NETI@home: A Distributed Approach to Collecting End-to-End Network Performance Measurements

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Goals of the NETI@home Project

- Passive Internet measurements from world-wide vantage points
- Capture “Real” users’ experiences
- Satisfy need for collection of end-to-end network measurements
- User privacy protected and assured, while maximizing research potential – not “spyware”

Goals of the NETI@home Project (cont.)

- A large variety of measurements collected, for the most commonly used Internet protocols
- Software should minimally affect user and user's system, to have little impact
- Large user base
  - Multiple platforms
  - Run in the background, requiring little or no intervention
  - Provide user motivation

Goals of the NETI@home Project (cont.)

- Collected measurements reported to Georgia Tech
- Collected measurements made publicly available
- Scalable collection method
- Easily upgraded

Description of NETI@home

- Inspired by the SETI@home Project
- Open-Source (GNU GPL)
- Written in C++
- Uses libpcap
- Available for:
  - Windows >= 95
  - Linux
  - *NIX's

Description of NETI@home (cont.)

- Packets are *not* sniffed in promiscuous mode
- Measurements kept on a per flow (bidirectional) basis
- Collected for TCP, UDP, ICMP, and IGMP
- Results compressed and reported periodically

NETI@home's Privacy Levels

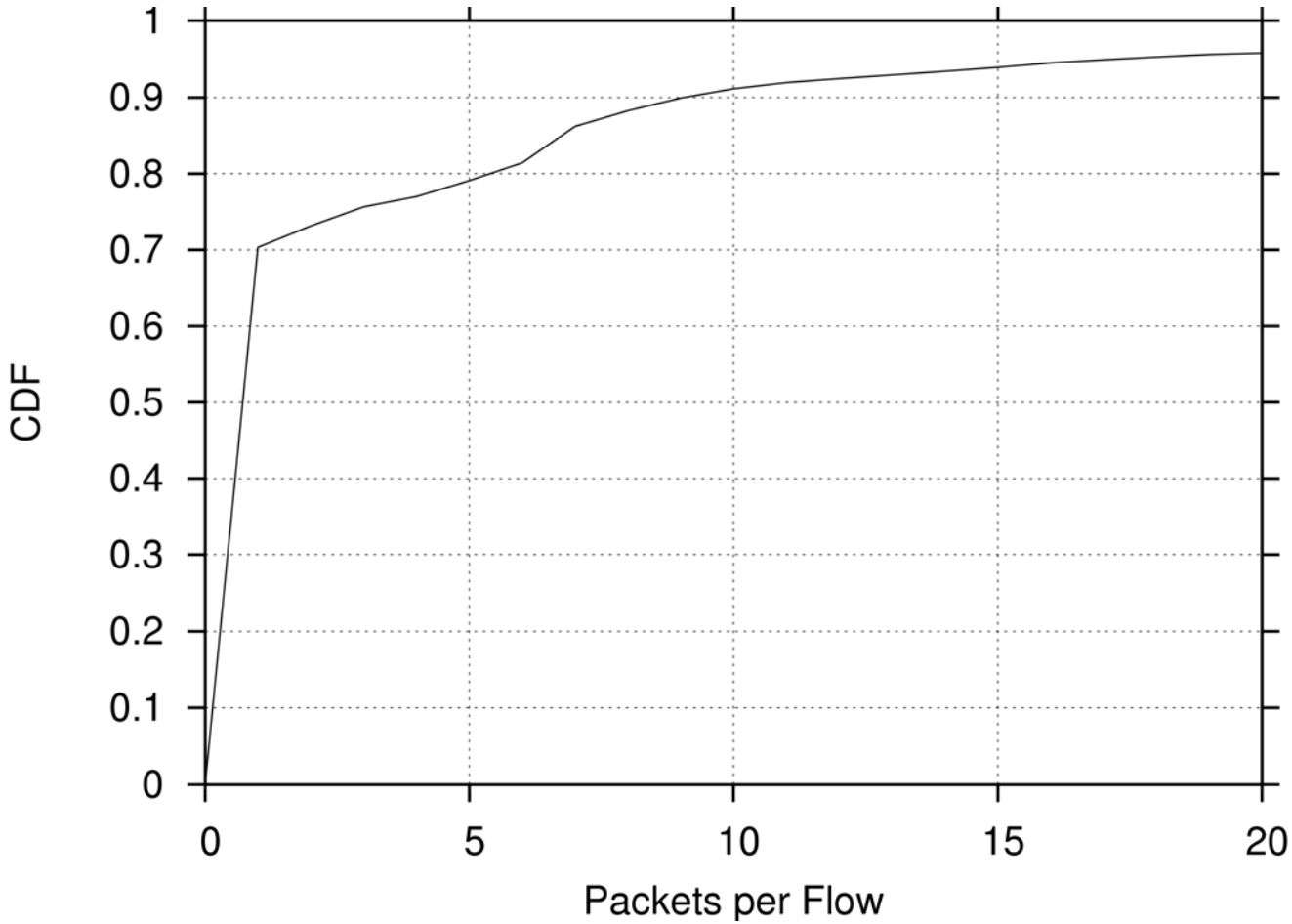
- **Low**: All IP addresses are reported
- **Medium**: Only the network portion of IP addresses are reported (based on netmask)
- **High**: No IP addresses are reported

- Future: Anonymization Techniques

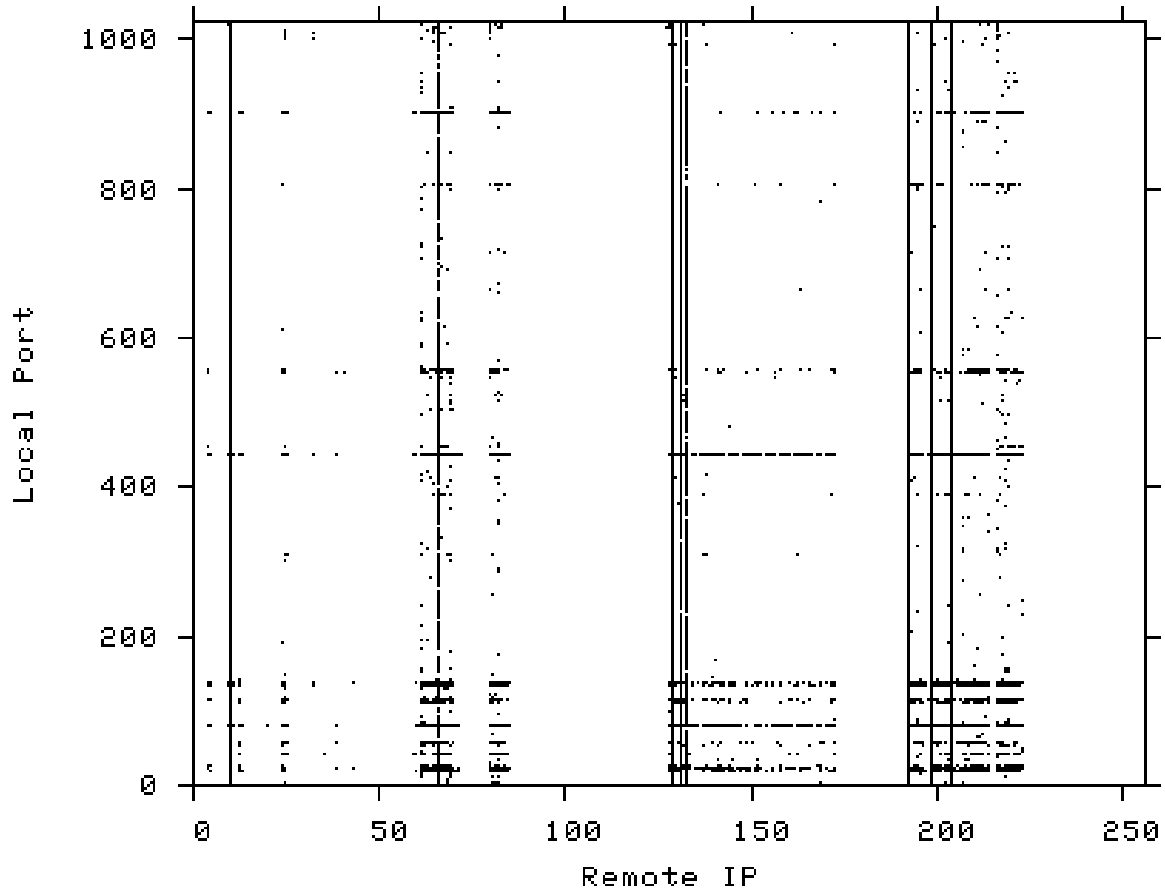
Current Usage Statistics

- As of March 28, 2005: (All number approximate due to privacy settings)
  - 4800 downloads from the NETI@home website
  - 500 unique users running NETI@home software
  - 2800 user reports per day to the NETI@home server

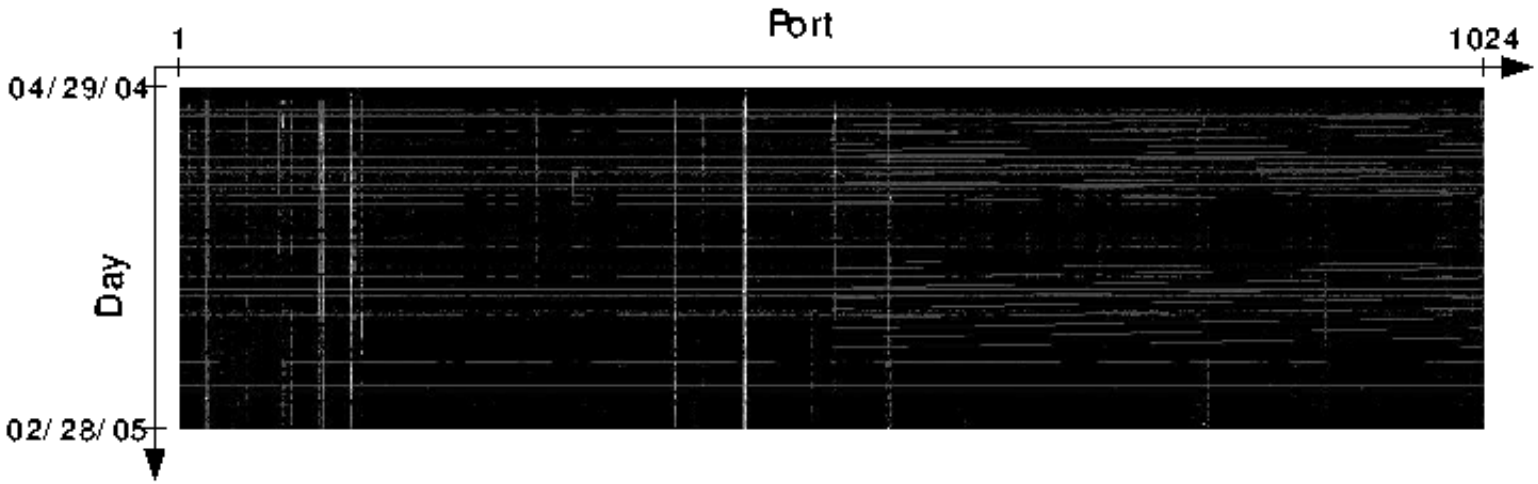
Results (TCP Packets per Flow)



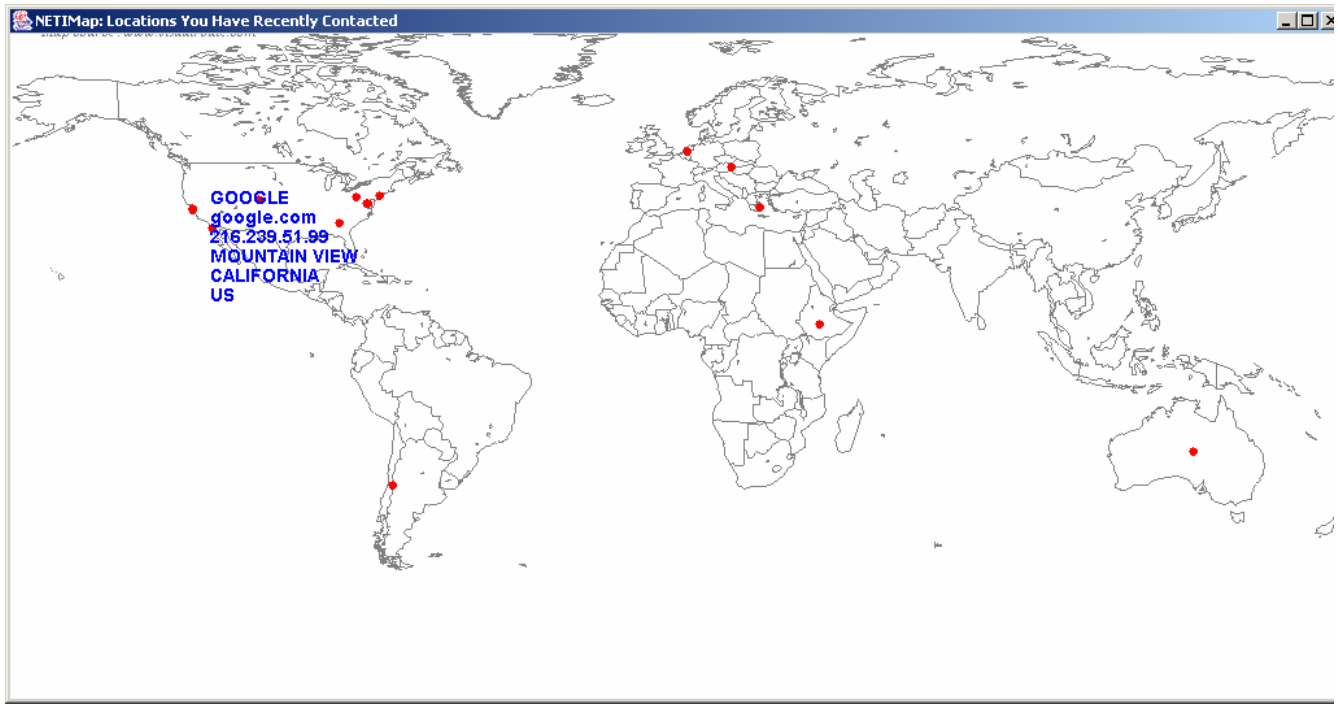
Results (note port scanning)



Results (note port scanning)



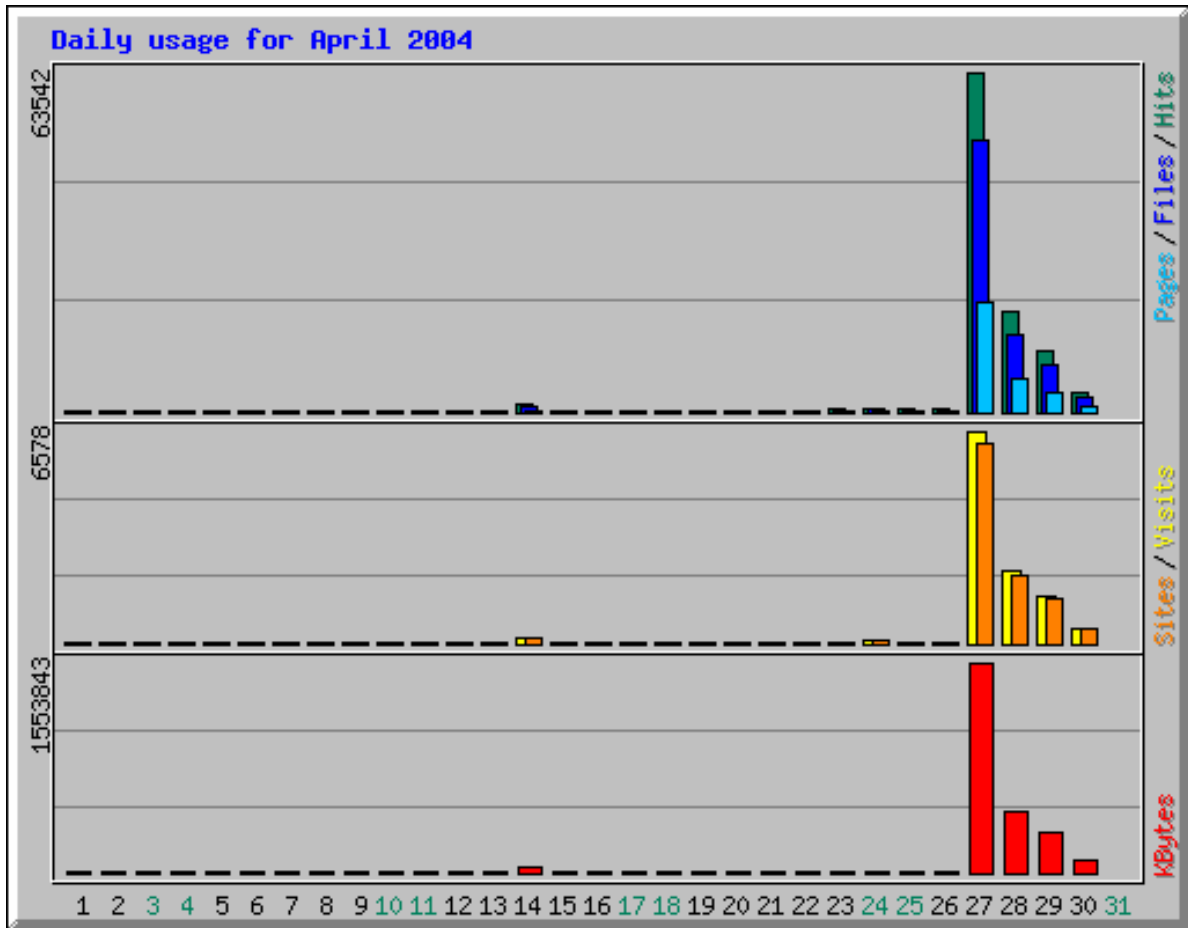
NETIMap: Motivation



- Graphically plots contacted IP addresses using CAIDA's NetGeo database

The *Slashdot Effect*

- NETI@home was publicized on Wired.com and Slashdot on April 27, 2004
  - 63542 Hits
  - 6578 Visits



Future Work

- Lower-Level measurements (TCP congestion window)
- Traceroutes
- Continuous improvement to measurements and measurement techniques
- Online data repository
- Available bandwidth
- Additional protocols
- Prefix-preserving IP anonymization

GO GET IT!!!

- Available from: http://neti.gatech.edu
- Available for:
  - Windows operating systems >= 95
  - Linux
  - *NIX's
- Also Available from **SourceForge**
- Version 2 will be available very soon

Questions???

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