ILLINOIS INSTITUTE OF TECHNOLOGY

CS 550: Advanced Operating Systems

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Gnutella P2P File Sharing System: Performance Results

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Contents

1   Introduction

To verify that our system is capable of withstanding different load intensities, we have carried out performance tests.

We deployed 10 super-peers, each connected to 3 leaf-nodes. All the super-peers and leaf-nodes were on the same machine. Each leaf-node shared at least 10 files ranging in size from 1 to 20 kB to verify that the file transfers ran smoothly.

We have also implemented scripts to simulate a large number of queries. The results are detailed in the following section.

2   Measurements

We created a script to automate the sending of multiple requests from multiple clients simultaneously and then measured the average response time. Then, we executed this script using the two different topologies: all-to-all and linear. The figure below presents our results in a plot graph.
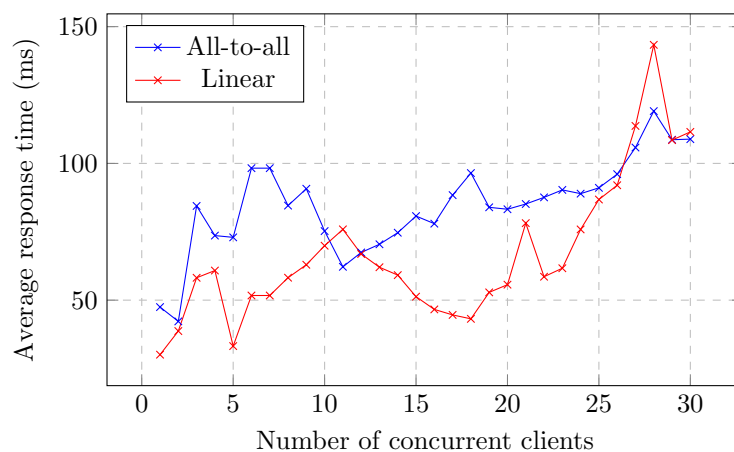

Figure 1: Measured average response time for different topologies

Based on those results, we cannot see a significant difference between the all-to-all and linear topologies. However, we can tell that the linear topology is not adapted to a real-world usage because the average number of requests needed to propagate is proportional to the number of super-peers and it can be a very high number.

3   Conclusion

Based on those performance results, we can conclude that our system has a low average response time and is capable of handling several clients simultaneously. Therefore, it works as expected and is ready to be used by multiple users.

However, complementary tests need to be performed with peers on different computers to make sure that the behavior is not different than this.