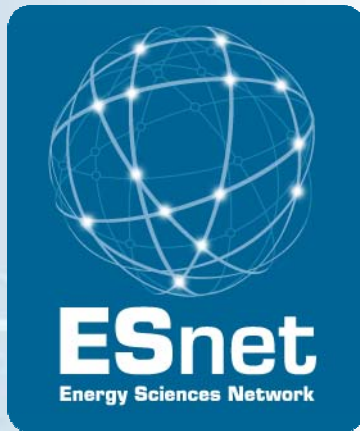




PerfSONAR JET/LSN Demo

Joe Metzger, Network Engineer

ESnet Network Engineering Group

Columbus, OH

July 13, 2010



Status



Domain	Latency Deployed	Latency Scheduled	Bandwidth Deployed	Bandwidth Scheduled
ESnet	Yes		Yes	Partial
Internet2	Yes	Partial	Yes	Partial
NOAA	Yes		Yes	Partial
NLR	Yes		Yes	
NASA			Yes	Partial
UEN	Yes	Partial	Yes	Partial

<http://code.google.com/p/perfsonar-ps/wiki/JETPerfSONARDemo>

Active Tests Internet2 Perspective



Active Data Sets

http://ggf.org/ns/nmwf/tools/iperf/2.0 @ http://ndb1.internet2.edu:8086/perfSONAR_PS/services/pSB									
First Host	First Address	Second Host	Second Address	Protocol	Duration	Window Size	Bandwidth Limit	Bi-Directional	Line Graph
anl-pt1.es.net	198.124.252.117	nms-rthr-eth2.newy32aoa.net.internet2.edu	64.57.17.82	TCP	30	4		Yes	-- Select -- ▾
anl-pt1.es.net	198.124.252.117	nms-rthr.salt.net.internet2.edu	64.57.17.196	TCP	30	4		Yes	-- Select -- ▾
anl-pt1.es.net	198.124.252.117	nms-rthr1.salt.net.internet2.edu	64.57.17.210	TCP	30	4		Yes	-- Select -- ▾
bandwidth.chpc.utah.edu	155.101.3.61	nms-rthr-eth2.newy32aoa.net.internet2.edu	64.57.17.82	TCP	30	4		Yes	-- Select -- ▾
bandwidth.chpc.utah.edu	155.101.3.61	nms-rthr.salt.net.internet2.edu	64.57.17.196	TCP	30	4		Yes	-- Select -- ▾
bandwidth.chpc.utah.edu	155.101.3.61	nms-rthr1.salt.net.internet2.edu	64.57.17.210	TCP	30	4		Yes	-- Select -- ▾
nersc-pt1.es.net	198.129.254.22	nms-rthr-eth2.newy32aoa.net.internet2.edu	64.57.17.82	TCP	30	4		Yes	-- Select -- ▾
nersc-pt1.es.net	198.129.254.22	nms-rthr.salt.net.internet2.edu	64.57.17.196	TCP	30	4		Yes	-- Select -- ▾
nersc-pt1.es.net	198.129.254.22	nms-rthr1.salt.net.internet2.edu	64.57.17.210	TCP	30	4		Yes	-- Select -- ▾
nettest.boulder.noaa.gov	140.172.5.21	nms-rthr-eth2.newy32aoa.net.internet2.edu	64.57.17.82	TCP	30	4		Yes	-- Select -- ▾
nettest.boulder.noaa.gov	140.172.5.21	nms-rthr.salt.net.internet2.edu	64.57.17.196	TCP	30	4		Yes	-- Select -- ▾
nettest.boulder.noaa.gov	140.172.5.21	nms-rthr1.salt.net.internet2.edu	64.57.17.210	TCP	30	4		Yes	-- Select -- ▾
nms-rthr-eth2.newy32aoa.net.internet2.edu	64.57.17.82	nms-rthr.salt.net.internet2.edu	64.57.17.196	TCP	30	4		Yes	-- Select -- ▾
nms-rthr-eth2.newy32aoa.net.internet2.edu	64.57.17.82	nms-rthr1.salt.net.internet2.edu	64.57.17.210	TCP	30	4		Yes	-- Select -- ▾

10/20/2010

3

Active Tests NASA Perspective

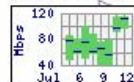


EOS Active Network Testing JET Destinations

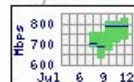
The sites below are participants in the OSTP Large Scale Networking (LSN) Joint Engineering Team (JET), and are tested under the ENSIGHT Active Testing Program. The graph for each site shows the minimum, maximum, and median throughput for the past week. Selecting any of these graphs will link to a page with detailed testing results for that site.

AMPATH: [Miami](#)
CENIC: [Los Angeles](#)
DOE:
 [NERSC - Berkeley](#)
 [ANL - Chicago](#)
Internet2:
 [Los Angeles, CA](#)
 [Washington, DC](#)
 [Salt Lake City, UT](#)
 [New York City](#)
NASA:
 [ARC](#)
 [GSFC](#)
NLR:
 [Atlanta](#)
 [New York](#)
 [Seattle](#)
NOAA:
 [Princeton, NJ](#)
 [Boulder CO](#)
Utah: [Salt Lake City](#)

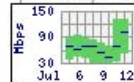
NLR Seattle



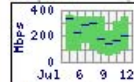
NASA ARC



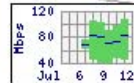
DOE NERSC



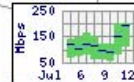
CENIC



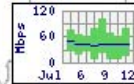
I2 LA



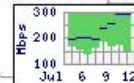
I2 SLC



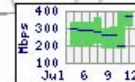
UTAH



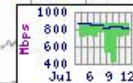
NOAA Boulder



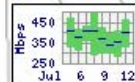
DOE ANL



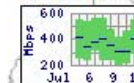
NASA GSFC



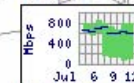
NLR Atlanta



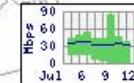
NLR NYC



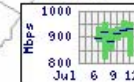
I2 NYC



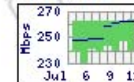
NOAA NJ



I2 WASH



AMPATH



Test Results Summary



- There is significant variability on the cross-domain paths being tested.
- Some are actively used paths with significant cross traffic
- Some paths are mostly idle
- **Some paths are not allowed by policy**
- Bandwidth results
 - Many show high, stable performance
 - Some show significant variability
 - Some are asymmetric, probably due to test infrastructure configuration issues



Lessons Learned – Initial Comments

- BWCTL tests are far more prevalent than the latency tests
- Having a mostly full mesh of both the latency and the throughput yields a better and more rounded picture
- Exposing the data for 3rd party access is problematic from a policy and technical perspective. However, this data is necessary for good troubleshooting.
- Exposing the data for fixed site and tests is useful, but being able to dynamically bring up sites and graphs would be even more useful to active troubleshooting.
- Not everyone is setting up IPv6 interfaces for measurement at this time
 - More thoughts on how to balance IPv6 measurements might be necessary.

Next Steps



July - Collect Lessons Learned

August - Write up a report