**Joint Engineering Team (JET) Virtual Meeting Minutes**

National Coordination Office for Networking and Information Technology R&D (NCO/NITRD)
490 L'Enfant Plaza SW, Suite 8001, Washington, DC 20024
August 20, 2019, 12:00-2:00p.m. ET

**Participants**

Nick Buraglio, ESnet
Bobby Cates, NASA/Ames
Dave Diller, MAX
Bill Fink, NASA/GSFC
Michael Gill, NIH
Greg Grimes, MissiON/MS State University
JJ Jamison, Juniper
Ann Kean, NOAA
Paul Lang, NASA/GSFC
Paul Love, NCO

Michael Lambert, PSC/3ROX
Joe Mambretti, StarLight/MREN
Ed Moynihan, International Networks/IU
Aruna Muppalla, NASA
Mark Mutz, NOAA
Glenn Ricart, US Ignite/University of Utah
Anne Richeson, CenturyLink
Kevin Thompson, NSF
Chris Wilkinson, Internet2

**Proceeding:** This meeting was chaired by Kevin Thompson (NSF).

I. **Action Items**:
- Ongoing discussion of LSN's Strategic Plan and the JET's role in it.
- ESnet update on its operational network security use of Rapid7.

II. **Review of the Minutes** of the July 2019 meeting: No corrections were offered during the meeting. (*Note*: None were received during the balance of the week).

III. **Operational network security roundtable** (only those who had comments are noted)
    A. Internet2 (Chris Wilkinson): Currently reviewing the situation with the IRR. The questions for it and many others are "Is Google serious? Who else may follow?" Internet2 is checking the validity of its IRR data.
    B. US Ignite (Glenn Ricart): Looking into the routing registries to see if the prefixes it is routing for the Digital Town Squares should be in the registries to stay current with network security.

IV. **Networks Round Table**
    A. ESnet (Nick Buraglio): Working to finish up the ESnet6 packet RFP with a target of it being out in October. It is looking at segment routing as the ESnet6 platform of choice.
    B. International Networks at Indiana University (Ed Moynihan):
        a. TransPAC: Continuing to add peering partners in Hong Kong.

b. perfSONAR: Completed two perfSONAR (pS) workshops (India and Laos) with the goal of building out a pS mesh with the APAN community.

c. NEAAR: The network is stable. A pS workshop is scheduled in Mozambique in September. With this workshop a pS mesh should be up for all UbuntuNet Alliance countries by the end of the year.

C. Internet2 (Chris Wilkinson): No major changes are expected in the next month. Internet2 continues to do minor work at its peering locations with a number of 10G to 100G upgrades. These include upgrading connections to public exchanges.

D. NASA(Bobby Cates):

a. NASA met with Amazon to discuss its AWS connectivity which is primarily though Ames with East Coast connections as well. This discussion has resulted in NASA deciding to route RFC 1918 space internally for the first time resulting in redundancy to the AWS zones. The target to complete this is this CY.

b. NASA is bringing up a new IPTV solution. This will require that multicast be routed internally.

E. NIH (Mike Gill): No changes.

F. NOAA (Mark Mutz):

a. The 100G upgrade of N-Wave's DC metro ring is complete. The 100G backbone upgrade continues. NOAA is working with FRGP to upgrade its links in the Denver/Boulder area to 100G. The 100G upgrade to NOAA's Fairmont, WV, site is awaiting completion by one vendor.

b. N-Wave has competed an expansion to the Hoover Building (the Department of Commerce (DOC) headquarters). This will allow N-Wave to provide TICAP services to the DOC and other DOC agencies.

G. 3ROX (Michael Lambert):

a. Not much new for 3ROX.

b. XSEDE is happy with the way the L3VPN is operating. XSEDE is working with Internet2 to get better statistics on it – hopefully flow related if privacy policies permit.

H. US Ignite (Glenn Ricart): The Eugene, OR, Digital Town Square is moving to having dual hubs. US Ignite is putting in fiber between the two and is encouraging all who connect in Eugene to connect to both.

I. MissiON (Greg Grimes):

a. It has completed connections to all seven Institutions of higher Learning in MS. This is a big step forward for the smaller, non-research schools who were not on the initial version of MissiON. They are going from a 1GE from AT&T to a 10G to MissiON. They are also now members of Internet2 and are paying less than before.

b. MissiON is discussing peering with LONI again.

c. There are ongoing discussions on connecting the roughly two dozen community college sites in MS. This would provide commodity capacity along with connections between all members of MissiON but not Internet2 connectivity.

V. **Exchange Points Round Table**
    A. NASA Ames (Bobby Cates): It is working with Amazon to bring up connections to AWS.
    B. StarLight (Joe Mambretti)
        a. StarLight (SL) is working with ESnet to be ready for ESnet6.
        b. SL is working with the LHC community to:
            i. Prepare for LHC's High Luminosity upgrade
            ii. Needed increase in trans-Atlantic bandwidth as some paths may be saturated by the end of next year given the current plans.
        c. SL is partnering with CenturyLink to put fiber into McCormick Place to support EDUCAUSE's October conference.
        d. SL is having discussions with the Open Science Grid community about integrating it and the IRNC's SDXs to assist with the movement of big data.
        e. SL is working with SCinet and many other partners to support many demos at SC19 in Denver. Plans are for 6x100G from DC to SL to support GSFC and NRL, a 2nd Internet2 100G from DC to SL, and 10x100G from SL to SC19. SL is optimistic that the 400G channel into SC will be available though some challenges remain to be solved.
        f. SL is engaged on the meeting of the Global Research Platform at UCSD in September. Over 70 are currently registered for the workshop.
    C. MAX (Dave Diller): Its new router for Ashburn, VA, expected to be installed by the end of summer, is still in procurement. Max is working with Fujitsu for gear to support SC demos by NRL and GSFC. These will be single RU boxes each capable of 200G.
    D. MAN LAN and WIX (Chris Wilkinson): MAN LAN will be upgraded over the next 2 nights from its existing Brocade to a QFX. Assuming all goes well at MAN LAN WIX will do the same within 60 days.

VI. **Update on Internet2's Next Generation Network's Optical Infrastructure – Chris Wilkinson**
    A. Internet2 has officially accepted the proposal from Ciena out of the original 13 submitted. Part of the selection process was a review by an independent community panel. The other three finalists were Fujitsu, Cisco, and ECI. All the finalists had very strong proposals with good technology. In selecting Ciena Internet2 will be able to reuse its existing EDFAs. Internet2 expects to continue to work with all the finalists on transponders.
        a. The selected hardware is Ciena's 6500 Classic with flex grid and EDFA for the most part on Day 1. Internet2 expects to support 400G line rates. Internet2 is working to use Blue Planet to manage the new network with the needed pieces to support alien waves and to provide telemetry.
        b. The migration strategy is being developed – the technology portion is good; the deployment portion is still being refined.
        c. Internet 2 is working hard to deploy a linear system between Denver, CO, and StarLight to support SC19. The timing for this segment will be tight.
    Immediately after SC Internet2 will do some metro migrations to test the migration strategy.
    Full deployment is expected to take 12-18 months.

B.  Internet2's packet RFP is expected to be out in 30-45 days.

**Meetings of Interest 2019**

| | |
|---|---|
| Sep 10-12 | DREN Technical Interchange Meeting, Moffett Field, CA |
| Sep 17 | Americas' Research Platform, San Diego, CA |
| Sep 19 | GLIF (final meeting), San Diego, CA |
| Sep 17-20 | Global Research Platform Workshop & GNA-G Meeting, San Diego, CA |
| Sep 23-26 | NSF, NRP, and The Quilt – Workshops and Meetings, Minneapolis, MN |
| Oct 28-30 | NANOG77, Austin, TX |
| Oct 30 – Nov 1 | ARIN 44, Austin, TX |
| Nov 16-22 | IETF 106, Singapore |
| Nov 17-22 | SC19, Denver, CO |
| Dec 9-12 | TechEX19, New Orleans, LA |
| 2020 | |
| Jan 15-16 | HIC, Hilo, HI |
| Jan 19-22 | PTC'20, Honolulu, HI |
| Feb 10-12 | NANOG78, San Francisco, CA |
| Mar 2-6 | APAN49, Kathmandu, Nepal |
| Mar 21-27 | IETF 107, Vancouver, BC, Canada |

**Next JET meetings**

Sep 17, 2019   12-2 p.m. ET
n.b.: This meeting is the fall JET Face2Face for those working in or passing through the DC area. The meeting room will be available from 11:30 a.m. until 2:30 for conversation. Please feel free to bring something to eat.

Oct 15, 2019   12-2 p.m. ET

Nov 19, 2019   10 a.m. - 12 p.m. MT
n.b.: This meeting is concurrent with SC19. It will be held in room 711 of the Colorado Convention Center. Remote access is expected to be available.