 ms	48.42 ms
4000	188681 ms	47.17 ms

Table 2: Comparing the Processing time per request of Java Server as number of clients increase.

3. Comparison:

Both the Clients Response times are compared in the graph below

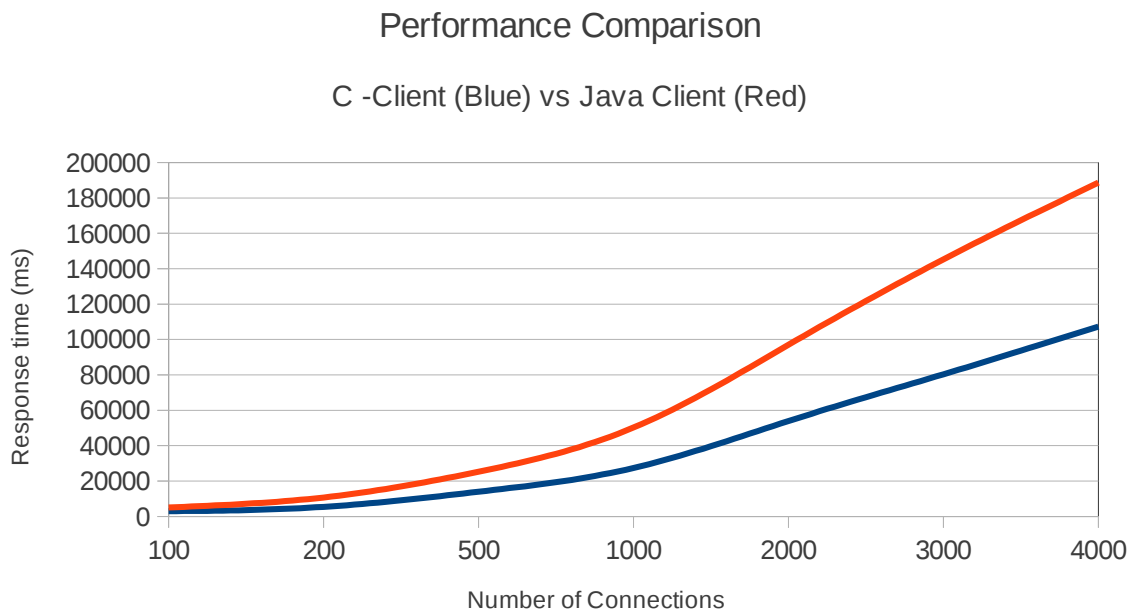


Figure 1: Comparing Response time for Java Client (Red) & C Client (Blue)

4. Conclusion:

Socket Programming in C is more efficient than in Java. Processing is faster in C.