JET Meeting Minutes
July 20, 2009
Indianapolis, Indiana
(In coordination with the Joint Techs/ESSC Meeting)

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Action Items
1. Science networks should provide a list of sites where they are deployed so others (e.g., NOAA) can identify opportunities for cooperating on network services.

Proceedings

This meeting of the JET was led by Paul Love of the NCO.

Network and Exchange Point Roundtable

Atlantic Wave

Atlantic Wave is considering looking at dynamic circuits.

C-Wave

C-Wave is supporting a demonstration between Sao Paulo and Japan.

DREN

DREN will hold its annual networking conference during the first week of August. The DREN Verizon contract terminates in three years so DREN is beginning the process of a new acquisition. DREN will have to upgrade some links and replace half their routers. DREN is considering having a primary IPSec mesh within IPv6, with IPv4 traffic secondary to that.

ESnet

ESnet currently has 21 Hubs, 25 10 G IP waves, and 30 SDN waves. ESnet is replacing its 6509s. ANL installed an MX960 in June. M PAIX-PA upgraded its M10 router to M10i and SNLA is scheduled to upgrade to an MX10i by the end of July. ESnet installed a 1GE circuit to Princeton for the HEP community. Other circuit installations included 1 10 GE link in Boston to MIT, 10 GE peering for Boston to NoX, a 1 GE link from GFDL to Washington, and a 10 GE SDN Hub at PNNL. ESnet plans to implement 10 G peering at PNWG-Hub with Korea (KSTAR and KISTI).

ESnet continues to experience exponential traffic growth.

OSCARS services provide user specified bandwidths for primary and backup paths. It enables traffic isolation for high-performance transport. It provides specific paths for specific requirements. The connections are secure. They implement cross-domain connections among collaborating institutions.

Internet2

Internet2 has a new CVS node in Ashburne. They are upgrading the Seattle site to 10G. They are lighting a third 10G CVS node in Chicago. There are plans to upgrade New York. The MX960s swap outs will take place in August. Washington, DC, Atlanta, and Utah were upgraded to 10G earlier this month.

The Internet2 DCN service is now called ion service. Ion implemented a simplified Web front end.

National LambdaRail (NLR)

NLR has implemented telepresence units at Duke University and at the I2 NOC.

Telepresence units are being implemented at UC Irvine, Illinois/Chicago, Case Western, Dubai, and Australia. The NLR node in Chicago is being moved to StarLight. Passive DWDN testing is being carried out in Washington, DC. A Layer 1 connection is being implemented between ManLAN and Amsterdam. A 40 G CRS service was implemented between Seattle and Portland. It will support SC09 but will also provide a continuing production network.

NREN

NREN bought CPacket monitoring taps. They will be deployed for network monitoring.

TransPac

TransPac is working on responses to the NSF, IRNC request for proposals.

Northern Tier

Northern Tier has completed its North Dakota links which now go to Chicago. They have ordered Infinera gear to light the Montana segment of Northern Tier by the end of the summer. This would complete their connectivity to the NorthWest GigaPoP. Northern Tier has submitted several proposals for ARRA funding including, lighting more waves in North Dakota, light one wave to connect StarLight to the Pacific Wave, with drops in between and linking Grand Forks to Winnipeg.

Alaska

Alaska has a donated OC12 lambda.

North Carolina

North Carolina upgraded its link to Florida to 10G. Shibboleth added its first 10 schools in North Carolina. They implemented a link from Dallas to Tyler and are implementing a link from Lubbock to Texas Tech (they are currently building the last mile).

Un of Hawaii

Hawaii is relighting its OC3 to Japan which is needed for the Haystack eVLBI application. They are considering linkage to South East Asia via Guam.

Front Range

Front Range is increasing its connectivity between Denver and Salt Lake City from 2.5 G to 10 G.

Indiana

The Indiana GigaPoP negotiated a Qwest 10 G link. ILight is pursuing ARRA funding for connectivity to Indiana schools.

Exchange Points

ManLAN

ManLAN is installing a 4 port 10 G card in the next couple of months.

MAX

MAX completed its DWDM build out. They are provisioning lambdas across that infrastructure, e.g. to Equinex and Ashburne. They are implementing a passive build out in the Baltimore area.

StarLight

StarLight is supporting applications. They are working with Japan to implement a group video record of the solar eclipse this week. They will stream the video to China, Japan, Chicago, Amsterdam, and other places. They are working with NLR on UIC telepresence. They are working with Rich Carlson on a prototype PerfSONAR capability.

CIC

All CIC members are now connected at 10 G. CIC members have fibers around Chicago. The fibers go thru the Internet2 suite.

Meetings of Interest

Week of July 20: APAN meeting
1st week of August: DREN planning meeting
August: I2 Performance Workshop, Ann Arbor: Please see the Internet2 Web site
Feb, APAN meeting, Sydney, Australia

Trusted Internet Connections (TICs)

Dave Hartzell of Ames gave an update on Trusted Internet Connections. An OMB mandate requires Federal agencies (as a whole) to reduce their internet connections to approximately 50 sites (TICs) implementing Einstein boxes at those sites as Phase 1 of the TIC implementation. DHS is in the lead and NASA Ames is working with them to implement a TIC at Ames. DHS is validating the NASA Ames plans. The plans call for physical security, a security operations center and implementation of the Einstein boxes that operate up to 10 Gbps. A second NASA TIC site will be at Goddard Space Flight Center. The GSFC site will be certified over the next two weeks. The TIC sites must meet security guidelines issued by NIST and PIP.

The NASA mission network operates critical space missions. This is being treated as an internal-only network. Any non-NASA connections will have to go through a TIC. TICs are located on Federal property. There are some wavers for high-end science capabilities. If the science functions do not touch critical agency capabilities they can go outside the TIC. The TIC architecture requires backhaul of a lot of links which is quite costly. DHS is considering multi-agency TICs but the NASA TICs are all single site. DHS operates the equipments in the TIC racks. There are 3rd party TIC providers, such as AT&T that could provide TIC services to smaller agencies. Under Phase 1, passive monitoring is implemented with the Einstein boxes. Later phases will implement IPS.

NOAA Networking

Jerry Jansen described NOAA rearchitecting of their networks. NOAA is currently doing a proof of concept for interconnecting their primary research sites. NOAA is benefiting considerably from ARRA funding for connecting the NOAA sites. NOAA has 17 large research sites including 4 HPC sites, 3 data archival centers4 Administrative support centers and their headquarters in Silver Spring, Maryland.

NOAA is extensively supporting the Intergovernmental Panel on Climate Change (IPCC). The NOAA network initially will support the computers resulting from ARRA funding. Supercomputers will be located at new sites where power and support services will be less expensive. Computers are planned to be located at GFDL/Princeton, Boulder, Gaithersburg, Oak Ridge, and a location to be defined. The laboratories doing research are located at different sites including Miami, Ann Arbor, Norman Oklahoma, and other sites. They want to implement IPv6, PerfSONAR as a performance measurement regime, and scale to 100 Gbps. They are currently planning to implement 10 G with redundant 10 G links. The NOAA Research Network (NRN) will be a packet delivery network. The NRN is being designed as a "low impact" security environment and it will have no applications services such as DNS, email or video-conferencing.

Discussion among the JET members noted that many of the existing science networks can provide services cheaply to NOAA at many of their sites. NOAA is already cooperating closely with ESnet at many of its core sites.

AI: Science networks should provide a list of sites where they are deployed so others (e.g., NOAA) can identify opportunities for cooperating on network services.

ARIN Update

ARIN has a new President John Curran. There are 30 /8s remaining available for IPv4 addresses. This supply will deplete in late 2010 or early 2011. Most current growth in use of address space is in Asia and Europe. When IANA runs out of address space, the regionals will have about a one year supply of address space left.

IPv6 registration traffic is increasing dramatically. ARIN is increasing its outreach effort. Letters were sent to CEOs of IPv4 address holder companies informing them of the impending depletion of IPv4 address space. ARIN is holding a series of public policy meetings to get public input. ARIN is considering a transfer listing service to facilitate a secondary market in IPv4 address space.

PerfSONAR

Rich Carlson described the JET tasking to develop a plan for implementing end-to-end performance measurement across domains. An infrastructure, based on PerfSONAR, was developed to collect network performance data and to make it available to users to help them isolate and resolve network anomalies. Most of the science research networks indicated they would participate in this activity. The networks need to send in their statements of how they will participate and they need to start sending in their data. There was a Plenary session and a BOF at Joint Techs to promote interest and cooperation on implementing a wider participation in this performance measurement infrastructure.

Cloud Computing

Dave Hartzell of Ames described the Nebula program at Ames which is developing a high density computing platform. The goal is for researchers to access, run, and distribute applications on this platform. This will facilitate users in customizing their applications. It will also enable public data and users to operate outside the NASA TIC environment.

Next JET Meetings

August 18, 2009, 11:00-2:00 at the NSF, Room 1150
September 15, 2009, 11:00-2:00 at the NSF, Room 1150