

JET Meeting Minutes
January 17, 2006

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Action Items

1. JET members should coordinate on defining Level 1, 2, and 3 connectivity and service definitions.
2. Jerry Sobieski will circulate to the JET his document defining Packet LSP, Ethernet, and SONET SPH services
3. JET members should start making plans to attend the ONT3 workshop, Sept 14-15 in Tokyo.
4. Grant Miller will send the URL for the NIST Draft publication on DNSSec.
5. NISN will inform JET members of the results of their asking vendors to identify the ability of their equipments to look at IPv6 packets.
6. JET members interested in information on BRO implementation and BRO IPv6 capabilities should contact Mike Weaver (301) 903-0072 weaver@oerhp01.er.doe.gov
7. The JET should have a regular agenda item to discuss open exchanges and the status of cross connections.

Proceedings

This JET meeting was chaired by Paul Love of Internet2, Doug Gatchell of the NSF, and George Seweryniak of DOE/SC.

JETnet Roundtable

Abilene

Nothing new

DREN

DREN is working with NISN to transport data from Poker Flats in Alaska to Goddard Space Flight Center. The remaining task is to provide connectivity of the last 100 yards.

DREN is providing peering at Redstone Arsenal. They are providing peering on the West coast to NISN. They are working with National LambdaRail (NLR) on peering at several points to be determined.

IPv6 is implemented on DREN. They are waiting for customers to implement IPv6 capability and use.

ESnet

ESnet has established a 1 GE connection to NGIX-East. The ESnet OC12 link from Ames to Sunnyvale is shared with Internet2 (I2). It will be upgraded to 10 GE in the near future. The Linear Hadron Collider (LHC) link to Brookhaven is on schedule for implementing a 2 x 10 GE backbone link to StarLight in Chicago. ESnet has implemented a 1 GE connection to JLab. ESnets OC48 link to Chicago has been upgraded to 10 G. The bandwidth between El Paso and Albuquerque has been increased to 10G. Most of these ESnet upgrades are not on NLR fiber. However, the Sunnyvale to Pacific Northwest GigaPoP to San Diego link does use NLR fiber. The ESnet New York City to Washington, DC link uses Qwest fabric.

ESnet is working on establishing virtual circuits interdomain.

ESnet is having its layman review in mid February.

HOPI

HOPI is now up and running at all five of its sites. Each node provides switching and routing. Typically a node has a Force 10 router and a GlimmerGlass switch. A physical fiber connection connects to the GlimmerGlass switch, which enables optical switching to other capabilities at that node. It could provide connectivity to the Force 10 switch or any other network at that node. The MANLAN node in New York City has a Nortel switch that can provide SONET, Ethernet or optical connections.

Discussion among the JET members identified that JET members need to work together to define connectivity when Level 1, 2, and 3 capabilities exist.

AI: JET members should coordinate on defining Level 1, 2, and 3 connectivity and service definitions.

Jerry Sobieski worked with Chris Herman and John Moore to define Packet LSP, Ethernet, and SONET SPH service.

AI: Jerry Sobieski will circulate to the JET his document defining Packet LSP, Ethernet, and SONET SPH services

Discussion identified an issue for optical networking of how to debug networks, what tools exist for fault isolation and location of problems?

AI: The Joint Techs meeting should have an agenda item to discuss tools for debugging optical networks

MANLAN

MANLAN is establishing new international peers: LHCnet, Tuarnet. Egypt is sending prefixes now. The HOPI connection is now running at MANLAN.

NISN

NISN is upgrading its Wide Area Network (WAN). The equipment for this upgrade has been verified and is currently being installed at Kennedy Space Center and carrier hotels, e.g., Atlanta. In the next phase of the WAN upgrade NISN will test services across the backbone to verify performance.

NISN is working with GEANT to remove the T1 link from Goddard to CNES (France). They will now peer through StarLight. They may move to MANLAN in New York City.

NISN is upgrading its Cisco 7500s with RSP16s.

NISN Level 3 peering at Goddard Space Flight Center is moving to the MAX.

NANOG

NANOG is addressing the issue of the shortage of ASP numbers. They are considering establishing a market for the sale of IPv4 addresses.

TransPac

Use of TransPac is increasing. It is currently between 200-300 Mbps with significantly higher usage during demonstrations. TransPac is focusing on end-to-end issues and on security. They are using the I2 Netflow analysis at one node. They are looking at malicious traffic from Asia to identify the path of the traffic.

NGIX-West

Qwest is five weeks behind schedule in implementing 1400 Kifer. NGIX connectivity depends on this link. NGIX-West is also working on a redundant link to the same facility to provide two sets of fiber there. The 1380 link is in. The Force 10 switch has been installed. They will light up a 10 GE link first. Other services will be lit subsequently. NGIX-West has connectivity to 200 Palm, the E-Exchange in San Francisco. There is not much traffic over this link. NISN now peers at Equinix.

Pacific NorthWest GigaPoP (PNW)/PacWave

SC05 resulted in the building of significant collocation space. PNW invites partners for using this space. PacWave has one facility in the Bay area. It is awaiting

power. Kifer Road in the Bay area is operational. Los Angeles and Seattle are also connected.

Upcoming Meetings

Feb 6-10 Internet2/ESSC Joint Techs Meeting in Albuquerque. Preceded by hands-on workshops for IPv6 and performance measurement

Feb 8: Closed meeting at the Joint Techs on implementing services across single domain/multiple domain control planes

Jan 21-22 Performance measurement workshop at MERIT, Ann Arbor, Michigan

July 15-16: Performance workshop preceding Summer Joint Techs (Madison)

Week of Jan 23-27: APAN meeting in Tokyo. Performance measurement will be addressed

March: Meeting in Spain on Terabit networking. Contact Thomas Ndousse

September 14-15 GLIF/ONT3 meeting in Tokyo, Japan

AI: JET members should start making plans to attend the ONT3 workshop, Sept 14-15 in Tokyo.

LSN Report

The LSN approved of the 1.5 day ONT3 workshop to be held September 14-15 in Tokyo in coordination with NICT. A US Cochair should be identified and planning with NICT for the meeting should be initiated.

The LSN approved an LSN/GENI workshop to be held in the June/July time frame to solicit inputs from the networking research community on future architectures and testbeds for innovative architectures.

NIST discussed its production of standards and guidelines for implementing DNSSec that it is developing for OMB. The Draft DNSSec Plan is available. JET members should comment now on this plan. A revised version of the NIST DNSSec Plan is available at:

http://www-x.antd.nist.gov/dnssec/download/800-81_Draft_2_post-comments.pdf

AI: Grant Miller will send the URL for the NIST Draft publication on DNSSec.

NISN IPv6 Plans

NISN implemented an IPv6 working group two years ago in conjunction with NREN and engineers at NASA centers including Glen, two sites at Goddard, and three sites at Marshall.

NASA IPv6 address guidelines call for assignment of:

/48 in the general case

/64 when only one subnet is needed

/128 when only one device is connected

The IPv6 testbed (NPN) integrates network laboratories across all of NASA including 13 sites. Current activities of the testbed include:

- Bind AAAA Forward Lookup DNS
- Bind AAAA Reverse Lookup DNS
- Http performance

- BGP
- FTP
- SSH
- Syslog Services
- Others

Planned activities include:

- IPv6 over IPv4 and IPv6 tunnels
- IPv6 over MPLS
- Prototype changes to network management systems
- Validation of security systems

The NISN IPv6 testbed activities respond to OMB guidance to implement IPv6 by June 2008. OMB will evaluate the NASA IPv6 planning and progress in February 2006 using the Enterprise Architecture Assessment. NASA is currently evaluating its hardware holdings to identify non-compliant hardware. NISN is studying the impact of IPv6 on its Intrusion Detection System (IDS). NISN is asking vendors to identify the ability of their equipments to look at IPv6 packets.

AI: NISN will inform JET members of the results of their asking vendors to identify the ability of their equipments to look at IPv6 packets.

Discussion among the JET members identified that Vern Paxon is making BRO IPv6 compatible now. DOE is implementing BRO at its headquarters and has recent experience with BRO capabilities.

AI: JET members interested in information on BRO implementation and BRO IPv6 capabilities should contact Mike Weaver (301) 903-0072 weaver@oerhp01.er.doe.gov

Ron Broersma will be giving a DREN update on IPv6 at the Albuquerque Joint Techs meeting.

Coordination with GLIF

GLIF Deals primarily with Level 1 connectivity. The September 14-15 ONT3 workshop in Tokyo will be held in conjunction with the GLIF meeting there. ESnet, HOPI, and the Pacific NorthWest GigaPoP participate in GLIF meetings. Jerry Sobieski is working on common service definitions within the GLIF task force.

Open Optical Exchanges

An open exchange is a facility where anybody can connect and cross-connect to other networks at any layer. Open optical exchanges have been established at MANLAN, College Park, Maryland, StarLight, and Pacific Wave. NISN is looking at vendor support for an open optical exchange. HOPI is a network, not an exchange. MANLAN requires human intervention to cross connect at different layers.

AI: The JET should have a regular agenda item to discuss open exchanges and the status of cross connections.

Production Networks

Research networks develop new capabilities that are incorporated in production networks. Often, however, research networks provide services for users and so are, to some extent, production networks. Discussion of the JET members identified that the JET should discuss when a research is/ becomes a production network and thus should incorporate service to accommodate its production users.

Next JET Meetings

February 7, 8:15-10:45 MST, Doubletree Hotel, Albuquerque, New Mexico

March 21, 11:00-2:00, NSF, Room 1150