

Peer-to-peer networking

Topic details

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About this document

This document contain a general structure for a Master Thesis, but probably needs some revision in order to be completely satisfying. Especially some estimations on time consumption has to be made.

1 Overview

Beginning with an overview of the area is necessary discussing things such as the following.

- Client/server vs. P2P architectures
- Complete P2P, such as Gnutella
- Partial P2P, such as Napster and other somewhat centralized architectures
- Pros and cons of using complete and partial P2P

2 Gnutella

Since Gnutella is the de facto protocol for the most popular P2P-service today, file sharing, a closer look is important. Things to look at could include the following.

- The protocol itself and how it works
- How addressing is working
- How queries are working
- The problems with Gnutella

3 Simulations

To get some practical issues in the thesis some simulations could be performed. Interesting things to examine includes the following.

- Gnutella connectivity
- Gnutella response times
- Network overhead
- More thorough studies of related work and the results and analysis made by other scientists

4 Improvements

Since flaws will be detected it is interesting to investigate how performance can be improved. The areas where improvements can be made are query optimization and addressing optimization. Some things worth looking into are the following.

- Caching methods
- Hierarchical addressing
- Specialized directories or rendezvous points
- In depth studies of others' theories

5 Applications and frameworks for P2P

Since file sharing is only one possible application for P2P it is worth while investigating other applications of P2P and their potential. Legal matters are also something that is of high importance and should be investigated.

Evaluating existing frameworks such as Sun's JXTA and similar attempts to structure P2P services could also prove useful. The depth of such evaluations depend on how much time is spent on achieving depth on other parts.