JET Meeting Minutes
November 14, 2012
At SC12, Room 250-AB

I. Participants

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Action Items

1. NOAA will talk about TICs at the January JET meeting in Waikiki.

2. Grant Miller will organize a teleconference among the JET Big Data task volunteers to pursue the Big Data Task.

Proceedings

This meeting of the JET was coordinated by Paul Love and Grant Miller of the NCO.

Network Roundtable
ESnet: Patrick Dorn & Greg Bell

The rollout of the new ESnet 5 is ongoing. Seventeen routers have been deployed and 22 100 Gb waves have been turned up among them. Ixia based stress tests have been performed during the turn-up process. There is a deadline of December 1 to be off all ESnet 4 links. All IP traffic has already been transitioned to ESnet 5. !00 G links go to StarLight and MAN LAN. Site transitions to ESnet 5 begin soon. Peering points between ESnet and Internet 2 have to be defined soon. Other exchange points will include WIX and PacWave. End-to-end connectivity and performance are critical.

They are beginning to see a transition from networking as an infrastructure to networking as an instrument. The network is coupled with discovery, applications and performance monitoring. ESnet will be issuing an RFI and an RFP on Trans-Atlantic circuits (3-4 Trans-Atlantic circuits are expected). ESnet has a strong partnership with Globus Online.

BNL stayed up during Hurricane Sandy.

The ESnet Testbed, formerly the ANI Testbed, will continue as a 100 G testbed supporting OpenFlow. They are doing wide area switch abstraction to support OpenFlow. ESnet is supporting multiple demonstrations at SC12 at 100 G and demonstrating OpenFlow.

The High Energy Physics (HEP) community is beginning a new round of their ten-year planning process.   ESnet is seeking input from the physics community. Increased luminosity of the LHC experiments will seriously increase data generation and transmission. ESnet is seeking 100 G Trans-Atlantic waves to support the increased data flows. CMS is also changing their algorithms which will significantly increase data transmission requirements.

NYSERNet: Tim Lance

Hurricane Sandy hit NYSERNet facilities in Manhattan. Generators carried the load from 8 PM Monday through Saturday. The relationship to the building owner was critical to maintaining services.

ACE: Jim Williams

ACE is retendering its link from Chicago to Amsterdam. A contract has been signed and the new service is expected to be operational January 1, 2013. It is less expensive and is terminated as a LANPhy that will support US/Europe OpenFlow traffic. A NEXT switch is being installed in Chicago. A 10G service is being added between Frankfurt and Washington (WIX) with a target for being in service 1 March.

Internet2: Eric Boyd

The new Internet2 100G Layer 2 service has been implemented at 14 nodes. It will be heterogeneous but is currently all Brocade switches. Junipers will be installed in January. Testing has verified OpenFlow and they are talking to vendors about implementing an OpenFlow service. The DYNES services are in the middle of validation. Internet2 purchased MX routers for its Layer 3 service to maintain 30% headroom.

NOAA: Mark Mutz

NOAA has implemented backbone links to Internet2. They are building a backlink to Fairmont West Virginia. Their Seattle core node will provide connectivity with Northern Wave for Chicago to Seattle transit as a backup path. Expected to be available 1Q13.

Dave Hartzell discussed NOAA's TIC initiative. They plan to implement 5 sites: Silver Spring, Boulder, Seattle, Fort Worth, and Hawaii. They are considering a TIC Rail, next generation NGIX facility that provides peering for entities that need to go through a TIC.

AI: NOAA will talk about TICs at the January JET meeting in Waikiki.

TransPAC: Jim Williams

TransPAC is working with NICT in Japan to implement OpenFlow between Asia and the U.S. A Brocade switch is being installed in LA to connect to the Internet2 fabric by the end of the year to enable Asian researchers to connect to the U.S. OpenFlow fabric.

TransPAC is operating as expected.

GÉANT: Richard Hughes-Jones

GÉANT is beginning a long process to upgrade their network. They are moving into packet switching using Infinera for the optical switching layer. Their backbone will be 500G with 100G to user sites with short lead times to increase user site bandwidth. They plan to place routers in nearly every country. They will support OpenFlow. GÉANT maintains an open exchange in London using an MX switch. This is a pilot capability and those connecting before the end of the year can connect for free.

Exchange Points
StarLight: Alan Verlo & Joe Mambretti

The GÉANT links to StarLight are functioning well. NASA connected with a 100G link for SC. The link from Chicago to Seattle was just announced. StarLight is supporting many demonstrations at SC12. NASA Goddard has a 100G link to Mid-Atlantic Crossroads and StarLight to Salt Lake City over a 100G link going to a Ciena switch. They demonstrated 98.4 Gbps over the 100G link with no losses. StarLight maintains an international OpenFlow testbed supporting 5 experiments including Cal Tech multipath, CERNET information distribution network, a content distribution network, and a multi-layer open virtual switch. International GENI fabric is being demonstrated. 31 new GENI racks are being installed to support international GENI. StarLight demonstrated an 8K x 8K movie (4 x HD definition) by the Adler Planetarium.

MAN LAN & WIX: Eric Boyd

WIX is finalizing their plans with MAN LAN. There is a press announcement for Seattle to StarLight using the PacWave part of Northern Wave.

BOREAS-Net: Bill Jensen

BOREAS is upgrading their analog infrastructure.

JET Road Trips with Joint Techs: Steve Wolff
Steve Wolff solicited suggestions for topics of interest for focused and frugal Joint Techs meetings. The next Joint Techs meeting is planned for January in Honolulu in conjunction with an APAN meeting. The next Internet2 technical meeting after Honolulu, a Technical Congress, is planned for January 2014. A JET will be held during the January 2013 Jt Techs and is anticipated in conjunction with the January 2014 technical meeting. The JET is also planning to meet during SC13 in Denver, Colorado. Suggestions for focused and frugal Joint Techs meetings, the first of which might be held Summer 2013, included:
- Software Defined Networking: Status of testing and cooperation
- 100G lambdas
- Review of the JET Big Data task
- International OpenFlow testbed
- GENI control frameworks: GENI has 4 control frameworks for OpenFlow. There are 24 others outside of GENI
- Research Testbeds Cooperation: Both U.S. and international
- TICRail: Organized around the problem space rather than the solution space.

A possible venue discussed for the focused and frugal Joint Techs was at Berkeley Labs.

Big Data Testbed
JET has been tasked to carry out a Big Data Testbed. Grant Miller has solicited participation by science networks. He will organize a teleconference to pursue this task.

AI: Grant Miller will organize a teleconference among the JET Big Data task volunteers to pursue the Big Data Task.

Meetings of Interest:
January 10-11, 2013   HIC, Honolulu, HI
January 12   MPLS Workshop, Honolulu, HI
January 12   OpenFlow Workshop, Honolulu, HI
January 13-16   TIP2013 (joint APAN, ESnet & Internet2), Honolulu, HI
                <www.hawaii.edu/tip2013> & <http://events.internet2.edu/2013/tip/>
January 17-18   ESCC, Honolulu, HI
January 17-18   IPv6 Workshop, Honolulu, HI
January 17-18   Network Performance Workshop, Honolulu, HI
February 4-6   NANOG, Orlando, FL
March 19-21   GENI Meeting, Salt Lake City, UT
April 21-24   Internet2 Member Meeting, Arlington, VA
April 21-24   ARIN, Bridgetown, Barbados
June 3-5   NANOG, New Orleans, LA
June 3-6   TNC, Maastricht, Netherlands
July 21-23   GENI Meeting, Madison, WI

Next JET Meetings
December 18: Only if needed

January 15, 2013, 8:15-10:45PM (HST): Sheraton Princess Kaiulani, Honolulu, HA
February 19, 11:00-2:00, NSF, Room II-415