NSF Award in Computer and Information Science and Engineering

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- Project: NeTS: Small: Parallax — Leveraging the Perspective of Ten Million Peers
- Start Date: August 1, 2009
- Total Award Amount: $500,000

How the results of this project will benefit society:
Much of the Internet’s growth occurs in domains beyond the reach of current measurement techniques and platforms, such as behind network address translation (NAT) boxes and firewalls or in regions of the Internet not exposed by public border gateway protocol (BGP) feeds. This work is motivated by the observation that, collectively, peers in large-scale peer-to-peer (P2P) systems have a unique and valuable perspective on network conditions, one to which today’s researchers, operators and users have limited or no access. P2P systems are an ideal vehicle for accessing these views, being among the largest services and covering most of the Internet.

The problem the project is trying to solve:
As passive monitors of the Internet, different peer-to-peer (P2P) systems can provide different, complementary views of the network, over partially overlapping space and time domains. The goal of this effort is to explore the potential for reusing such valuable views, investigating techniques for gathering, sharing, and exploiting it.

How this project will work:
The work focuses on: identifying useful metrics regarding network conditions collected by these peers and evaluating their potential for reuse (over time and across multiple systems’ perspectives), designing approaches for maintaining this information and making it accessible to other large-scale distributed systems in a decentralized manner while preserving the privacy of the participating peers, and exploring potential applications that could benefit from this information.

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