

Measurement Update

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Measurement Infrastructure

- Measurement platforms are vital for understanding
 - performance, connectivity, and tuning
 - For both infrastructure AND applications.
- Need both Active and Passive platforms
 - Active
 - Current, continuous information by probing the network.
 - Passive
 - No additional traffic.

Overview

- Active Measurement efforts:
 - AMP by NLANR MOAT
 - Free to any HPC site
 - See <http://amp.nlanr.net/> for more information.
 - Measures connectivity, loss and roundtrip time.
 - Performance matrix between sites.
 - Surveyor by Advanced.org
 - Available to HPC/I2 sites
 - See <http://www.advanced.org/csg-ippm/>
 - Measures one-way delay and packet loss.
 - Performance matrix between sites.

 Requires GPS antenna.

Active Measurement Platforms

- Issues
 - AMP and Surveyor provide different but complementary information.
 - Each provides own performance matrix.
 - AMP only or Surveyor only matrix
 - Need both platforms for complete matrix of sites.

Recommendation

- HPC/I2 Sites should:
 - Request both AMP and Surveyor platforms
 - Follow location recommendations.
 - Provides measurement consistency.
 - Document where and how the platform is connected.
 - Currently
 - Total 150 HPC sites
 - ~ 85 AMP sites, ~ 55 Surveyor sites.
 - Includes non-HPC sites. Clearly many sites missing.

Passive Monitors

- OCXmon
 - Combined development effort between
 - MCI, NLANR Measurement and CAIDA
 - Passively collects packet headers
 - Large collection of tools for analyzing the data collected:
<http://moat.nlanr.net/OC3mon-monitors/>
 - Interfaces available for:
 - ATM (DS-3, OC-3, OC-12)
 - POS (OC-3 and OC-12)

TAAD

- Traffic Analysis and Auto Diagnosis
 - Developed by Matt Mathis and Kathy Benninger at NLANR ES.
 - Works on data collected by OCxmon.
 - Allows diagnosis of both network infrastructure and applications using passive measurement.
 - Automatically diagnosis specific types of TCP/IP performance problems.
 - When complete, available at
 - <http://www.ncne.nlanr.net/TCP>

Types of Problems

- Network Limited TCP flows
 - TAAD detects whether congestion is upstream or downstream of the monitor platform.
- Identifies mis-tuned flows
 - i.e, TCP implementations which are not tuned.
 - Identified by how much the flow could be improved.
 - Identifies systems and applications which could benefit the most.
 - Prioritize limited network engineering resources.