

JET Meeting Minutes

September 16, 2008

I. Participants

| | | |
|-------------------|------------------------|--|
| Rich Carlson | Internet2 | rkarlson@internet2.edu |
| Bobby Cates | NASA/Ames | bcates@mail.arc.nasa.gov |
| Greg Cole | Gloriad | gcole@gloriad.org |
| James Cook | DREN | jrcook@hpemo.hpc.mil |
| Phil Dykstra | DREN | phil@sd.wareonearth.com |
| Andy Germain | NASA, GSFC | andy.germain@gsfc.nasa.gov |
| Mike Gill | NIH/NLM | gill@nlm.nih.gov |
| Wendy Huntoon | NLR | huntoon@psc.edu |
| Julio Ibarra | FIU | Julio@fiu.edu |
| Hugh LaMaster | NASA/NREN | hugh.lamaster@nasa.gov |
| Carol Lawson | USGS | clawson@usgs.gov |
| Paul Love | NCO | epl@sover.net |
| Joe Mambretti | Northwestern Un. | j-mambretti@northwestern.edu |
| Ernest McDuffie | NCO | mcduffie@nitrd.gov |
| Kevin McGrattan | Cisco | kmcgratt@cisco.com |
| Lindon Mercer | NRL | linden@cmf.nrl.navy.mil |
| Grant Miller | NCO | miller@nitrd.gov |
| Kevin Oberman | ESnet | oberman@es.net |
| Peter O'Neill | MAX | poneil@maxgigapop.net |
| Don Riley | UMd | drriley@umd.edu |
| Chris Robb | I2 | chrobb@internet2.edu |
| Joe St Sauver | Internet2/Un of Oregon | joe@oregon.uoregon.edu |
| Brent Sweeney | Indiana Un./GRNOC | sweeney@iu.edu |
| Kevin Thompson | NSF | kthompson@nsf.gov |
| Christian Todorov | Internet2 | ctodorov@internet2.edu |
| Alan Verlo | StarLight | darkman@evl.uic.edu |
| Ken White | NISN | ken.white@msfc.nasa.gov |
| Bill Wing | DOE/ORNL | wrw@ornl.gov |

Action Items

1. If you are interested in using AtlanticWave to reach SC08 please contact either Julio Ibarra <julio@fiu.edu> or Matt Siniscal <matt@maxgigapop.net>.
2. If you are interested in StarLight support for a demonstration at the early October GLIF meeting in Seattle, please contact Alan Verlo 710Engineers@startap.net
3. If you would like to use NLR Framenet or Packetnet services at SC08 please contact ess@nlr.net

AI: If you have an interest in NLR VLAN service contact: noc.nlr.net

4. By the November 11 LSN meeting, the JET should prepare a white-paper for a plan to address Network. Rich Carlson and Phil Dykstra agreed to draft the white paper for discussion at the October JET meeting
5. Bill Wing, Nagi Rao, Bill Fink, and Limon Mercer will discuss the results of testing Infiniband and Ethernet over large distances and report to the JET at the October 2008 meeting.
6. Grant Miller and Paul Love contact a DHS TIC architect to have them attend the next JET meeting to discuss evolving TIC architecture and performance.

Proceedings

This meeting of the JET was chaired by Kevin Thompson of the NSF.

Network and Exchange Point Roundtable

DREN

DREN is moving equipments at the MAX and NGIX-East. They are establishing a circuit to the LA NAP where there is notable IPv6 activity. The IPv6 status page (www.mrp.net/IPv6_Survey.html) currently lists 200+ sites and notes the status of IPv6 email, Jabber, and BGP. All DREN sites are currently IPv6 operational in all categories. DREN just obtained some IPv6 classified space. DREN is seeking dark fiber from SPAWAR to the San Diego area. They want to support an Optiputer demonstration at SPAWAR. DREN is planning a testbed for an optical switch network. The optical network will be Layer 2 switches still to be chosen.

At the DREN network conference Larry Smarr gave the keynote speech.

ESnet

ESnet is deploying bandwidth for their DCN network in Boston, New York and Houston. Kansas City will be added next week.

The LHC collaboration is starting up soon. Test and calibration of the accelerator is taking place by the end of the year. Large –scale data flows will be taking place by then.

Internet2Net

The Seattle IP node and DCN nodes are being moved to the Pacific NorthWest GigaPoP at the end of September. Internet2net will be off the Qwest fabric then. The Ciena backbone will be supporting Albuquerque to El Paso. Infinera gear will be moved to the PNWGigaPoP in January 2009.

Commodity peering in New York is moving to the fiber meet-me room to bring up cross-connects faster. The T1600 upgrade in Chicago required a replacement of the route engine and the upgrade is now scheduled for the beginning of October.

Internet2net will provide 7 circuits for SC08 including 2 IP circuits routed via Kansas City and Houston. An ESnet DCN demonstration will be supported in coordination with LEARN.

NISN

NISN is upgrading its backbone network to OC192. It is implementing multicast for NASA TV; codex is needed to multicast streams out. A codex is expected to be purchased during the next budget cycle and the codex is planned to be implemented at Goddard Space Flight Center.

NREN

The NISN upgrade to OC192 is proceeding. A new router is being placed in Boulder, Colorado at the Confluent Data Center. It will terminate in Dallas.

NLR

NLR is providing 7 circuits for SC including 2 Framenet, 2 Packetnet and 2 Cisco C-wave circuits. NLR is soliciting requests for use and scheduling of the Packetnet and Framenet services.

AI: If you would like to use NLR Framenet or Packetnet services at SC08 please contact ess@nlr.net

NLR is adding 10 GE Framenet from Atlanta to StarLight that will also support SC08. The NLR infrastructure will be upgraded this fall. NLR is seeing increased interest in its VLAN service. Documentation of the Sherpa software for dynamic VLAN is available. This service will be supporting the GENI program. They are studying whether to access the control plane software directly or through Sherpa. Sherpa will be demonstrated at SC08.

AI: If you have an interest in NLR VLAN service contact: noc.nlr.net

NLR is upgrading its infrastructure; see the Dave Reese talk to Joint Techs for details see: <http://www.internet2.edu/presentations/jt2008jul/20080723-reese.pdf>

Time frame for installation of the upgrades depends on delivery of equipments but the upgrade is scheduled for completion in January 2009.

TransPAC

A connection to Pakistan was implemented last week and is running BGP. An OC12 link through the TANE router in Singapore is operational through Tokyo. It is funded by NSF and Pakistan and connects 80 universities on the PERN network.

USGS

No new information

Am Path

AmPath is working with Florida LambdaRail to provide access to SC08. The NLR upgrade will impact the Atlanta to Jacksonville route and is estimated to temporarily add 150 miliseconds of delay to traffic over that route.

The Miami exchange point has two new connections to Red Clara for San Salvadore and Guatemala.

Exchange Points

NGIX-East

The DREN move to new Co-location space is completed. NGIX-East completed its DWDM upgrade to the Fujitsu Flashwave DWDM system. A Phase 3 NGIX upgrade will provide a link to Ashburn, Virginia. The single wave to Equinix will now be full. Phase 4 of the upgrade will provide connectivity to Baltimore.

NGIX-East is doing full interoperability testing with Bill Fink of NASA/Goddard Space Flight Center; they are tying an OC178 to Juniper T1600s.

StarLight

TeraGrid has been extended to Oak Ridge National Laboratory in cooperation with Bill Wing's UltraScience Net. They are implementing dynamic path provisioning using the GLIF architecture and a standard also used by OGF. StarLight is also implementing a Pacific Northwest exchange point presence. They are supporting GLIF demonstrations there in early October for the GLIF meeting in early October in Seattle. StarLight is working on a framework architecture and provisioning interfaces for those systems. The scheduler will be Chronos. Performance monitoring has not yet been implemented for this demonstration. The demonstration will also be given at SC08. The demonstration testbed will be extended to CalIT2 shortly after the GLIF meeting.

Meetings of interest

September 28-30 Networking Research Challenges Workshop, Seattle, Washington

October 1-2 GLIF Meeting, Seattle, Washington

October 13-16, Internet2 Member Meeting, New Orleans, Louisiana

October 15-17: ARIN meeting in conjunction with NANOG, Los Angeles, California

November 15-21, SC08, Austin, Texas

December, 1st week: The Interworking Conference is being held in Miami Beach. Telcos and academic institutions will attend from the US, Latin American and Asian-Pacific communities: <www.interworking2008.org>

Networking Research Challenges Workshop

An invitation-only workshop on Networking Research Challenges is being held September 28-30 in Seattle, Washington in conjunction with the October 1-2 GLIF meeting there. The workshop is addressing heterogeneous networking, inter-domain issues, network security and advanced research agendas.

LSN Update

The LSN held its Annual Planning Meeting (APM) last Tuesday. At this meeting the LSN identifies topics it would like to focus on over the next year. The LSN identified a task for the JET to pursue, which is:

1. Performance Measurement: How do we enable cross-domain performance measurement to provide real data on network performance and how do we create an

environment and structure where the performance measurement results can be shared among networks. Other dimensions of interest include fault diagnosis, identity management, and information on performance of complex environments. There currently are software tools in Globus to isolate users from the underlying complexity that enable Globus cooperation without exposing underlying sensitivities of participants. How do we bring the community together to provide common information useful to the other participants? Potential resources to address this issue might include Phil Dykstra, KC Claffey, and Rich Carlson.

Rich Carlson and Phil Dykstra agreed to draft a white paper on this topic for presentation to the October JET meeting.

AI: By the November 11 LSN meeting, the JET should prepare a white-paper for a plan to address Network Performance Measurement to support operations and management of networks. Rich Carlson and Phil Dykstra agreed to draft the white paper for discussion at the October JET meeting

InfiniBand and 10 GE Technologies

Bill Wing gave a presentation on work he carried out with Nagi Rao on measurement of performance using Infiniband and 10 GE services. The full briefing will be posted to the JET Web site. It addressed performance of wide-area data transfers at 10 Gbps rates over thousands of miles. Throughput performance was determined for InfiniBand using SONET and 10 GE and 10 GE TCP high performance options. The observed performance showed a throughput decrease per mile of:

- Infiniband over SONET/10GE of 0.02 Mbps/mile
- 10 GigE-HTCP of 1.3 Mbps/mile

Discussion among the JET members indicated further study is warranted.

AI: Bill Wing, Nagi Rao, Bill Fink, and Limon Mercer will discuss the results of testing Infiniband and Ethernet over large distances and report to the JET at the October 2008 meeting.

Trusted Internet Connections (TICs)

The Federal agencies are implementing TICs as required by OMB and as defined by DHS. In cases where science networks are consolidated with Federal agency operations networking, the science networks are seriously affected by bandwidth and security policies associated with the operations networking. People in the agencies do not have a detailed understanding of the requirements of the science networking. DOE has defined their science cooperation networks to be outside of DOE and not subject to the TIC requirements.

The next meeting of the JET will have a more detailed discussion of TICs, science networking, and the impacts of TICs on science requirements.

AI: Grant Miller and Paul Love contact a DHS TIC architect to have them attend the next JET meeting to discuss evolving TIC architecture and performance.

Future JET Meetings

October 21, 11:00-2:00, NSF, Room 1150

November 19 1:00-4:00 CST, Austin Convention Center, Room 8A
(In conjunction with SC08)