



Joint Engineering Team (JET) Meeting Minutes

National Coordination Office for Networking and Information Technology R&D (NCO/NITRD)
490 L'Enfant Plaza SW, Suite 8001, Washington, DC 20024

June 20, 2023, 12:00 – 2:00p.m. ET

This meeting was held as a virtually

Participants

Shawn Armstrong, University of Alaska

Jeff Bartig, Internet2

Todd Butler, NASA/GSFC

Dale Carder, ESnet

Basil Decina, NRL

Bill Fink, NASA/GSFC

Andrew Gallo, CAAREN/George Washington
University

Jonah Keough, Pacific Wave/PNWGP

Michael Lambert, PSC/3ROX/ACCESS

Paul Love, NCO/NITRD

Joe Mambretti, StarLight/MREN

Ralph McEldowney, DREN

Edward Moynihan, Indiana University

Aruna Muppalla, NASA/GSFC

Kevin Thompson, NSF

Proceeding: This meeting was chaired by Kevin Thompson (NSF) and Ralph McEldowney (DREN).

I. **Action Items:** (none pending)

II. **Review of the Minutes of the May 2023 meeting:** Received corrections were incorporated in the posted final minutes.

III. **JET's tasking on tools to help with inter-domain problem resolution**

- Remains on hiatus while Joe Breen is engaged with other matters.

IV. **Operational Security Round Table:**

- A. CARREN (Andrew Gallo): There will be a MANRS Routing Security Summit 17-20 July. It will be virtual and open to all. It will also be recorded and available for later streaming. The agenda includes both a "MANRS 101" introductory session along with a session on security of transit as a part of supply chain risk.

See: <https://www.manrs.org/event/routing-security-summit-2023/>

V. **Network roundtable**

A. CARREN (Andrew Gallo): No update today.

B. DREN (Ralph McEldowney):

- a. DREN finished transitioning 200 sites on 16 June from DREN III to DREN 4. With that DREN III is now history. DREN III's provider, Lumen, worked with DREN 4's provider, Verizon, to support five sites. These are located where it is very difficult

to bring up new circuits and Verizon and Lumen coordinated the five sites using the existing local circuit as a bridge for continue connectivity. Verizon will need to bring up new circuits to the five to full complete the transition.

- b. Verizon is also delivering about 20 new sites that were not part of DREN III. Additional new site requests continue to come in.
 - c. DREN has scheduled its annual Technical Interchange Meeting 23-24 August which will be held in the DFW area. It's a closed meeting but open to federal employees and federal contractors.
- C. ESnet (Dale Carder):
- a. ESnet has a new connection to Pacific Wave in Los Angeles, CA. This is new with ESnet6 as ESnet5 didn't have a Los Angeles POP. With this addition ESnet plans to relook at all of its Pacific Rim connectivity over the coming year.
 - b. ESnet remains the driver of the Department of Energy's IPv6 transition efforts.
 - c. ESnet is starting to see line card failures on its Nokia routers and is evaluating its next steps. All the failed cards have the same date of manufacture. The fault appears to be a specific capacitor on the cards.
- Question: Is this what failed a few weeks ago in McLean, VA?
- Answer: No. That was either a chassis level or the switch fabric. With the switch fabric integrated into the chassis, either necessitated a chassis replacement. The flip side with the modern, pizza box routers with their far fewer field replaceable parts. ESnet compensates for this by having additional POPs nearby. In this case in Ashburn, VA.
- D. Internet2 (Jeff Bartig):
- a. This week Internet2 (I2) had planned to upgrade its core routers from IOS XR 7.3.3 to 7.9.1. Two had been successfully upgraded but when doing a third of the remaining routers some of the 400G backbone circuits didn't come back up. I2 opened a ticket with Cisco and has reverted the upgraded routers.
 - b. For I2's Cloud Connect Services I2 now has GovCloud with Azure at Ashburn and with Oracle's Phoenix Region in both Ashburn and Dallas, TX.
- E. Indiana University/International Networks (Ed Moynihan):
- a. Atlantic:
 - i. Indiana University/International Networks (IU/IN) is just back from TNC. Lots of momentum around trans-Polar projects along with lots on interest in the US's position on the projects. Also interest in what role the US might have in the projects.
 - ii. There is also momentum around better engineering coordination between the various participants in the ANA consortium. Starting to see 400G links – Internet2's (I2) new connection along with ESnet's existing ones. With the disparate link speeds the coordination will be more important than ever.
 - iii. Links are all stable.
 - b. Africa: There have been discussions regarding new peerings between I2 and African NRENS.

- c. Pacific:
 - i. An alarming number of recent cable cuts. The APOnet consortium's engineering worked well in responding to the cuts.
 - ii. IU/IN will be presenting at APAN in August about how the importance of these global systems.
- F. NRL (Basil Decina): NRL is working with StarLight to prepare for SC23 in Denver, CO.
- G. Pacific Wave (Jonah Keough):
 - a. The mentioned new connectivity for ESnet in Los Angeles is in addition to its existing connections in Sunnyvale and Seattle with Pacific Wave (PW).
 - b. PW has begun working with the University of Oregon's Route Views project with new monitoring nodes in PW's infrastructure. PW is encouraging folks to peer with these nodes to enhance the overall BGP view the project has. It's long running and a good resource for the state of BGP.
 - c. PW continues to aim to have some 400G connections up at least in Los Angeles in time for SC in November.

Question: How are things coming with the joint project with UCSD on their measurement tools?

Answer: PW has deployed a significant number of nodes for the project with additional nodes are being deployed to Chicago, New York, and Guam. The combined tool has provided a new slice of data and has proved useful.

- H. 3ROX/PSC/ACCESS (Michael Lambert): No updates this month.
- I. University of Alaska (Shawn Armstrong):
 - a. A little over a week ago the Nome<>Prudhoe Bay/Deadhorse undersea fiber was cut due to sea ice scouring about 56 km off the coast northwest of Prudhoe Bay cutting off the university's campuses in Nome and Kotzebue. The fiber is not expected to be repaired until late July (due to the sea ice), so the university sent crews with Starlink terminals to both locations. These had been planned as backups for each site but not yet deployed.
 - b. The university is still awaiting the 100G cards so that the circuits to the lower 48 can be upgrades.

Question: How are the two Starlink sites working?

Answer: Coverage is pretty good – better than expected. A few outages.

Question: Where are the downlink sites for the Starlink connections?

Answer: Starlink has two up in AK (Deadhorse and Fairbanks) with a couple of more in the pipeline.

Question: Where does the traffic surface? In AK or the lower 48?

Answer: These have only been up for a bit over three days so haven't had a chance to track down. A much better round trip times than expected. The university is running VPN tunnels over the connections.

VI. Exchange Points Round Table

- A. MAN LAN and WIX (Jeff Bartig):
 - a. Progress continues on upgrading the two XPs to support 400G circuits. The new Arista platform has been deployed at MANLAN (ML) though most of the site

remains on the existing Juniper hardware. The migration to the new platform will be starting in the near future.

- b. I2's new 400G trans-Atlantic circuit will be coming up in September. As it will be landing in Boston, MA, I2 will installing an exchange switch there. The Boston switch will be connected to both ML and WIX in Washington, D.C.
- B. NASA Ames (Bobby Cates – via email): UC Berkeley is building a new facility at Ames. The current plan is to connect the satellite campus to CENIC's Sunnyvale, CA, POP via 2x100G circuits.
- C. PNWGP (Jonah Keough): No update today.
- D. StarLight (Joe Mambretti):
 - a. KREONet engineers were at StarLight (SL) last week doing an equipment upgrade and developing some new services.
 - b. SL is also working with the SupercomputingAsia conference on the Data Mover Challenge testbed. SL has several links and DTNs up for the Challenge's testbed which will run over the next half year.
 - c. SL is also developing a submission to the Challenge which will include moving large amounts of data over Starlink.
 - d. SL continues to plan for SC in November. It's expecting 1.2 Tbps between SL and the Joint Big Data Testbed (JBDT) facility in McLean, VA. Also 1.2Tbps between SL and SC. There will also be a link between JBDT and SC.
 - e. Several groups have approached SL about 400G links to SL to support their demos.
 - f. SL expects to be involved with about 20 Network Research Exhibitions at SC – leading, participating in or otherwise supporting.
 - i. SL is planning a wide area 1.2Tbps service – the exact endpoints are being worked out.
 - ii. SL is planning 400G DTNs using 400G connections (vs bonded 2x200G).
 - iii. SL is working with the science communities on some direct science applications for synchrotrons, high energy physics, etc.

Meetings of Interest 2023

Note: Meetings whose format has changed have been updated.

Jul 17-20	Routing Security Summit 2023 , virtual
Jul 22-28	IETF 117 , San Francisco, CA
Aug 21-25	APAN56 , Colombo, Sri Lanka
Aug 23-24	DREN TIM , Dallas-Fort Worth, TX
Sep 18-21	Internet2 Technology Exchange , Minneapolis, MN
Sep 25-28	The Quilt Fall Meeting , Columbus, OH
Oct 8-9	GRP workshop at IEEE eScience , Limassol, Cyprus
Oct 16-18	NANOG 89 , San Diego, CA
Oct 16-18	ESnet Confab23 , Washington, DC
Oct 18-19	CANARIE Summit 2023 , Montreal, QC, Canada
Oct 19-20	ARIN 52 , San Diego, CA
Oct 19-20	ESCC , Washington, DC

Nov 4-10	IETF 118 , Prague, Czech Republic
Nov 12-17	SC23 , Denver, CO
Dec 12-14	AINTEC , Hanoi, Vietnam
2024	
Jan 21-24	PTC'24 , Honolulu, HI
Jan 30-Feb 1	HIC, Kauai, HI
Feb 5-7	NANOG 90 , Charlotte, NC
Mar 4-7	Internet2 Community Exchange , Chicago, IL

Next JET meetings

Note: It is anticipated that most JET meetings will remain virtual for the foreseeable future

Jul 18, 2023	12-2 p.m. ET
Aug 15, 2023	12-2 p.m. ET
Sep 19, 2023	12-2 p.m. ET