



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 16, 2020 12:00-2:00 p.m. ET

Participants

Joe Breen, UTEN/University of Utah
Nick Buraglio, ESnet
Rich Carlson, DOE/SC
Bobby Cates, NASA/Ames
James Deaton, GPN
Eze Ekwuatu, NASA/Ames
Bill Fink, NASA/GSFC
Mark Johnson, University of North Carolina
Jonah Keough, PNWGP/Pacific Wave
Ann Keane, NOAA
Kevin Kranacs, NASA/GSFC – EOS

Michael Lambert, PSC/3ROX
Joyce Lee, NCO/NITRD
Paul Love, NCO/NITRD
Linden Mercer, NRL
Grant Miller, retired
Alex Moura, RNP
Ed Moynihan, Indiana University
Aruna Muppalla, NASA/GSFC
Glenn Ricart, US Ignite
George Uhl, NASA/GSFC

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

I. Action Items:

- Discussion of the current draft of OMB's memo on the transition to IPv6
note: Set for initial discussion at August meeting.
- ESnet update on its operational network security use of Rapid7.
- Internet2 and ESnet updates on their respective new networks.

II. Review of the Minutes of the May meeting: Corrections were received during the meeting. The Meetings of Interest section was updated to reflect changes due to COVID-19.

III. Discussion of the JET's tasking on tools to help with inter-domain issues - Joe Breen, all

A. Background on efforts lead by Eric Boyd, Joe Breen, James Deaton, Dan Doyle, Dale Finkelson and Karl Newell:

- a. The project gets basic SNMP metrics from groups around the country for trouble shooting & research. Several prototypes are going along with the drafting a basic letter of intent for those wishing to participate.
- b. Tracking sheet of networks willing to share data. Please update your network's entry. See:

https://docs.google.com/spreadsheets/d/1pMW_PNVpeT42nAxa3bW4QostMxcCHTXkWSPbZOpIFwE/edit#gid=0

The spreadsheet also has an embedded link to measurement templates for campus, regional and national networks setting out what data is desired. See:

<https://drive.google.com/drive/folders/1-LRyri16u4AvBeY6NlvyYYa1NRpjByA>

- c. The Internet2 Performance Working Group Community Measurement, Metrics, and Telemetry project holds meetings on the second Tuesday for those participating or interested. If you are interested, please contact Joe: [Joe Breen <Joe.Breen@utah.edu>](mailto:Joe.Breen@utah.edu)
- B. Prototype/pilot status:
 - a. University of Michigan: This prototype using a container to collect the data is going well. Hope to deploy in production in the next one to two weeks.
 - b. Imperial College of London: This is ramping up with initial tests underway between the DTN end points. The pilot includes GÉANT.
 - c. Link Oregon: The pilot was successful in the first iteration. The next steps need to be explored.
 - d. University of Hawaii: It is willing to test using the new container. Just getting started with an organizational call as the next step.
 - e. Exploratory discussions with Clemson University for a pilot.
- C. Tools: Telegraf container: Mentioned above for local collection. Nearly ready for production use.
- D. Letter of Intent to Share: The MOU has been changed into a Letter of Intent. For the RONS that have been working on this project the goal is that those who govern the institutions involved will be given a clear understanding of what is being shared, how it's being shared and with whom. A little more clarification on who the data shared with is needed. The group will work to distribute the draft Letter to the JET list before the next meeting.

IV. Operational network security roundtable (only networks with comments are noted)

- A. IRR (GPN James Deaton): Have there been discussions on the IRR requirement for settlement free peering with Google (and other CDNs)? GPN has been focused getting everything documented as well as possible.
 - a. Internet2 is working with its members to bring their IRR entries up to date and become MANRS compliant. As of the May meeting about it was 50% completed.
 - b. 3ROX (Michael Lambert) has done all it can do with its address space and what it has delegated to its members. Some of its smaller institutions need to work with ARIN to create the needed paperwork for RPKI.
 - c. ESnet (Nick Buraglio) has been keeping their RADB and ARIN content current for a long time. Due to having a well-defined set of steps for those connecting and using an IPAM. For RPKI they have spent a fair amount of time testing over several years with different platforms. Not in production but a deliverable for ESnet 6.
 - d. Possible future discussion: Use for DDOS mitigation.
- B. Draft OMB IPv6 memo (ESnet Nick Buraglio): What do people, especially the federal networks, think of the current draft OMB memo? OMB is no longer aiming for dual stack but for IPv6 only with a goal of 80% IPv6 only by the end of FY2025.
 - a. Action: Keep for discussion at future JETs
 - b. Question: Does the draft have anything to help with getting vendors to comply?

- i. No. Right now the pressure would come from large agencies' procurement specifications.
 - ii. Many problems come from vendors having legacy code that has IPv4 address assumptions buried deep inside.
- c. Last mile and mobile networks can by and large do IPv6 only without a problem.
- d. Question: Is there any outreach to vendors who don't think of themselves as network product vendors? (e.g. network security platforms)
 - i. They are mentioned but unknown if there has been any outreach.
- e. Nick noted that this year, unlike the past several, an IPv6 only network with DNS64 and NAT64 can do significantly more, get to many more sites, than in years past.
- f. For future discussion: For an essential device that is IPv4 only (e.g. an existing telescope) where is the best place to do the translation?
- g. It was suggested that to assist with the migration of academic institutions to using IPv6 agencies funding external research should consider requiring that publicly accessible resources that result from that funding be available via IPv6. This would include computational and storage resources; new instruments, research data, etc.
- h. Resources/references:
 - i. OMB draft memo:
 - <https://www.cio.gov/assets/resources/internet-protocol-version6-draft.pdf>
 - ii. NANOG 79 had two talks related to IPv6. See the agenda entries at 1600 and 1635 on Tuesday, June 2. They can be found at:
 - <https://www.nanog.org/meetings/nanog-79/agenda/>
 - iii. EPIC talk:
 - <https://www.youtube.com/watch?v=rp4-KfsaqfY>

V. Networks Round Table

- A. ESnet (Nick Buraglio):
 - a. ESnet6:
 - i. The packet RFP is very close to award.
 - ii. The deployment of the optical nodes continues. With the easing of CV-19 related lockdowns it is proceeding a bit more smoothly.
 - iii. ESnet has done some upgrades to the packet layer in the Chicago, IL, area. As a result the area is now at ESnet5.5.
 - b. ESnet is currently using Arbor for Netflow visualization along with Packet Design (PD) for Netflow visualization along with a few other tools that PD has. What are others using for visualization, long term trending, etc.?
 - i. GSFC is using Riverbed - using Netflow for passive monitoring now.
 - ii. Several RONS are using Kentik. GPN is very happy with it and noted that for CV-19 Kentik is providing higher education with no cost subscriptions to help with tracking the changing flows from the jump in telework.

- B. GPN (James Deaton): No update for today.
- C. International Networks – Indiana University (Ed Moynihan): TransPAC and NEAR circuits are stable.
 - a. Indiana University’s International Network (IN) group is working with its partners to look at route optimization. IN uses NetSage and is seeing suboptimal routings e.g. Africa to Asia via US rather than Europe. The new AmPath circuit from Brazil to southern Africa is adding to the need for route optimization.
 - b. Some European Union circuits to Africa planned for the first half of 2020 (particularly to Mali and Madagascar) have been indefinitely postponed.
- D. NASA EOS (Kevin Kranacs): No changes.
- E. NIH/NLM (Mike Gill): No changes to report (via email).
- F. NOAA/N-Wave (Ann Keane): N-Wave is expanding its support for Department of Commerce (DOC) offices in the Washington, D.C, area. This past weekend the Herbert Hoover Building, DOC’s downtown headquarters, was transitioned to N-Wave.
- G. NRL (Linden Mercer): NRL is working on planning for SC20 this November in Atlanta, GA. NRL is hoping the uncertainties around SC20 will be resolved soon.
- H. Pacific Wave (Jonah Keough):
 - a. Pacific Wave (PW) continues to migrate services from its older platform onto the new Juniper MK10ks. Los Angeles, CA, is progressing well. PW will start the Seattle, WA, migration soon.
- I. RNP (Alex Moura – during meeting and via email): RNP is working to keep the network up during the pandemic.
 - a. Backbone Updates: RNP has deployed its new 100Gbps optical network in the northeast. It is now working on the next phase of deployments, to light the first 100G links in the southeast region of the country. By end of 2020 it plans to have Rio de Janeiro and São Paulo running at 100G. By the end of the year it also plans to have enabled the new 100G path to connect with the new South Atlantic Cable System undersea cable to Luanda, Angola.
 - b. Research and Development Updates:
 - i. RNP is discussing the evolution of its testbed infrastructures and is evaluating its participation in the FABRIC Testbed.
 - ii. RNP is starting a new project in August to develop a solution to support network open data sharing with the research community. The goal is to have an automated solution (with low operations and maintenance requirements) that will allow RNP to gather data that is collected and stored by measurement and monitoring tools, apply anonymization (when and where needed), generate datasets and then publish or share in private or open data repositories where researchers will have access to network data to support new research. Another benefit is sharing network data with collaboration projects, such as the JET’s tasking on measurement and tools for inter-domain issues, in a secure and controlled environment. RNP expects that the first version will be in production in 2021.

- c. COVID-19 Updates:
 - i. RNP has been authorized by the Brazilian government to issue an RFP for contracting mobile internet access services from telecom operators to support students in vulnerable situations at federal education institutions.
 - ii. RNP has been supporting new academic R&D projects to fight COVID-19. One project is the COVID-19 Borescope. This uses anonymized data from cell towers provided by mobile telecom operators to map social distancing and urban agglomerations. RNP is preparing brief articles about these initiatives and projects. These will be submitted for publication to the IEEE Global Communications Newsletter.
- J. 3ROX (Michael Lambert):
 - a. XSEDE: Working to onboard the Open Storage Network. This is a pilot so may wait awhile.
 - b. PSC: Anticipating the 100G connection between 3ROX and PSC's main machine room to be completed by late July. This will be an alien wave over 3ROX's 15454s.
- K. University of North Carolina (Mark Johnson): Nothing to report today.
- L. UTEN (Joe Breen): Nothing to report today.
- M. US Ignite (Glenn Ricart): US Ignite is expanding its Digital Town Square (DTS) in Eugene, OR, to also include Springfield, OR. It will be the first DTS with separated, but interconnected cities. From a DTS point of view traffic in both cities will be considered local.

VI. Exchange Points Round Table

- A. Ames (Bobby Cates): Nothing significant.
- B. PNWGP (Jonah Keough): No updates for PNWGP.
- C. Albuquerque (Nick Buraglio): A non-profit exchange is forming in Albuquerque. If you have interest, please contact Nick:
[Nick Buraglio <buraglio@es.net>](mailto:buraglio@es.net)
- D. StarLight (Joe Mambretti – via email): In anticipation of SC20 in some form, the StarLight community is planning multiple national and international demonstrations. These will highlight innovative technology and techniques for large scale global data intensive science.

VII. Other items

- A. Rich Carlson: Small Business Innovator Research/Technical Transfer (BIR/STTR) will be releasing a new batch of Topics on July 13, 2020, for awards. There will be a network research topic in in the Phase I Release 1 Topic Document of the portfolio. There will be a webinar on July 20, 2020, were the Topics will be described and questions answered. General information is available off the following link:
<https://science.osti.gov/sbir/Funding-Opportunities/FY-2021>

B. Details of this Topics can be found at:

https://science.osti.gov/-/media/sbir/pdf/TechnicalTopics/FY2021_Phase_I_Release_1_Topics.pdf?la=en&hash=D7C553C3316BF15F3A73AEA0CAED21A161692F2B

If you have ideas on how to improve the use the network data collected take a look when this comes out. While a lab or academic institution can't be the prime it can certainly be a subcontractor. If you're interested form a partnership with a commercial company and submit a proposal.

Meetings of Interest 2020

Note: Meetings cancelled since the June JET have been removed from this list. Those moved to a virtual format have been updated.

Jul 25-31	IETF 108 , in person cancelled, moved to a virtual meeting
Jul 27-31	PEARC20 , virtual meeting
Aug 3-7	APAN50 , in person cancelled, moved to a virtual meeting
Sep 14, 2-4PM UTC or Sep 15, 7-9AM UTC	GNA Technical WG , in person cancelled, moved to a virtual meeting
Sep 15-17	NORDUnet 2020 , Reykjavik, Iceland <i>n.b. Postponed one year to Sep 14-16, 2021</i>
Oct 19-21	NANOG 80 , Seattle, WA
Oct 22-23	ARIN 46 , Seattle, WA
Nov 14-20	IETF 109 , Bangkok, Thailand
Nov 15-20	SC20 , in person cancelled, moved to a virtual meeting

Next JET meetings

Note: It is anticipated that JET meetings through the end of CY2020 will be virtual due to COVID-19 guidelines, the JET's usual summer schedule and SC20 virtual.

Jul 21	12-2 p.m. ET
Aug 18	12-2 p.m. ET
Sep 15	12-2 p.m. ET
Oct 20	12-2 p.m. ET
Nov 17	12-2 p.m. ET