

TransPAC4
Award #1450904
Year 1 Quarter 1 Report
1-March-2015 through 31-May-2015

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(Prepared by Jennifer Schopf, Alice Jackson)

Summary

During March through May of 2015, the TransPAC4 project was funded and began operations to transition from the TransPAC3 project. This report outlines the collaborations and management activities for the first quarter of the project. Operational aspects of TransPAC will be handed over to this project in March 2016.

1. TransPAC4 Overview

The TransPAC project supports three circuits and a set of network services between the US West coast and Asia. 1) The NSF-funded TransPAC 10G Circuit which runs between Los Angeles, California, and Tokyo, Japan; 2) The NICT funded JGN-X 10G Circuit which is used for experimental traffic between LA and Tokyo; and through the end of May, the 10G CERNET funded 10G link between Beijing and LA. These circuits are used in production to support a wide variety of science applications and demonstrations of advanced networking technologies.

TransPAC4 will take over operational responsibilities of these links in March 2016, or year 2 of TransPAC4. In the meanwhile, the project staff are negotiating for additional links, as described below.

2. Staffing

Project staff consists of:

- Jennifer Schopf, Director
- Andrew Lee, International Networks network architect
- Hans Addleman, primary TransPAC network engineer
- Alice Jackson, administration

In Quarter 2, we will begin the process to hire a Science Engagement Specialist.

3. Project Startup and Management

Work has begun on the Project Execution Plan. We plan to submit this to NSF in Quarter 2.

Investigation into the current TransPAC MOUs has been slow, and very few final versions are available. Updating MOUs with partners may take longer than originally planned because of this, and because of a modified IU process to putting in place international MOUs. This work is ongoing.

4. Collaborations, Travel, and Training

TransPAC staff participated in various meetings to support ongoing collaborations.

Schopf and Lee traveled to Fukuoka, Japan to attend APAN 39 (<http://www.apan.net/meetings/Fukuoka2015/schedule.php>), March 1-6, 2015. Schopf presented a TransPAC update including the announcement of the new TransPAC4 award. Lee presented on TransPAC3 measurement and performance activities, and future plans. Copies of accompanying slides for each presentation are available at <http://internationalnetworking.iu.edu/archives/index.html>. Meetings were held with all relevant TransPAC partners. Schopf was also a session chair, in her role as co-chair of the Network Workshop and was officially made a co-chair of the Future Internet testbed working group.

The TransPAC project team attended the Internet2 Global Summit in Washington, DC, April 26- April 30 (<http://meetings.internet2.edu/2015-global-summit/>). The team participated in the IRNC Awardee meeting, led by Kevin Thompson. Each awardee gave a short presentation on their plans going forward, available at <http://internationalnetworking.iu.edu/news/events/IRNC2015.html>. During the week, the team met with many of TransPAC's peers and partners including, Internet2, APAN, JGN-X, NICT, APAN-JPNOC, CERNET, CSTNET, NII, and KREONET. During these meetings, current circuit plans, upcoming circuit plans, collaboration, operational issues, and upcoming work were discussed, including the possible formation of a TransPAC External Advisory group. Lee also participated in a meeting regarding the Global Network Architecture (GNA), successfully joined the technical working group, and made plans for follow up work in that area with Eric-Jan Bos, NORDUnet, and Dale Finkleson, Internet2.

5. Circuit Planning

Negotiations to extend the current circuit have been successful. The current LA-Beijing 10G circuit will be extended until December 2015 to ensure overlap with upcoming planned circuits.

Work began to understand current community needs for trans-Pacific data transfers. We have been approached by Pacific Northwest GigaPop with a possible 100g transPacific circuit agreement that would be considerably cheaper than other quotes for similar services. The route of this circuit would be over the Tata cable between Seattle, WA, and Tokyo, Japan.

We have also been approached by a collaboration between Internet2 and Singapore for possible inclusion in a 3-way project for bandwidth between the US west coast and Japan. Several technical details, such as how to meet NSF reporting requirements and ensure appropriate usage policies on the IU portion of the circuit, have been discussed, and all parties seem hopeful this will be achieved.

6. Software and Systems Work

Software and systems work for TransPAC are currently covered by the TransPAC3 project. These duties will be shifted to the TransPAC4 project in Project Year 2, March 2016.

7. Security Events and Activities

Basic security measures are being maintained, and there were no security incidents to report for this quarter.

We have contacted the CACR to begin work on our Security Plan for the 5 year project.

8. Reporting against Objectives 1-March-2015 through 31-May-2015, Planning for next quarter

From the Work Breakdown Structure for Year 1:

- 1.1 Planning / Coordination Year 1
 - 1.1.1 Renew current 10G circuit - Negotiate to renew the current TransPAC3 Los Angeles to Tokyo 10G Circuit.
 - Circuit currently extended through Dec 2015
 - 1.1.2 Research best new paths and end points - Work with partners in both the Asia-Pacific and United States regions to determine appropriate end points for a circuit landing in Seattle. Identify the most appropriate Asian endpoint for an additional circuit.
 - Ongoing
 - 1.1.3 Start partner MOU process - Contact partners and start the process of signing Memorandum of Understandings with each.
 - Planned for Quarter 2
 - 1.1.4 Form TransPAC External Advisory Council populated by partner and support organizations.
 - Initial discussions to take place in Quarter 2
- 1.3 Planning / Coordination Ongoing

- 1.3.1 Evolve network architecture - New network designs over the evolution of the 5 year award. This will include 100G circuit speeds, software defined networking / exchanges, possible new peering points, and greater than 10G flows.
 - Ongoing
- 1.3.2 Coordinate with IRNC:NOC winner - Coordinate with the IRNC:NOC awardee to ensure they have a sufficient and appropriate level of access to all of the TransPAC4 equipment supporting international activities. This includes appropriate logs, SNMP access, portal or login access to obtain data not available via SNMP, etc.
 - Planned for Q2
- 1.3.3 Coordinate with IRNC:AMI winner - Coordinate with the IRNC:AMI awardee for the appropriate distribution of flow data, per our own security and data policies, SNMP and other access as appropriate.
 - Planned for Q2
- 1.3.4 Project Management Overall Management of the project
 - Ongoing
- 1.3.5 Project Reporting - Report generation for the life of the project
 - Project Execution plan to be submitted in Q2
 - Reporting infrastructure being put in place for more up to date quarterly reporting
- 1.3.6 Documentation and dissemination
 - Website updated with report announcement
- 2.6 Outreach Ongoing
- 2.6.1 Attend domestic and international conferences for application identification and relationship maintenance
 - Ongoing
- 2.6.2 Coordinate connectivity with existing and new TransPAC Partners
 - See notes in Section 4, Ongoing
- 2.6.3 Ensure connectivity in support of the Large Hadron Collider
 - Planned for Q2
- 2.6.4 Ensure connectivity in support of Belle-II
 - Planned for Q3 when closer to Belle-II operational timeframe

3.1 Operations Year 1

3.1.1 Analyze TransPAC3 Netflow in preparation for Outreach Analyze TransPAC3 Flow data in support of research and operations. Develop policy and plan for anonymizing and storing data. Provide data to researchers as requested.

- Planned for Q2 and ongoing

4.1 Research / Experimentation Year 1

4.1.1 SDN for DDOS mitigation - Research the feasibility of using SDN technologies for detection and mitigation of DDOS attacks on the TransPAC network.

- Ongoing