



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
January 21, 2020 12:00-2:00 p.m. ET

Participants

Nick Buraglio, ESnet

Tony Brock, OSU

Rich Carlson, DOE/SC

Wallace Chase, REANNZ

Steve Corbató, Link Oregon

Tony Ferrelli, ESnet

Andrew Gallo, CAAREN/GWU

Michael Gill, NIH

JJ Jamison, Juniper

Paul Love, NCO/NITRD

Joe Mambretti, StarLight/MREN

Anne Richeson, CenturyLink

Proceeding: This meeting was chaired by Rich Carlson (DOE/SC).

I. Action Items:

- ESnet update on its operational network security use of Rapid7.
- Internet2 and ESnet to updates on their respective optical rollout plans.

II. Review of the Minutes of the November 2019 meeting: No corrections were offered during the meeting. (*Note:* One was received prior to the meeting.)

III. Link Oregon Update – Steve Corbató

For reference, the slides from this presentation are online at:

<https://www.nitrd.gov/nitrdgroups/images/e/eb/JET-Steve-Corbato-01212020.pdf>

- A. Link Oregon (LO) is a new consortium
 - a. Comprise of the state's four research universities (Oregon Health & Science University, Oregon State University, Portland State University, and the University of Oregon) and the state government.
 - b. It is a non-profit, has applied for 501c3 status and will be able to serve the public and non-profit sectors. As a non-profit will hold LO's assets for use by all.
 - c. It gives a mechanism for collaborative IT projects.
 - d. Its Board of Directors is comprised of four from state government, one from each research university and the LO executive director.
 - e. Current staff: 6 FTEs plus a consultant.
 - f. The technical staffs from NERO and the Oregon Gigapop have been integrated into LO. Their assets and customers have also been migrated into LO.
- B. It has a facilities based statewide fiber foot print with 2,800 route miles. This will be built out over four to five years.

- a. The three entities with existing statewide networks (OSU, OHSU and state government) will converge their networks onto the LO infrastructure.
 - b. The pilot segment (now Ring E) lighted in December 2018 was Corvallis<>Newport (connecting OSU and the school's marine research campus).
 - c. Through an RFP Fujitsu's 1FINITY optical equipment was selected.
 - d. LO is working with local governments to make use of existing fiber plants.
 - e. Ring A (the Willamette Valley and out to Bend) is being lighted.
 - f. Ring B (metro Portland and Hillsboro) is also being lighted.
 - g. Rings C (Portland, Bend and Boise, ID) and D (southern OR including Ashland and Klamath Falls) will be lighted in late 2021.
 - h. LO is very mindful of how active its area is geologically and has designed a set of rings for resiliency from the start.
 - i. Each major location will have two diverse nodes.
 - j. Over the fiber system LO is building out an MPLS infrastructure. Initial primary locations in Portland and Eugene. A third is anticipated in Boise when that is built out.
- C. LO plans two core services: Ethernet transport and an enhanced commodity Internet access. It will facilitate local peering and broadband partnerships.
- D. LO is retaining the current 100G connection to Internet2 in Portland. Working with Internet2 LO and is adding a 100G connection from Eugene to CENIC in Sunnyvale, CA. Longer term LO is planning 100G ring through Boise as LO's footprint expands.
- E. Expansion plans:
- a. Other public colleges and private baccalaureate schools.
 - b. K-12 (NERO currently supports approximately 30%, primarily via ESDs).
 - c. Public libraries.
 - d. Healthcare (non-profit and public).
 - e. Local governments.
 - f. Nine federally recognized Native American tribes.
 - g. Federal research facilities: NOAA, USDA-ARS, DOE, and NIH.
- F. Two other pieces of Oregon's network geography are:
- a. Oregon has a large number of trans-Pacific submarine cables landing along its coast. Most of these interconnect with the Internet in the Hillsboro area.
 - b. Oregon also has a large number of commercial data centers that take advantage of the low cost hydro generated electrical power.
- G. There is a lot of interest in the Oregon HPC community in working with large cloud providers. They have interest in low latency, high performance computing. LO is going out with 300G capacity and is prepared to carve out what is needed to support its HPC community.
- H. LO expects to have its RPKI plans in place in about a year.

IV. Operational network security roundtable (only those who had comments are noted)

- A. Link Oregon Update (Steve Corbató): LO has the advantage of building out a Greenfield network and considering security from the start so can be built from the start. LO is very conscious that of its five founding members two have very significant security concerns:

Oregon Health & Science University and the Oregon state government. Each has about 50 FTEs working in the security area. LO is relying on those two organizations for guidance. LO is formalizing an existing group of ITSOs focused on network security. LO is building separation of network devices. However as a layer 2 transport network LO is putting a great deal of reliance on its members to protect themselves. At least initially LO won't be running its member's firewalls. Perhaps a service to offer down the road.

V. Networks Round Table

- A. CAAREN (Andrew Gallo): It is planning some optical upgrades.
- B. ESnet (Tony Ferrelli and Nick Buraglio):
 - a. Is continuing with ESnet6. In the midst of accepting lots of colo space and fiber. New optical gear is starting to be deployed – target for the optical transition is the end of June into July 2020.
 - b. The ESnet6 packet RFP is now open. Target to complete that is mid-year.
- C. NIH (Mike Gill): No changes – status quo.
- D. Oregon State University (Tony Brock): No update.
- E. REANNZ (Wallace Chase): No update.

VI. Exchange Points Round Table

- A. StarLight (Joe Mambretti):
 - a. StarLight (SL) is working with ESnet to support ESnet6. SL Recently provisioned five new racks into which ESnet has installed its new optical equipment along with the management system.
 - SL is preparing for SupercomputingAsia (SCA). SL has been working with SCA for six months to provision a DTN mesh. This provides the substrate for those competing in SCA's Data Mover Challenge. SL will also be one of the competitors in the Challenge.

VII. Update to the JET on relevant tasking items from the LSN – Rich Carlson

- A. For this year the JET is continuing to tracking perfSONAR, SDNs, SDXs, Science DMZs, and network automation & orchestration. It will continue with the JET Big Data efforts to assist related demonstrations at SC. It will also again have two meetings away from the NCO's office to meet with the wider R&E networking community (Internet2's Global Summit and SC).
- B. For this year the JET has two additional tasks:
 - a. Track segment routing
 - b. Coordinate the development of tools to monitor cross-domain workflows and facilitate the sharing of measurement data between networks anonymized as needed
- C. The goal of the second new item is to ensure that our infrastructure is working correctly that it is giving the end-to-end performance we expect and need. What new or different data needs to be collected as networks grow in capacity? What are the issues that would prevent the sharing network performance data with peer organizations and network researchers around the world? How can the data collected by the operational

communities be used by researchers? Would anonymized data be sufficient? Would it still be useful?

Meetings of Interest 2020

Jan 19-22	PTC'20 , Honolulu, HI
Feb 10-12	NANOG78 , San Francisco, CA
Feb 24-27	SupercomputingAsia 2020 , Singapore
Mar 2-6	APAN49 , Kathmandu, Nepal
Mar 3-5	ESCC , Berkeley, CA
Mar 21-27	IETF 107 , Vancouver, BC, Canada
Mar 29 – Apr 1	Internet2 Global Summit , Indianapolis, IN
Apr 7-8	US Ignite Application Summit , Denver, CO
Apr 26-29	ARIN 45 , Louisville, KY
Jun 1-3	NANOG 79 , Boston, MA
Jun 8-12	TNC20 , Brighton, UK
Jul 25-31	IETF 108 , Madrid, Spain

Next JET meetings

Feb 18	12-2 p.m. ET
Mar 31	7-8:30 a.m. ET. JW Marriott, Indianapolis, IN <i>nb</i> : This meeting is concurrent with Internet2's Global Summit
May 21	12-2 p.m. ET