Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

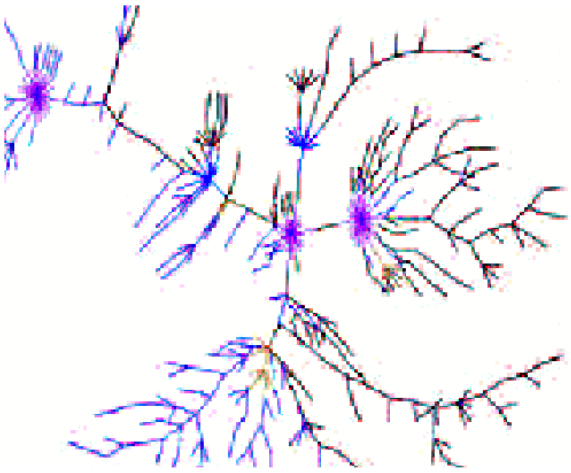
Computer Science Department

ETH Zurich
CH-8092 Zurich

Prof. Dr. Roger Wattenhofer
phone +41 1 632 6312
fax +41 1 632 1172
wattenhofer@inf.ethz.ch

Semester/Diploma/Master Thesis "Mapping the Gnutella Network"

When American courts shut down Napster, people chose alternative applications to share their music and other files. One of the first and still existing real peer-to-peer (i.e. without any central server) applications is Gnutella. As we just did, Gnutella is often called an *application*. In fact, it is however an *open protocol* used by several different applications maintained by independent developers. Although there is a core protocol and notes on required and recommended features, each Gnutella servent (**serv**er + cli**ent**) seems to have its own interpretation. Not astonishingly, this leads to difficulties gaining information (such as connectivity) about the Gnutella network (GNet).



In this Semesterarbeit you will first study the basic Gnutella protocol and its extensions. One goal is to find a way to map the GNet. For this purpose you need to gather reliable information about the hosts and their (inter-)connections and build a GNet graph (as a data structure, maybe also visualized). Additionally the resulting graph should be analyzed with respect to various aspects, such as the average number of links maintained by a host or the frequency of "triangles".

We have started with some uptime measurements of Gnutella hosts. There is some (Java) code available that you might use and modify for your own purposes.

Skills

- Network programming (preferably with Java)

Contacts

- Keno Albrecht, keno.albrecht@inf.ethz.ch, IFW A46.2, phone 20896
- Roger Wattenhofer, wattenhofer@inf.ethz.ch, IFW A47.2, phone 26312