

## JET Meeting Minutes

February 2, 2009, 8:15-10:30 Central Standard Time

College Station Hilton

(In coordination with the Joint Techs/ESSC Meeting)

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## **Action Items**

**1. Nagi Rao and Bill Wing will discuss their performance measurement over a 6000 mile testbed facility at the March JET meeting**

2. Paul Love will send the JET members maps of the Northern Tier network

3. Anyone interested in participating in a path hinting test should contact Brent Sweeney: [sweeney@iu.edu](mailto:sweeney@iu.edu)

4. Rich Carlson will identify performance measurement attributes (matrix format) that JETnets should implement to deploy end-to-end performance measurements across networks. Grant Mill will send the request to the JETnets to solicit their cooperation in deploying these capabilities.

## **Proceedings**

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

AI Nagi Rao and Bill Wing will discuss their performance measurement over a 6000 mile testbed facility at the March JET meeting

## **Network and Exchange Point Roundtable**

### **AmPath**

AmPath is deploying a 10 G link next month to Brazil to replace a 2.5 G link to Sao Paulo. AmPath is deploying an STM1 link to the University of the West Indies' Trinidad campus, connecting them to Internet2. They will use a 10 G port on CREN to Miami. They are obtaining the IP and AS Numbers.

### **AWave**

AWave supported an eVLBI application with Arecibo two months ago using AWave and the IRNC link to the Netherlands

### **DREN**

DREN held a Hawaii Internet Consortium (HIC) meeting last week. NOAA is accelerating their plans for connectivity to MIT/Lincoln Labs using DREN and NASA links to support eVLBI. DREN held a meeting with Larry Smarr of UCSD. The Department of Justice is coordinating with DREN for connectivity to 21 sites. Code upgrades of the Juniper routers are on-hold for now. DREN is rehomeing connectivity of El Paso to 6 sites to reduce latency. Router memory upgrades will begin shortly.

### **ESnet**

ESnet is adding additional waves to its Long Island bandwidth. . For additional material, please see the ESnet update at the Winter Jt Techs:

<http://events.internet2.edu/2009/jt-texas/sessionDetails.cfm?session=10000399&event=1019>

## **Internet2**

Internet2 has migrated a node in the Northwest to the Westin Building. The optical node was moved to it in January to complete the migration to the Northwest GigaPoP. Internet2 lit a second 10 G link to Chicago/Equinix. The migration of IPv6 peers is completed. Internet2, ESnet, Level3 and Infineras are proceeding with their 100 G project with the goal of demonstrating it at SC09.

## **National LambdaRail (NLR)**

NLR is continuing its upgrade of Phase 1. The East Coast is completed and work is continuing on the Northern tier. The equipment is installed to replace the 808s. The Phase 1 upgrade is projected to be completed in March. NLR is providing a telepresence using Cisco telepresence capabilities. NLR is setting up an SBC in the center of the network in Kansas. Telepresence is expected to be fully operation in April.

NLR is working with SurfNet to implement a 10 G wave to Amsterdam.

## **NOAA**

NOAA is building a 10 G Layer 2 network to tie together the NOAA research supercomputer centers. The MAXGigaPoP is assisting them in the DC area.

## **TransPac**

TransPac used the DCN to connect LA to Tokyo using SONET links. TransPac supported a LIGO demonstration in Austin for SC08. Most APAN members can be reached using native SONET, including Thailand, Japan, and the Philippines.

## **Northern Tier**

Northern Tier is close to completing a network spanning Seattle to Chicago. They expect the last link to be lit and operational by summer 2009. It will be primarily lit by Infinera.

A connection to Alaska is being developed based on a 10 G, OC192 lambda donation IRU from Seattle to Anchorage. The UA, Fairbanks is purchasing a 10 G link from Anchorage to Fairbanks.

AI: Paul Love will send the JET members maps of the Northern Tier network

## **MERIT**

MERIT serves primarily Michigan with connectivity to Chicago. It supports 1 G or multi 1 G links to sites. It connects to RNET in Toledo, and Internet2 in Chicago. They are provisioning two Tie 2 schools to get to BNL. One is connected to the DCN network, the other into ESnet as a switched service. They will run multiple G paths and load-share.

## **Exchange Points**

### **ManLAN**

ManLAN is implementing a second link to ESnet. ManLAN is implementing a

code upgrade.

### **NGIX-East: College Park**

The MAX is completing its DWDM buildout. A Phase 4 Baltimore to Washington upgrade begins next month. They are implementing Level 3 replacement in Reston and College Park.

### **StarLight**

StarLight supported many demonstrations for SC08. A CineGrid workshop was supported by StarLight. The AAAS Annual Meeting in Chicago is using a 1 GE link to StarLight. StarLight is supporting a supercomputing demonstration between Tokyo and Amsterdam using IRNC links. DCN is implementing a 10 G connection to StarLight. The Adler Planetarium is implementing a 1 G link to StarLight

### **Meetings of Interest**

1<sup>st</sup> week of March: APAN meeting in Taiwan

March 9-11: CENIC meeting in Long Beach

March: IPv4 Multicast workshops will be held at Carnegie Mellon, Additional workshops will be held in South Dakota in May, and Ohio State later in the year.

### **ARIN Update**

There are 38 /8s left to be allocated. This supply is likely to last less than 3 years. ARIN is developing several policy documents. One policy deals with reuse of legacy IP address space. At the last ARIN meeting, a non-binding vote was against adoption of this policy. Debate continues. ARIN has proposed an IPv4 recovery fund which would empower ARIN to use some of its funds to purchase legacy IPv4 address space to expand the pool of available addresses. All the RIRs, including ARIN, are developing a policy for returned IPv4 space to allocate the returned space across IANA in an equitable manner. ARIN is developing a new Policy development process. Proposals for policies will be given to the ARIN Advisory Council that will shape the policy and shepherd it through the discussion and adoption process.

ARIN has a government working group that is meeting next week. It is intended to provide information to government organizations on how ARIN works so the government agencies can make informed decisions about their networks. Law enforcement agencies are particularly interested in the WHOIS database. DOE, NZ, RCMP, DHS and a range of other government organizations plan to attend.

For more information, please see: <http://events.internet2.edu/2009/jt-texas/sessionDetails.cfm?session=10000365&event=1019>

### **Path Hinting**

Brent Sweeney described the status of his path hinting project. He applied for, and obtained an ASN from ARIN to support his project.

Path hinting allows an end site to suggest a path back to them. Path hinting provides a mechanism of BGP to send a request upstream to use specific return paths.

AI: Anyone interested in participating in a path hinting test should contact Brent Sweeney: [sweeney@iu.edu](mailto:sweeney@iu.edu)

### **Expedition Workshop**

February 9 from 8:30-12:30 an Expedition Workshop is being held at the NSF, Room 555 on performance measurement. It will bring together potential users and deployers of performance measurement to identify needs and requirements and to discuss performance measurement regimes that could be used, including PerfSONAR.

### **Performance Measurement White Paper**

Rich Carlson has updated the Performance Measurement White Paper being prepared for the Large Scale Networking (LSN) Coordinating Group (CG). The LSN requested that the white paper provide a plan for fostering end-to-end performance measurement using PerfSONAR across the JETnets. It would enable the JETnets to share information already being collected and shared but in a more generalized, standardized, , flexible, and automated way to minimize the effort required of network analysts to collect data for isolation and repair of specific problems. The white paper identifies several phases for implementation of a performance capability regime. It identifies what will be done in each phase and how we will proceed to implement the capabilities.

Phase 1: Agree on attributes that a performance measurement capability should institute

Phase 2: Agree on a set of services to implement collection and distribution of those attributes

Phase 3: Develop and action plan to deploy PerfSONAR services including:

- Lookup
- Topology
- SNMP MA

ESnet is already deploying this capability; Internet2 and DREN are implementing much of this capability. The other JETnets (NREN, NISN, NOAA,...) need to start to deploy these capabilities. TransPac is fostering deployment of PerfSONAR capabilities among its members. StarLight and NGIX-East are willing to deploy these capabilities.

AI: Rich Carlson will identify performance measurement attributes (matrix format) that JETnets should implement to deploy end-to-end performance measurements across networks. Grant Mill will send the request to the JETnets to solicit their cooperation in deploying these capabilities.

The Feb 9 Expedition Workshop will address how networks, outside the JETnets, might deploy an end-to-end performance measurement regime.

### **Future JET Meetings**

March 17, 2009, 11:00-2:00 at the NSF, Room 1150

April 21, 2009, 11:00-2:00 at the NSF, **Room 1160**