Web100 at SLAC

Presented at the Web100 Workshop, Boulder, CO, August 2002.
Overview

• Review
• Web100 at SLAC
• Applications
• Results
• IEPM-BW
• MAGGIE
The Needs of HENP

- BOF in Nebraska.
- SLAC is a data center.
- Transfer multiple TeraBytes to France, UK.
- Need to optimally configure ftp-like applications to maximize throughput.
- Track loss, RTT, throughput.
- Modify streams and window size.
Expectations

• Take out the guess work
• Maintain optimal parameters
• Improve throughput
Web100 at SLAC

- Initial test and development machines.
- Two main ‘production’ machines
  - Antonia, Hercules
- Other testbed machines are web100-enabled by default.
- Utilize Net100 extensions and turn off 2.4 caching.
Application

- webdump (tcpdump-like) program
- Iperf
  - Short transfers dominated by slow start
  - Modify iperf to use web100 to identify when slow start has finished and report throughput
End of Slow Start to IEPM-BW Nodes
Measured IPERF BW and QuickBW to IEPM-BW Nodes
Results

- iperf vs web100 vs passive (netflow)
- Stream by stream for a whole transfer
  - Not progressive
Measurement Tools and Methodology
Issues

• Dynamically select CID
• What is interesting?
• Real-time
• Streams and Windows prediction
IEPM-BW

- Continuously operating high performance throughput measurement project.
- Poor mans AIME (not funded by SciDAC).
- Iperf, bbcp, bbftp, udpmon …
- Track, compare, contrast
- 3 Monitoring Sites (SLAC, FNAL, UMan)
  - I2, UMich, NIKHEF, APAN/JP
- 33 Active Participants (US, Europe, Japan)
IEPM-BW and WEB100

• Option to dump subset of stats to a file
  – Not default
MAGGIE

• Measurement and Analysis for the Global Grid and Internet End-to-end Performance.
• Big sister of Active Internet Monitoring for ESnet (AIME).
• 10-20+ NIMI hosts running periodic and on-demand measurements.
• Feedback results to instrument tools and troubleshoot issues.
MAGGIE+

- Atlas
- Internet2
  - Performance Analysis Stations
  - I2 E2E PIPES
- PPDG
- Work with these and others to create co-operative framework
- Continue IEPM-BW work.
Details

- http://www-iepm.slac.stanford.edu
- http://www-iepm.slac.stanford.edu/maggie
- http://www-iepm.slac.stanford.edu/bw
Any Questions?