

Reading Summary: On the performance and fairness of BitTorrent-like data swarming systems with NAT devices

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1 The Problem(s)

Please describe the problem(s) in your own words. Is the problem important at the time of paper publication, and how about now? Why?

Due to the increasing commonality of NAT among systems, it has a tendency to affect P2P connections and their download performance. It was a growing problem at the time of publication and is only getting more problematic with time as NAT is a growing technology through the need of more internet connections and the problem of running out of IPV4 address space.

2 Main Idea(s)

Please describe the main idea(s) in your own words. How is the idea different from the existing work at the time of paper publication? How does the idea impact the follow-on work till now?

The main idea is that there is an inherent unfairness between NAT users and public users on a P2P network like bittorrent. Favouring of download choice goes to the public users as they have a higher upload speed than the NAT users. This in turn means that the network is essentially "run" by public users. The paper focuses on getting quantitative data on the fairness issue by having systems set up with both homogeneous and heterogeneous peers to connect to. After the data is collected, a new "tune" can be applied to a network to account for performance fluctuations regarding NAT.

3 Major Strengths

Please list at least three most important things in this paper. Why do you think they were important at the time of paper publication? How about now?

The paper talks about P2P file sharing and solutions to improve it where in most media and papers the same concepts are trying to be stifled due to copyright issues; it is nice to see a stance trying to further the technology. Proper testing was done between homogeneous and heterogeneous uplink capacities and all the information pertaining to them such as fairness and download speeds. This is important because now there are many more users on the internet since publication and each one of them has an effect on speeds. The tunable optimistic unchoke strategy seems viable, but I am curious if it or something similar is currently in production to increase seeding hosts to the NAT hosts.

4 Major Weaknesses

Please list at least three things you think may need further improvement in this paper. Has the improvement appeared in the follow-on work already?

Lots of seemingly unnecessary reiteration of how things will "slow down" and how the "download rate will decrease" in the first couple pages; could be more succinct. Because of the significant increase in NAT lately, it may be worthwhile doing a specific study on P2P between 2 NAT connections and really analyze the restrictive boundaries.

5 Possible Improvement

Do you have some ideas of your own on this problem? Can you do something better or differently? How can you show that?

Implementing some sort of "beacon" signifying that behind a NAT there is a P2P individual and the NAT server can respond to a "ping" or sorts requesting the content type that is being hosted. This kind of communication may be a way to allow an outside connection initiate a file transfer with a NAT'd host.