JET Meeting Minutes
January 15, 2013
At TIP 2013, Ilima Room, Sheraton Princess Kaiulani, Honolulu, Hawaii

I. Participants

Guy Almes	TAMU	galmes@tamu.edu
Shawn Armstrong	U. of Alaska	svarmstrong@alaska.edu
Schyler Batey	PNWGP	schylerb@uw.edu
Jeronimo Belerra	RNP/AmPath	jab@ampath.net
Brian Bockelman	UNL	bbockelm@cse.unl.edu
Joe Breen	U Utah	joe.breen@utah.edu
Ron Broersma	DREN	ron@spawar.navy.mil
KC Claffy	CAIDA/UCSD	kc@caida.org
PJ Clayton	GPN/MoreNet	pj@more.net
Bruce Curtis	NDSU	bruce.curtis@ndsu.edu
Allen Daugherty	WVNET	allen@mail.wvnet.edu
Vince Dattoria	DOE-SC	vince.dattoria@science.doe.gov
Casey Deccib	Sandia Nat. Lab.	ctdecci@sandia.gov
Michael Enrico	DANTE	Michael.enrico@dante.net
Rob Evans	JANET	rob.evans@ja.net
Andy Germain	NASA	Andy.Germain@nasa.gov
James Grace	AmPath	jgrace@fiu.edu
Dave Hartzell	NOAA	david.hartzell@noaa.gov
Susan Hicks	ORNL	hicksse@ornl.gov
Wendy Huntoon	Internewt2/PSC	huntoon@psc.edu
Ron Hutchins	SOX	ron@gatech.edu
Kevin Jones	NASA	Kevin.L.Jones@nasa.gov
Ezra Kissel	IU/NCNTRE	ezkissel@indiana.edu
Paul Love	NCO	epl@sover.net
Kate Mace	C-Light	Kate1@clemson.edu
Richard Machida	U. Of Alaska	rm@alaska.edu
Grant Miller	NCO	miller@nitrd.gov
Alex Moura	RNP	alex@rnp.br
Mark Mutz	NOAA	mark.mutz@noaa.gov
Mark Prior		mrp@mrp.net
David Reese	CENIC	dave@cenic.org
Hans Reyes	CUDI	hans@cudi.edu.nx
Rafael Ribeiro	RNP	rafael.ribeiro@rnp.br
Glenn Ricart	US Ignite	Glenn.Ricart@us-ignite.org
Anne Richeson	Century Link	Anne.Richeson@centurylink.com
Jim Rogers	ORNL	jrogers@ornl.gov
Mark Roster	ARIN	markr@arin.net
Joe St Sauver	Un of Oregon/Internet2	joe@oregon.uoregon.edu
Jack Smith	WVNET	jack.smith@wvresearch.org
Brent Sweeny	Indiana U./TransPAC	sweeny@indiana.edu

Kevin Thompson	NSF	kthompso@nsf.gov
Brian Tierney	ESnet	bltierney@es.net
George Uhl	NASA	George.d.uhl@nasa.gov
Tim Upthegrove	GENI	tupthegr@bbn.com
Ryan Vaughn	FLR	rwvaughn@ufl.edu
Alan Verlo	UIC/StarLight	verlo@uic.edu
David Wilde	AARNET	david.wilde@aarnet.edu.au

Action Items
1. RNP will send Grant Miller the URL for their updated network maps.

Proceedings
This meeting of the JET was chaired by Kevin Thompson of the NSF and Vince Dattoria of DoE.

Network Roundtable

DREN: Ron Broersma
DREN just awarded a 10 year contract to Century Link after protest and resolution of the protest for their new network, DREN III. The previous contract expired and was replaced by a transition contract that requires the new network to be operational in 11 months, a difficult task. The new network will provide 100G and optical services. ATM will not be supported and IPv4 will only be supported as a legacy service. All management services will be IPv6. The government and the contractor have to agree on the first 10 sites for the new network. The contractor then needs to implement those 10, enable NOC services, and test the new network at 80% of load. DITCO contracting services that have to be used permit the purchase of only 3 sites at a time.

ACE: Jim Williams
ACE has completed a replacement link from Chicago to Amsterdam. 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. Typical load is 5G out of 30, with peaks of 50% on the fullest link.

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 with 10G by the end of the year to enable Asian researchers to connect to the U.S. OpenFlow fabric. Typical load is 2G, with peaks of 8-9.

ESnet: Greg Bell
ESnet5 deployment is now complete; all production traffic is on the new 100G optical and routing infrastructure. A 10-year strategy plan underway; it's due to DOE by Jan 23rd, with presentations to SC leadership on Jan 30th. There have been many ESnet presentations at TIP: on 100G testbed, Science DMZ, video conferencing, power monitoring, software-defined networking, our IGP transition, 100G upgrade 'lessons

learned', science outreach, and web-based 'science gateway' applications among others. ESnet participated in an important meeting at CERN in Dec, which brought together the LHC application community with major research networks, to discuss how we could build services and service interfaces that would be useful for science middleware. Brian Tierney is developing an architecture for their next-generation testbed. Two recent SDN demos by ESnet: one to demonstrate a 'virtual switch' abstraction, and one to extend OpenFlow at the optical layer

NOAA: Dave Hartzell
NOAA is nearing completion of a second 10G from Fairmont, West Virginia. This will be to Chicago to provide redundancy and is expected 1Q13. Their Seattle core node will use connectivity with Northern Wave to Chicago as a backup path. Expected availability is 1Q13. The weather service is implementing a new center in Orlando, Florida. It will support some of their traffic to Reston, Virginia.

RNP: Alex Moura
RNP is planning a new 10G link from Brazil's northeast to New York. RNP is researching the provision of 100G among the provincial capitals in Brazil. A link from Sao Paulo to Argentina and Chile will have at least 1G service. RNP has dark fiber to the South of Mexico and to Panama that will be used to deploy a new 2.5G wave plus 1G Ethernet. New connections include Red Clara in Panama and a new Miami link.
RNP plans include:
- One 10G circuit coming from Fortaleza to Miami via an Atlantic submarine cable
- One 10G circuit coming from São Paulo to Miami via a Pacific submarine cable
- The NYC 10G circuit is now likely to come directly from Rio de Janeiro.

The RNP network architecture may be found at:
http://www.rnp.br/_images/backbone/backbone-rnp-site2012.png

AI: RNP will send Grant Miller the URL for their updated network maps.

GENI: Tim Upthegrove
CC-NIE provides support for campus upgrades including implementation of GENI racks and SDN. A new CC-NIE solicitation is expected to be issued soon. GENI has integrated AL2S so both AL2S and Internet2 provide connectivity. In February all GENI sites will have completed installation of their GENI racks.

GÉANT: Michael Enrico
GEANT6 will be turned over to JANET. It deploys 100G across the GEANT footprint and has a due date for completion in May 2013.

Florida LambdaRail: Ryan Vaughn
FLR installed new line cards. They began upgrading their optical nodes to 100G in December. This week they start deploying 100G transponders. They will deploy an SDN overlay network in March. Three of their members received CC-NIE awards.

US Ignite: Glenn Ricart

GENI is seeking end user applications. US Ignite will use the GENI infrastructure with SDN. The Mozilla challenge will provide $250K for development and demonstration of new applications.

AARNet: David Wilde
AARNet is upgrading to 100G capable. The transmission networks were upgraded to 100G last year. They are interested in Net+ services. Their trans-Pacific links are being upgraded to 40 G, with planning for upgrade to 100G. Their main cable to Asia, on the west side of Australia, was cut so they are using the long way around to Asia until the service is restored.

Pacific Wave: Schyler Batey
The Seattle to LA 100G link is completed and is being tested. Fairbanks, Alaska has a 2 G link to Pacific Wave.

StarLight: Alan Verlo
StarLight supported the CINEGrid workshop at UCSD last month. There were over a dozen demonstrations, many of them international. There is a new connection from Greece to Amsterdam that uses existing links to get to Chicago. StarLight is working with GENI to install ExoGENI and InstGENI racks soon.

MAN LAN
No changes.

Southern Crossroads: Ron Hutchins
Southern Crossroads set up an SDN exchange and is inviting peers

AmPath
AmPath is implementing a Brocade switch fabric cluster in its core. AmPath is implementing is second switch in Miami. They are deploying perfSONAR. They are setting up a new RNP link. They are SDN capable. They are taking over their Dynes boxes to control them at AmPath. The throughput for OpenFlow is 40G.

GÉANT Open Exchange: Michael Enrico
GÉANT's open exchange in London is still in trail. Target for production use is June. NORDUnet will be in at 10G. 20G to GÉANT. ACE may move here. UbuntuNet will link via metro-ethernet. As of the 1st of the year the ORIENTplus link to Beijing was upgraded to 10G.

Shared TIC Services: Dave Hartzell
NOAA is building a new facility on Ford Island in Hawaii. It is 75% complete. It will host NOAA offices in Hawaii including fisheries, tsunami warning center, etc. Networking for this facility is a NOAA focus area. NOAA is working with the University of Hawaii and Hawaiian Telecom. This facility will host other services including the Forest Service and USGS. There is potential for a TIC at this facility to provide shared TIC services for other agency services. Without sharing of TIC services,

messages from one agency to another would have to pass to the mainland and back. While TIC 2 is a passive capability, down the road TIC 3 will be active.

ARIN: Mark Roster

ARIN still has 2.66 /8s IPv4 equivalents available. ARIN maintains a facility for selling and buying IPv4 addresses. Transfers from one regional registry to another are taking place. APNIC has a large need. ARIN has a legacy registration agreement. Users need to sign a registration agreement before they can use DNSSEC.

IPv6 Update: Ron Broersma

Vivek Kundra initiated a requirement for all federal agencies to be IPv6 capable by 2012 and to have all internal communications IPv6 only in 2014. NIST is monitoring v6 deployment. Currently there is 40% compliance. Non-compliance does not mean total failure. By September 2012, over 800 sites had made progress. The Federal government is requiring vendors to provide v6 services. Most Federal agencies are very aware of v6 services and the Federal government is significantly ahead of other communities. Other governments are now taking an interest in v6 deployment.   The .gov domains will not be renewed if organizations have not conformed to DNSSEC and IPv6. The U.S. government CIO office has new initiatives that must be IPv6 compliant. DREN will start shutting down IPv4 beyond 2014.

Lessons learned by DREN include:
- Lack of parity between IPv4 and IPv6
- Lack of IPv6 support
- Vendors are not implementing IPv6

Big Data Testbed: Grant Miller

The JET Big Data Testbed team met Monday, January 14. Discussion identified that there are four potential scenarios of Big Data transmission the team should focus on including:
- Multicast dissemination technology with no intermediate buffer. Do open-source tools exist supporting this capability? Current users include Hollywood entities and national public media.
- Big data flows: E.g., Lawrence Livermore big data repository data flows They are moving to Globus OnLine
- WAN accelerator workflows including: ASPERA, science DMZ, Phoebus
- Near real-time data flows supporting analysis such as genomics data flows

Team members (there are over 20 team members) are identifying potential applications/users/data sets for these scenarios.

Meetings of Interest:

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, Holland
July 15-16	ESCC, Berkeley, CA
July 21-23	GENI Meeting, Madison, WI

Next JET Meetings
February 19, 11:00-2:00, NSF, Room II-415
March 19, 11:00-2:00, NSF, Room II-415