

JET Meeting Minutes

June 16, 2009

I. Participants

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Action Items

1. Dave Hartzel will provide a TIC update at the July JET meeting
2. The August JET agenda will include discussion of JET recommendations for focus areas for the upcoming year. JET members should identify focus areas for the JET.
3. Grant Miller will organize a teleconference to discuss potential focus areas for the August 2010 networking workshop.

Proceedings

This meeting of the JET was chaired by Vince Dattoria of DOE.

Network Roundtable

AmPath

Brazil is implementing, by July 1st, the first of 2 x 10G circuits to Miami. The service will be extended to the NAP in Brazil which also aggregates traffic from RedClara.

Brazil is connecting to the C-Wave service for experimental testing. The C-Wave service will be used to support Brazilian applications being demonstrated at SC09.

The University of the Virgin Islands connection is now completed.

AmPath is setting up a perfSONAR testbed. RNP has perfSONAR deployed. They will test perfSONAR between Brazil and Miami.

C-Wave

C-Wave has added 10 G circuits between Seattle and Portland and from Sunnyvale to Portland.

DREN

DREN is preparing for their users conference in the first week of August. They are participating in the DOE SciDAC conference.

ESnet

ESnet is implementing a 1 G connection to the DUSEL experiment at the Homestake mine in South Dakota through the Great Plains Network. Oak Ridge and NERSC are increasing their transfer rates to 200Mbytes/sec using dedicated file movers at both ends of their transmissions. They are using perfSONAR to measure performance.

ESnet is using the Spectrum Management System to implement MIBs across their network using IPv6.

The Kentucky regional network is upgrading their network to 1G. ESnet is upgrading to Juniper 960 MXs in Washington, DC, Atlanta, and New York.

Internet2 Net

Internet2 Net has resolved the Infinera issue which was causing 1sec outages

The University of South Florida & FLR are connected to the Atlanta node on a 10G port rated limited at 1GigE

The Kentucky regional network is upgrading their network to 10G.

They are upgrading to Juniper 960 MXs in Washington, DC, Atlanta, and New York to handle end-of-life issues on the T640s.

NLR

NLR has implemented an amplifier upgrade in Philadelphia – it now supports layer 1 and 2 connections. NLR is redesigning the Chicago to StarLight route to decrease costs. An additional node was added in Atlanta to Telex at [56 Marietta St](#). NLR has OC768 CRS cards to provide a 40 G native lambda from Seattle to Portland. It provides a 40 G lambda over layer 1 being driven by the optics at layer 3.

The NLR telepresence capability is now fully operational.

NLR is developing a new service providing a shared hardware platform at layer 3. A router is used as a general hardware box supporting several networks. A Cisco CRS provides hardware using separate processors for maximum separation. An additional software implementation allows multiple applications to share a box with groups of permissions for ports and BGP functionality.

NREN

NREN has completed its transitioning of NREN high-end traffic from NREN to NISN. The bulk of this traffic was internal NASA traffic among Goddard, Langley, and Ames.

NREN is now focusing on advanced networking for NASA.

C-Wave

C-Wave is identifying requirements to support SC09.

TransPac

TransPac is now supporting R&E applications, such as bioinformatics, in Pakistan. TransPac maintains web pages with information on this connectivity to Pakistan.

Exchange Points Roundtable

NGIX-West

NGIX-West reported no new developments. They are exploring ways to increase the size of the Gateway Building

AI: Dave Hartzel will provide a TIC update at the July JET meeting.

StarLight

StarLight is performing testing to NetherLight in Amsterdam. Tokyo is interested in connectivity to ITER sites. Canarie is upgrading their connection to 10G. The connection to Joe Mambretti's data lab is being upgraded.

MAX

MAX has completed their fiber expansion in the east, extending service between College Park and Equinix in Ashburn. They have a request for an Optiputer node in Ashburn. They will be providing support for SC09.

MANLAN

MANLAN has completed NetherLight and NorduNet upgrades. There are several additional upgrades to 10G.

Meetings of Interest

End of June: NISN Forum

July 17-19 IPv6 Workshop, Indianapolis, Indiana

July 18-19 DCN Workshop, Indianapolis, Indiana

July 19-22, Joint Techs Meeting, Indianapolis, Indiana

July 22-23, ESCC meeting, Indianapolis, Indiana

August 3-7, DREN Networking and Security Conference, Nashville, Tennessee

August 5-6, Network Performance Workshop, Ann Arbor, Michigan

NCO Report

A copy of the Performance Measurement Infrastructure white paper was delivered to the LSN, which satisfies the deliverable on Performance Measurement to the LSN. The LSN commended the white paper and its recommendations for implementing cross-

domain performance measurement infrastructure and the JET plan to provide outreach activities to the larger networking community, through the Joint Techs meetings.

The performance measurement infrastructure is being presented at the Joint Techs plenary and as a BOF meeting to provide outreach to a larger community of networks. The JET welcomes participation in the infrastructure by additional networks to increase the effectiveness of the data and data sharing capabilities.

The Large Scale Networking (LSN) Coordination Group Annual Planning Meeting is on October 13, 2009, all day. The JET will provide a presentation at that meeting on their accomplishments and plans for the upcoming year, including recommendations on topics the JET should engage on over the following year.

AI: The August JET agenda will include discussion of JET recommendations for focus areas for the upcoming year. JET members should identify focus areas for the JET.

The JET and LSN are developing a workshop for August 16-19, 2010 at Ames Research Center. There will be a teleconference next week among interested JET, SN and international networking researchers to identify focus topics for this workshop.

AI: Grant Miller will organize a teleconference to discuss potential focus areas for the August 2010 networking workshop.

Hardening the DOD GIG

Tim Owen of the DoD HPC Modernization Office discussed hardening the DOD GIG. Historically for enclave to network interfaces, DOD used one or a few low-speed connections with simple routing, firewalls and DAPE (Deny All, Permitted by Exception) and a DMZ for external facing. For network to network interfaces they provided transit, asymmetrical, limited ACL/filter policies and external facing servers were buried in client space. Traditional defense was provided by Router Access Lists, ports and protocols permissions, whitelists, blacklists, and exceptions. Intrusion detection systems, stateful inspection firewalls, intrusion detection and protection systems, and content-based deep inspection and protection systems. Some applications remain vulnerable. 52% of all attacks, worldwide were MS SQL server version buffer overflow, for which a patch has been available for a long time. Microsoft-DS is the second highest port scanned.

Secure network environments use internal threat detection, IDS/IPS systems: looking for clues after the attack to prepare for the next attack, signatures and heuristics, and inspections of state. Security in-depth provides antivirus/firewalls, automatic updates, host-based security systems, IAVA/IAVB compliance and reporting and network segmentation with different trust levels tailored to the different network segments. In the next generation, the number of external connections will be decreased but with increased bandwidth for the remaining connections; the connections will be centrally managed with monitoring and reporting; a DMZ for public facing network services (Web, DNS, email and FTP) and enterprise solutions and architectures for outbound traffic.

Tradeoffs will exist among: trust level, content protection, and integration of solutions and systems.

DoD network hardening provides central monitoring and control, isolation of three trust levels each uniquely protected, and retrofit of the network to optimize security. This is achieved through a DMZ, through the architecture, and through enterprise solutions.

Current architecture has publicly accessible servers located deep inside the network, internet clients have direct access to DNS, Web, FTP, and email within enclaves. Protections for these services do not exist at the boundary. Security features include:

- Whitelist at the Internet/DoD network boundary
- Logical and physical separation of applications
- No direct interaction with public facing services
- Application layer inspection
- Content filtering to eliminate malware and exfiltration
- Internet facing traffic flows through the DMZ front-ends
- Logical separation of data flows across the core.

Trusted Internet Connections provide a reduced number of external connections, carrier-provided tap of traffic to trusted monitoring agency and a blade architecture for in-line scrubbing devices.

Future JET Meetings

July 20, 2009, 7:45 PM eastern, Indianapolis, Indiana. The meeting will be at:

University Place Conference Center & Hotel, 850 West Michigan Street

August 18, 2009, 11:00-2:00, NSF, Room 1150