

JET Meeting Minutes

October 20, 2015

Participants

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Action Items - new

1. If you have applications appropriate for the Internet of Things, please contact Glenn Ricart <glenn.ricart@us-ignite.org>

Action Items – carry forward

1. Bobby Cates will arrange for a DHS presentation on TICs to the JET

Proceedings

This meeting of the JET was chaired by Kevin Thompson of the NSF and Vince Dattoria of DOE/SC.

Network Roundtable

ACE: Jennifer Schopf

ACE is in its last year. They are trying to extend it beyond May 2016. They have a 30G Link Aggregation (LAG) out of WIX to Frankfurt.

ANA: Dale Finkelson

ANA is running and experiencing traffic of 20-30G.

CAAREN: Andrew Gallo

CAAREN is functioning well.

QSPF28 is available for beta testing. The spec indicates 3.5 watts per port. If you can not meet that, the equipment shuts you down. For LR4 parallel optics be sure you ask if it is parallel or single mode. Melanox has PSM4, a pair of single mode fibers. CWDM VXLs on fiber have a 500 meter reach.

PacificWave: Dave Reese

PacificWave recently received an NSF IRNC grant to add additional capacity. They plan to also add an SDX and 100G perfSONAR. Sunnyvale to Seattle is now a 2x100G link. PacWave is deploying 100G from Seattle to Tokyo. The Western Research Network (WRN) is now incorporated into PacWave and provides 100G to Denver, Chicago, and LA. PacWave is deploying a pool of 10G perfSONAR boxes that users can add to their networks on an as-needed basis. PacWave has 10G links from LA and Seattle to Hawaii (a WRN/PacWave member.)

The Pacific Research Platform (PRP) is built on PacWave and uses FIONA boxes for DTNs to enable all Pacific coast universities to work compatibly.

PacWave is working with Joe Mambretti to implement an SDX for Layers 2 and 3 but focused on Layer 3.

ESnet: Nick Buraglio

ESnet is working internally to plan for ESnet6. They are doing a lot of testbedding of SDN networking for incorporation into ESnet.

SCinet is deploying an internal SDN network to control the network traffic on the floor at SC15.

GENI: Heidi Dempsey

GENI is coming to the end of the GENI contract. There is an upcoming conference, November in San Francisco, to discuss transition of GENI to the community

Internet2: Grover Browning

Internet2 experienced a fiber cut on their Memphis to Nashville route. Level3 temporarily repaired this link using pole mounts. It was subsequently moved back underground. Internet2 is testing the Brocade 58C code. It remains to be decided what version will be selected.

Andy Germain indicated NASA had experienced a very noisy link to Atlanta, using perfSONAR measurement. He was urged to open a NOC ticket for resolution.

Related to Internet2's ongoing soft failure issues: Brocade cards have been observed to drop packets on the Internet2 network. Internet2 is working with Brocade to identify the issue and to find corrections. Line cards from Atlanta and DC were sent back to Brocade to test out. Brocade believes they have identified the problem. Given the large number of 100G cards of this model in Internet2, they are seeking to define if they should replace cards before they fail or if there is a response when a card fails so it can be quickly replaced to minimize user disruption and network costs.

Michael Lambert indicated 3ROX is running 580C now; 580B did not function acceptably for an MTU>~5800 with their perf SONAR boxes. PerfSONAR is now stable for them.

ESnet indicated they had experienced problems with 580B also and are now using 590T to implement OpenFlow 1.3.

NASA networking: Bobby Cates

NASA is turning up a 100G Ames/JPL link

TransPac: Jennifer Schopf

TransPac is working with the Pacific Northwest GigaPoP (PNWGP) to implement a 100G link from Japan to Seattle in time for SC15. A 10G LA to Tokyo link will remain in-place until May 2016. This path supports significant geoscience data.

3ROX: Michael Lambert

Nothing new to report

US Ignite: Glenn Ricart

US Ignite received an NSF grant to implement SDXs in 15 US cities. These will support local networks that will enable local IoTs for both traffic and educational uses. The Layer 2/3 SDX will keep all traffic local. US Ignite is interested in applications for local SDX, low latency use. They are planning on using Docker with an interface to citizen band.

AI: If you have applications appropriate for the Internet of Things, please contact Glenn Ricart <glenn.ricart@us-ignite.org>

Joe Mambretti indicated that the Chicago Design Center has an appropriate application.

NRL: Linden Mercer

An NRL/USNO link is being established.

Exchange Points Roundtable

Ames: Bobby Cates

Ames is working on infrastructure changes to provide diverse routes onto campuses.

StarLight: Joe Mambretti

StarLight is implementing SDX architecture and concepts. They are partnering with the Pacific Research Partnership to reach StarLight. A 100G link is being implemented to Seattle. The MAX is implementing an SDX and they are in discussions with StarLight to make it compatible with the StarLight SDX and the GENI SDX.

The GLIF conference was held in Prague. SurfNet implemented a dashboard for the Network Service Interface (NSI) that was demonstrated there. They demonstrated 28 TB movement from Prague to UCSD and the University of Amsterdam. A GLIF Americas meeting was held where the NSF IRNC awards were discussed. AmPath,

TransPac, U. of Hawaii, and Florida LambdaRail are working on SDX compatibility. U. of Tennessee and U. of Illinois demonstrated network measurement. UT-El Paso and U of Massachusetts/Lowell are working on next generation measurement.

StarLight is preparing for SC15. There will be 4 x 100G from StarLight to the SC15 show floor with 1.6 Tbps of networking total to SC15.

MAN LAN: Dale Finkelson

MAN LAN is working on 100G ports out of New York to support SC15 activities. They will be demonstrated at Booth 749. No other new connections

WIX: Dale Finkelson

The WIX is working on NSI implementation. When working properly it'll be in use at both WIX & MAN LAN.

ARIN Update: Richard Jimmerson

IPv4 depletion was experienced on September 24, 2015. If you need IPv4 space you will have to obtain it from current holders or be waitlisted for v4 space that gets turned in. There is a small amount of v4 space available to assist users in deploying IPv6. If you are an exchange point and need IPv4 address space to support critical infrastructure you can request up to a /24.

IPv6 is readily available. IPv6 is experiencing increased traffic and half of ARIN users have requested IPv6 space.

ARIN is setting up a new routing registry service. It will do validation of entries.

There are a few 2 byte ASNs left which are available only for special, verified requests.

BGP is running over RPKI but, in general, organizations are not running secure BGP.

Update on TICs: Bobby Cates

The E3A Einstein box is being deployed. It is an active versus passive system. Smaller agencies (a few) have deployed it but the larger agencies have not yet deployed it. DHS is seeking partial compliance. NASA, NOAA, and others are meeting with DHS to discuss partial compliance – meeting DNS and e-mail requirements. NASA is discussing this internally. DHS completed a \$1Billion contract to Raytheon to design, produce and maintain the Einstein boxes.

LSN Tasking to JET: Grant Miller

The LSN held their Annual Planning Meeting (APM). They approved the JET request for tasking and asked that the JET also monitor the Emerging Technology Coordination forum to assure production of the workshop report from the Operationalizing SDN networks workshop. The LSN tasking to JET is:

- Track Technologies: IPv6, SDN, perfSONAR, TIC architecture/deployment
- Continue JET Big Data Task: Develop SC16 demonstrations
- Workshops (NSF)
 - o Roadmap to Operating SDN-based Networks
 - o Workshop on Quality of Experience

- JET Coordination meetings
 - o SC15: Austin, Texas
 - o I2 Global Summit: May 2016
 - o TechX: September 2016
- ETC production of the SDN Workshop report

Meetings of Interest:

November 1-6 [IETF94](#), Yokohama, Japan
 November 10 [GENI NICE](#), San Francisco, CA
 November 15-20 [SC15](#), Austin, TX
 December 10-11 [GENI Future Plans Workshop](#), Washington, DC

2016 Meetings

February 8-10 [NANOG66](#), San Diego, CA
 April 3-8 [IETF95](#), Buenos Aires, Argentina
 April 17-20 [ARIN 37](#), Montego Bay, Jamaica
 May 15-18 [Internet2 Global Summit](#), Chicago, IL

Next JET Meetings:

November 17 1:30-3:30 CST, Austin Hilton Hotel, Room 414
 nb: This is concurrent with SC15

December 15 12:00-2:00, NSF
 nb: Held iff something unexpected dictates a need