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
June 18, 2019, 12:00-2:00p.m. ET

Participants

Rich Carlson, DOE/SC
Basil Decina, NRL
Mike Gill, NIH
JJ Jamison, Juniper
Kevin Kranacs, NASA/EOS
Paul Love, NCO
Michael Lambert, PSC/3ROX
Chris Lowe, USDA/REE
Joe Mambretti, StarLight/MREN
Linden Merer, NRL
Mark Mutz, NOAA
George Uhl, NASA/GSFC

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

I. **Action Items**: Ongoing discussion of LSN's Strategic Plan and the JET role in it.

II. **Review of the Minutes** of the May 2019 meeting: Corrections had been received via email prior to the meeting. No additional corrections were received during the meeting or after.

III. **Operational network security roundtable** (only those who had comments were noted)

A. NASA/EOS: Kevin Kranacs: Steady state.
B. NIH: Mike Gill: Steady state.
C. 3ROX: Michael Lambert: Its MANRS submission has been approved. It is starting to sign PSC prefixes for RPKI.
D. USDA: Chris Lowe: It has put its needs for Operational Network Security into the Statement of Objectives that has been sent out to industry for comment.

IV. **Networks Round Table**

A. NASA/EOS: Kevin Kranacs: no changes - steady state.
B. NOAA: Mark Mutz: N-Wave's 100G upgrade continues. The Ciena Waveserver install in the DC area is complete. The upgraded DWDM DC ring is expected to be up by the end of the month. 100G circuits are on order from Internet2 for Denver, CO<>Chicago, IL<> McLean, VA<>Atlanta, GA. The 100G upgrade is also in progress to the NOAA data center in Fairmont, WV.
C. NRL: Linden Mercer: NRL is just starting to plan for SC19 and its demos there. Working on connections through MAX and Ciena to StarLight.
D. 3ROX/XSEDE: Michael Lambert:
    a. 3ROX: Nothing significant.

b. XSEDE: Its L3VPN over Internet2 remains fully operational. No complaints/issues have arisen. A few sites are not yet doing IPv6. This is a work in progress. perfSONAR (pS) tests using IPv6 are not significantly different from similar tests using IPv4. XSEDE is working to deploy hardware to run pS at 100G.

V. **Exchange Points Round Table**

A. NASA Ames: Bobby Cates (via email): No significant changes this month.

B. StarLight: Joe Mambretti
   a. StarLight (SL) is working with SCinet to provision 10x100G circuits from SL to SC in Denver, CO, along with a single channel 400G circuit SL<>Denver.
   b. SL is working with several collaborators to put together the agenda for the first Global Research Platform Workshop which will be held at UCSD September 17-18.
   c. SL is working with Abdella Battou at NIST for a new test bed to run from NIST to SL to Argonne National Laboratory related to the Advance Photon Source.
   d. SL is continuing to extend its p4 testbed.

VI. 4) Update on the LSN's developing strategic plan – Rich Carlson

A. Background: The JET was established in 1997 and provides for information sharing among Federal agencies and non-Federal participants with interests in high performance research networking and networking to support science applications. The JET reports to the Large Scale Networking (LSN) Interagency Working Group of the Subcommittee on Networking and Information Technology Research and Development (NITRD). JET is chaired by Rich Carlson (DOE/SC) and Kevin Thompson (NSF) and LSN IWG is chaired by Bob Bonneau (DOD), Rich Carlson (DOE/SC) and Deep Medhi (NSF) with the JET as one of its standing Teams. The LSN has been tasked with developing a strategic plan describing how it coordinates agency activities that accelerate the development of advanced networking ecosystems.
   The JET (and its sister standing Team, MAGIC) are open to the public while the LSN is a federal agency only interagency working group. The JET's being open ensures that a much wider spectrum of those doing R&E networking are able to participate and exchange ideas. This facilitates the LSN's coordination of efforts across the agencies by giving the LSN the benefit of the wider, non-agency participation. This greatly facilitates the LSN's coordination function between agencies and enhances the avoidance of duplication.
   While a draft strategic plan has been started by the federal program managers who sit on the LSN IWG, input is needed to describe the JETs roll in this activity. A short paragraph describing the JET's role in the LSN's larger federal coordination activities (cross domain issues) is required to complete this report.

B. Cross Domain Issues: Crossing multiple administrative domains has been and remains a major issue in networking. Many things, such as SDN, work well inside a single domain (e.g. Google) but issues arise when an administrative domain boundary is crossed. How do we do this, how does the LSN coordinate the effort to solve this? What role does the JET play in creating a new method for modeling, simulation, experimentation and

validation in a cloud based heterogeneous multi-domain infrastructure? What DevOps methodologies need to be explored and developed? How can the JET help, what role could it play in providing the data to validate how the infrastructure is working, how the work flows operate and behave? How do we start to deploy some of these DevOps methodologies as we're building out and expanding our networks?
The JET is well placed to assist the LSN agencies coordinate their activities in this important area. The task now is to articulate in a short paragraph exactly what activities the JET members would do (assume agencies will fund their JETnet in this activity) to achieve this overarching objective. At the last JET meeting a short discussion took place that generated the bullets below, does the following paragraph capture that discussion?

> "The LSN JET coordinates operational aspects of multiple federal and non-federal research and education networks (RENs) within the United States. While each network is owned and operated by an individual agency or academic institution, scientists and researchers at one institution typically use a workflow to access facilities and/or instruments at a remote location via the network. This creates a cross-domain challenge whereby the performance or behavior of any workflow is dependent on the operation of each individual network in addition to the peering between multiple networks. The RENs are actively developing new tools and mechanisms to monitor workflow behavior to ensure that their network is operating at peak efficiency. The JET will assist in tackling this cross-domain challenge by coordinating the development of these tools and the sharing of, possibly anonymized, performance data."

C. Discussion:
    a. We want to have much more intelligent control. Not just of basic operation but also to be more dynamic and responsive to what is needed. Bring some of the more intelligent ideas about development and control into the networking world. Is there a way to bring these items into the testbed side of what JET members do?
    b. There is more going on in networking now than at any prior moment. A revolution with SDN, computing resources in the network, in-band telemetry, increased capacity of a single wave (now at 400G), etc. An ongoing testbed to test and develop the essential pieces is needed. (It was noted that the LSN doesn't fund test beds but relies on what the agencies have funded.) How can the JET help educated those outside the networking community that rather than being "done" - being steady state, networks are evolving at a faster and faster pace? The strategic plan needs to show that there is a coherent plan that spans across JET, MAGIC, BRD, and the LSN federal agencies. That there is a common goal and a coordinated road map to achieve. A writing team from the JET is needed. The produced report needs to say this is what the JET members are going to do as part of this larger project that fits into the strategic plan.
    c. Perhaps, since the JET members are running the R&E networks, they can provide a common structure for anonymized data from every one of the JET networks. The collected data to be used to measure how the current and enhanced

networks are working and that researchers can access on a regular basis. In lieu of a test bed provide access to the anonymized data.

d. We seem to have three items: a test bed, a compendium repot, and a data tool. The first and last require funding. This would come from the LSN agencies in their own manner.

e. Do we have a common goal across all JET agencies? Is the JET the right venue for doing this? What is the JET's role in this larger strategy? Is it to help by disseminating the data they are already collecting? Or is there a different task that would match well with the JET's role and activity? What would each JET member propose as part of the strategic plan that would make its network more response to the changing needs of its scientific community?

D. Next steps: Please think about this and discuss internally. We'll discuss more at the July JET.

Meetings of Interest 2019

July 20-26	IETF 105, Montreal, Quebec, Canada
July 22-26	APAN48, Putrajaya, Malaysia
Sep 10-12	DREN Technical Interchange Meeting, Moffett Field, CA
Sep 17	GLIF Americas Workshop, San Diego, CA
Sep 17-18	Global Research Platform Workshop, San Diego, CA
Sep 19-20	GLIF community/GNA meeting, San Diego, CA
Sep 24-25	National Research Platform, 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

Next JET meetings

Jul 16, 2019	12-2 p.m. ET (This meeting will be virtual)
Aug 20, 2019	12-2 p.m. ET (This meeting will be virtual)
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.