



CHALMERS UNIVERSITY
COMPUTER SCIENCE DEPARTMENT

Lab 3 - Improving the flawed server

Homework from computer networks

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1 Answers to lab questions

Question I.a.1

The response to messages from 2 clients connected at the same time are immediate. Both clients have the the state ESTABLISHED in netstat:

tcp	0	0	localhost:53286	localhost:5703	ESTABLISHED
tcp	0	0	localhost:5703	localhost:53284	ESTABLISHED
tcp	0	0	localhost:5703	localhost:53286	ESTABLISHED
tcp	0	0	localhost:53284	localhost:5703	ESTABLISHED

Question I.a.2

The result of the simulation is

Simulating 100 clients.

Establishing 100 connections...

successfully initiated 100 connection attempts!

Connect timing results for 100 successful connections

- min time: 0.798271 ms
- max time: 4.469441 ms
- average time: 2.405017 ms

(0 connections failed!)

Roundtrip timing results for 100 connections for 10000 round trips

- min time: 3269.909818 ms
- max time: 3971.980467 ms
- average time: 3803.638460 ms

Just 7 connections with 255 round trips took on average 40639ms last time, which is a significant performance improvement.

Question I.a.3

We managed to create DOS attack by modifying the client-multi file, there are too many connections for the server to handle. However, we couldn't do it by just one simple client connecting to the server, even if it requested the server many times.