JET Meeting Minutes
November 19, 2013
SC13, Room 507, Colorado Convention Center

Participants

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Action Items (all carry over)
1. Kristin Rauschenbach and Inder Monga will report out on the Terabit Networking workshop to the JET (Status: planned for January meeting)
2. Paul Love will ask Internet2 if there is space to hold a JET meeting at their April I2 Member's meeting. (Status: request pending)

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

Network Roundtable
US Ignite: Glenn Ricart
    US Ignite has a wide range of applications, users, and cities participating so US Ignite plans to standardize the platforms for the users, possibly in coordination with GENI. The goal is to share applications at Layer 2. Each participant would build their

own virtual Layer 2 network. Telehealth and education have a strong desire to share capabilities. Some concerns over the inter-city linkages.

DREN: Ralph McEldowney

DREN III is being implemented at 140 sites with CenturyLink as the contractor. DREN Supercomputer centers will be liked at 10 Gbps. Phil Dykstra is working to implement SDN capability over DREN. The DREN III network is scheduled for completion in December 2013. DREN is considering implementing a 10G ring throughout Hawaii as part of its TIC upgrade.

ESnet: Eli Dart

ESnet continues to implement additional sites at 100G. ESnet is supporting numerous application demonstrations at SC13, particularly the Big Data demonstrations.

NOAA: Dave Hartzell

NOAA is completing its N-Wave network. They are working with the National Weather Service and the National Environmental Satellite, Data, and Information Service to provide them additional connectivity. NOAA is bringing up additional sites in Hawaii, including Ford Island and a multi-agency TIC that will be operated by NOAA. NOAA is participating in the Hawaii Internet Consortium (HIC).

NIH: Don Preuss

NIH has a 100G link up and running, supporting the biogenetics demonstration at SC13. NIH is upgrading its campus network to 10G, 40G, and 100G (at both campuses, Bethesda and North Carolina.)

GÉANT: Richard Hughes-Jones

GÉANT has just completed the rollout of its next-generation network at 100G and with bandwidth on-demand. They are changing the links to Geneva to provide redundancy and Frankfurt is being rerouted. GÉANT chose Infinera for their optical networking because it provides fallback solutions and fast configuration of new links. With 600 functions on one chip, the Infinera solution provides great flexibility. They use Juniper MX for switching. GÉANT is implementing 36 new core routers supporting 100G lambdas and NX10 Ethernet. GÉANT is implementing additional access points for improved resilience. An Alternative Access Point (AAP) is being implemented in Frankfurt.

There are now unused pieces of dark fiber and GÉANT is soliciting applications for use of this dark fiber. GÉANT is providing support for testbeds.

GÉANT has issued an open call for a variety of topics. They will support 18 month projects with budgets of 100-350K Euros. They received 70 proposals and will fund 21 of them. These new GÉANT focus topics are applications and tools, authentication, building federations and trusts, architectures, optical projects and SDN.

MAX: Tom Lehman

The MAX is installing a network refresh to implement 100G at Layers 1, 2, and 3. They are implementing 2 x 100G connectivity to Internet2. One link is currently

functioning and traffic is being migrated to it now. The second link is scheduled for January.

Florida Lambda Rail: David Pokorney
	FLR has implemented 100G to University of Florida and Internet2. They are implementing 100G from Sao Paulo to Miami. 100G should be to Florida International University in the Spring.

NORDUnet: Jerry Sobieski
	NORDUnet is sharing a procurement with 3 other European NRENs. They are deploying NSI and will connect to MAN LAN and StarLight.

Exchange Points Roundtable
StarLight: Alan Verlo
	StarLight supported the GLIF meeting last month. It is also supporting a number of the demonstrations at SC13, including many of the JET's Big Data Tasking demonstrations. NISN is upgrading their connection to StarLight

MREN: Joe Mambretti
	MREN is coordinating with DREN and CenturyLink and has over 10 100G links. They are expecting on the order of 15 more 100G links soon. MREN has an NSF grant to develop architectural services for trans-Atlantic applications. A workshop on that topic was held in Denver November 18. The ACE circuit from Chicago to Amsterdam is operational again.

WIX: Tom Lehman
	The WIX is jointly run by Internet2 and the MAX. It is up and running without much change.

Big Data Demonstrations: Joe Mambretti
	The JET Big Data Team is holding several demonstrations at SC13. These include:
-	Sloan Digital Sky Survey is moving data from Johns Hopkins to StarLight and the ESnet 100G production network to access the Titian computational facility at Oak Ridge National Laboratory for modeling and analysis. The results are sent back to Johns Hopkins and SC13. This demonstration was previously demonstrated over 10G links. Discussion identified that we should try to show the difference in speed/quality between the 10G connectivity and the multiple 10G links available at Oak Ridge this year.
-	Bioinformatics/Genomics demonstration between the NIH in Bethesda, Maryland (Don Preuss), the University of Chicago (Bob Grossman) and SC13. It uses the open science data cloud.
-	Remote I/O: Linden Mercer has been working with the Luster User's group to demonstrate a UDT Luster interface. It demonstrates bulk data transfer, and flexible ways of processing the data

- NASA Goddard Space Flight Center, Bill Fink and Paul Lang in coordination with iCAIR, StarLight, and the Laboratory of Advanced Computing are holding 100 Gbps demonstrations centered on high performance transport for climate data for SC13. The data streams from GSFC through the MAX. Two 50G links to SC13 are joined at SCinet. Disk arrays and a 100G NIC from the DOE Office of Science, located at GSFC, are running as part of this demonstration.
- ExoGENI demonstration: University of Amsterdam with UC Berkeley. This made use of the ANA 100G trans-Atlantic link.
- GENI/InstaGENI demonstrations with a variety of countries.

IPv6

Federal agencies are directed to use IPv6 for their external facing networks. NIH currently has 1% of its traffic (largely mobile and international) over IPv6. Richard Hughes-Jones indicated that European traffic is also approximately 1% IPv6. Eli Dart indicated that data intense workflows with China obtain higher data flow rates using IPv6 (20 Mbps using IPv4, 500 Mbps using IPv6). DREN uses IPv6 for all their internal traffic and approximately 5-6% of their traffic goes over IPv6.

Tasking from the LSN

At its annual retreat, the LSN tasked the JET with the following for FY14:
- Continuation of the JET Big Data Task with an emphasis on performance measurement & metrics. Work with end users to improve end-to-end big data flows Expand the applications demonstrated
- perfSONAR workshop
- Track the results from the upcoming SDN Workshop
- Tracking technologies: TICs, IPv6, SDN, perfSONAR
- Continue co-located JET meetings with Internet2/ESnet meetings

As a point of reference, the LSN also tasked the MAGIC team with:
- Provide a forum for the discussion of Operational Issues: Report back to LSN
- Common policy issues and implementation practices
- Current best practices used by science communities and Grid/Cloud infrastructure providers
- Common Access control methods
- Common Authorization mechanism
- Identify operational issues related to faults and failures in this trust fabric caused by intentional bad actors and unintended hardware/software faults
- Provide a forum for discussion and report back to the LSN on:
- Policies for the interoperation and sharing of data
- Current Best practices
- Mechanisms to identify and control costs
- Tradeoffs of data management versus long-term archival needs
- Generation and dissemination of metadata
- Distributed environments, collaborations, and interoperability of science resources with commercial resources

Future JET meeting locations
AI: Paul Love will ask Internet2 if there is space to hold a JET meeting at their April Global Summit (formerly Annual Meeting.)

Meetings of Interest:

December 17-18	SDN Operational Prototype Network Workshop: By invitation and by Webcasting
January 20-24, 2014	APAN37, Jakarta, Indonesia
January 29-30	Operating Innovative Networks Workshop, Marina del Rey, CA
February 10-12	NANOG60, Atlanta, GA
February 20-21	2nd NSF Workshop on perfSONAR-based Multi-domain Performance Measurement and Monitoring, Arlington, VA (invitation only) http://psW2014.wordpress.com
February 25-26	ESSC Meeting at SLAC
February 27-28	Operating Innovative Networks Workshop, Berkeley, CA
March 17-19	GEC19, Atlanta, GA
March 19-20	GLIF Techs, Atlanta, GA
April 6-10	Internet2 Global Summit, Denver, CO
April 15-16	ARIN33, Chicago, IL
May 19-22	TNC2014, Dublin, Ireland
June 2-4	NANOG61, Bellevue, WA
June 22-24	GEC20, Davis, CA

Next JET Meetings:
December 17: 11:00-2:00, Likely to be canceled due to its closeness to the holidays
January 21:   11:00-2:00, NSF, Room II-415
February 18:   11:00-2:00, NSF, Room II-415