

JET Meeting Minutes October 18, 2016

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Action Items

1. Grant Miller will contact the JET Federal agencies to solicit support for JET workshops.

Proceedings

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

Internet2 Network Plans: John Moore

Internet2 is upgrading its network currently with these goals:

- Modify the core network: remove OpenFlow dependency in core, implement rock solid, single vendor MPLS based core- Juniper
- Support SDN capability for flexibility for network researchers as an overlay
- Simplify the architecture

- Position the network to respond to future needs for the 2018-2023 refresh

The core hardware swaps are in-process. Washington (McLean) is currently being modified. Houston and Jacksonville are up next. Testing of the reconfiguration is under way. Overlay deployments have been installed in New York, Salt Lake City, Los Angeles, Kansas City, Cleveland and Atlanta. Houston and Seattle are up next.

Internet2 is defining their future network needs (2018-2023). The user community is being polled for their future requirements. A community workshop is scheduled for January 2017 in Tempe. See:

<https://www.internet2.edu/media/medialibrary/2016/09/21/2018-2023-Internet2-Network-CFP.pdf>

HHS TICs and network updates: Ameen Hussein

HHS networking was inadequate to support users. It was 10G at the core with multi-institute requirements within buildings. Users saw high latency, slow transfer speeds with first-in/first-out routing without priority.

The new network supports many 100G dedicated paths (>50) with a goal of a TB transfer in 11 minutes. Layer 3 transport networking using MPLS is used and off-campus networking uses DWDM. They use an ISP model with routing to the customer edge for scalability, agility, and flexibility. The new network provides:

Commodity network:

- 10G for all of NIH
- 26 TB inbound per day, 12 TB outbound
- HHS has approximately 70 TB total per day via TICs. NIH is about 50%.

R&E network:

- 100G connections for all of NIH
- 19 TB inbound per day, 10 TB outbound

NIH has seen traffic growth of 271% in the last five years. Their 1st 100G new connection was in June 2014. Modernized core has processed up to 195 Gbps, averaging 140 Gbps vs. 50/30 Gbps before.

HHS TICs are located in Albuquerque (10Gbps), DC (20 Gbps), and Atlanta (10 Gbps). Internal access is shared through external connections by HHS and NIH. Current circuit providers include Level3, Verizon, and Zayo. HHS and DHS are currently working on the Einstein 3A program. Each of the three TICs are stand alone.

For the full briefing, please see the October meeting on JET Website at:

https://www.nitrd.gov/nitrdgroups/index.php?title=JET_Meetings_2016

JETNet Roundtable

Internet2: Matt Zekauskas

See John Moore's presentation. Internet2 has 2 x 100G going into SC16 in Salt Lake City.

GENI: Heidi Dempsey

GENI is holding a NICE meeting December 12 in Irvine, California. GENI is beginning to deploy the GENI/US Ignite joint hardware.

NIH Networking: Mike Gill, Ameen Hussain

See the NIH briefing

NRL: Linden Mercer

NRL is working on a big data demonstration for SC16

Pacific Wave: Jonah Keough

Pacific Wave is working on AutoGOLE for demonstration at SC16.

3ROX: Michael Lambert

Nothing new to report

GigaPoPs

MAN LAN & WIX: Matt Zekauskas

A pair of trans-Atlantic 100G circuits are being extended from MAN LAN to SC16. It was noted that the 100G from Singapore to Los Angeles via Guam has been pushed back until after SC.

Ames: Bobby Cates, Mark Fowler

USGS is relocating their office from Menlo Park to Moffett Field. Ames is upgrading their circuit to 1380 Kiefer Road to 10G. NASA is establishing 100G connectivity to Pacific Wave. They are using a 40G host with perfSONAR and the MadDash Dashboard to test the connectivity in both directions along the Pacific coast.

StarLight: Joe Mambretti via email

The StarLight consortium is engaged in preparing for multiple national and international 100 Gbps demonstrations for SC16, as well as multiple demonstrations for new techniques in using advanced SDN and SDX architecture and technologies for data intensive science. StarLight and its research partners are working with SCinet to implement 8 100 Gbps paths from StarLight to the SC16 venue in Salt Lake City, as well as 3 100 Gbps paths from Wash DC and one from NYC. The StarLight consortium is also working with SCinet and Caltech to implement a Tbps network fabric on the show floor, which will interconnect SCinet, the StarLight/OCC booth and the Caltech booth.

PNWGP; Jonah Keough

Nothing new to report

Update on NASA's TICAP solution: Bobby Cates

DHS gave NASA a passing grade on their TICs this summer. NASA is planning for the evolution from TIC2 to TIC3. Some NASA science users currently connect with 40Gbps and will soon increase to 100Gbps. The Einstein boxes, even E3A, cannot handle this capacity. DHS has indicated they will approve aggregation at 40G through the Einstein Boxes. The E3A topology will have to be redesigned to accommodate the large NASA science data flows. NASA passes science flows through the TICs and then onto Internet2.

JET tasking from LSN: Grant Miller

The LSN Annual Planning Meeting (APM) was held this month. They approved JET tasks for:

- Big Data Task: SC16-17
- Technologies: perfSONAR, IPv6, Science DMZs, TICs
- Potential Workshops:
 - o SDN
 - o Low latency networking
 - o DTN

AI: Grant Miller will contact the JET Federal agencies to solicit support for JET workshops.

Meetings of Interest:

October 17-19	CANS2016 , Houston, TX
October 17-19	NANOG68 , Dallas, TX
October 18-21	ESCC/Quilt/NSF PIs , Philadelphia, PA
October 20-21	ARIN 38 , Dallas, TX
November 13-18	IETF 97 , Seoul, South Korea
November 13-18	SC16 , Salt Lake City, UT
November 22-23	CANARIE National Summit 2016 , Montreal, QC
December 12	GENI NICE 2016 , Irving, CA
January 15-18, 2017	PTC'17 , Honolulu, HI
January 25-26	HIC , Honolulu, HI
February 6-8, 2017	NANOG69 , Washington, DC
March 26-31	IETF 98 , Chicago, IL
April 2-5	ARIN 39 , New Orleans, LA
April 23-26	Internet2 Global Summit , Washington, DC
May 29 – June 2	TNC17 , Linz, Austria
June 5-7	NANOG70 , Bellevue, WA

Next JET Meetings:

November 16	3:00-5:00 MST, Ballroom C, Salt Palace Convention Center, Salt Lake City, UT. <i>nb</i> : This is concurrent with SC16.
December 20	12-2 EST, NSF <i>nb</i> : Due to the December holiday, held only if needed
January 17, 2017	12-2 EST, NSF