Performance Report

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CSCI 5673 Distributed Systems programming assignment 2

Performance figures

	Number of buyer instances	Number of seller instances	Response time (ms)	Throughput (requests / sec)
1	1	1	7.3157	146
2	10	10	46.4196	21
3	100	100	-	-

Explanation

The system seems to be very inefficient and its performance seems to degrade with the increase in number of client instances. The server crashes even at a modest load of 20 to 30 instances.

Comparison between assignment 1 and 2

The system seems to have degraded in performance as compared to the system built using TCP-IP sockets. This might be because of several reasons.

A. Overhead: The model from PA1 has very little overhead as compared to this.The RPC-based approaches (REST and gRPC) have additional overheads such as serialization/deserialization, protocol overhead, and network latency, which could add up and impact performance.

B. The RPCs are built on top of TCP sockets, so if the payload size is relatively small, which it is in this case, the additional overhead of the RPC-based approaches might outweigh the benefits of using them. Sockets might be more efficient for small payloads, especially if the communication is local.

C. Sockets are more efficient for concurrent requests while RPCs are better suited for asynchronous communication.