National Science Foundation, Directorate for Computer Information Science and Engineering
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February 2000 Monthly Status Report

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Table of Contents

A. Summary of Technical Activities

A.1. Euro-Link Network Status and Institutions

A.1.a. CERN

A loss problem on the iCAIR/CERN DiffServ testbed has been tracked down and fixed. DiffServ experiments are in progress.

A.1.b. IUCC

The Israel IUCC network has been active since November in Israel; statistics reports are available at [http://www.machba.ac.il/I2/stats.html]. Israel is somewhat concerned that usage is low, but we have found this typical of newly connected networks. Israel is also starting to document their own “Internet2” applications (not necessarily STAR TAP-related) at [http://www.machba.ac.il/I2/applications.html].

In February, Israel completed peering with NISN at STAR TAP. Also, they alerted the Abilene and vBNS NOCs that while they can spoof TCP window size over high-delay satellite links and get 20 Mbps TCP streams with no problem, they are noticing that the data flows are not symmetrical – they are sending information to STAR TAP via

"Internet2" speeds, but receiving information over the commodity Internet. They have asked the NOCs to check their routing tables.

A.1.c. NORDUnet

No new activity to report this month.

A.1.d. RENATER2

No new activity to report this month.

A.1.e. SURFnet

SURFnet's connection to STAR TAP from its PoP in New York is being upgraded from 45 Mbps to 155 Mbps. Teleglobe is working with Ameritech on the local loop connection.

A.2. Engineering Services

A.2.a. Staff Change

John Jamison has left UIC for a private industry position supporting research and government networking efforts. He will continue to contribute to the STAR TAP and Euro-Link projects in an advisory capacity; however, all technical questions should be sent to engineers@startap.net. This email alias currently forwards to Tom DeFanti, Maxine Brown, Alan Verlo, Linda Winkler and Laura Wolf. Linda Winkler and Alan Verlo will assume the engineering responsibilities until a replacement can be found.

A.2.b. STAR TAP Router Peering

The latest information is posted on the web [http://www.startap.net/ENGINEERING/]; click on "Peering Matrix."

A.2.c. 6TAP

See [www.6tap.net]. Florent Parent, of Viagenie Inc., reported on February 25, that he was preparing to ship the Cisco 7204VXR, Tunnel Server and Stats Server, as part of new services for the 6TAP. Viagenie intends to assist in the installation and configuration March 21.

A.2.d. STAR TAP Web Cache

*NLANR Caching project…*Tom DeFanti signed an agreement with NAP.NET, who is donating 1 Mbps ISP service to STAR TAP. Once the NAP.NET service is in place (expected in late February), Duane Wessels will integrate the cache into NLANR's Global Caching Hierarchy.

A.2.e. DiffServ

See [http://www.evl.uic.edu/cavern/EMERGE/]. The STAR TAP DiffServ router can now accept connections from STAR TAP participants. [See iCAIR/CERN collaboration (section A.1.a).]

A.2.f Renting Co-Location Space at Ameritech

Progress with Ameritech to lease 2 additional racks has been slow. We are currently talking with the UIC Computer Center about providing equipment space.

A.3. NOC Services

The Euro-Link NOC web page development is ongoing. Various pages and links have been updated, including:

- Contact Reporting
- Problem Reporting link (coming soon)
- Status Monitoring (now active)
- BGP Session Monitoring (now active)

An "International Networks at Indiana University Weekly Report" has been created, and is distributed to NOC and engineering lists for TransPAC, STAR TAP and Euro-Link.

A.4. Euro-Link Performance Analysis Tools

A.4.a. Network QoS of Real-Time Multimedia

QoSIMoTo (QoS Internet Monitoring Tool) [www.evl.uic.edu/cavern/qosimoto] has been released on the web for IRIX and Linux. QoSIMoTo is a program to view, in real-time, latency, bandwidth and jitter of multiple flows in Netlogger format. The program runs in the CAVE, and on SGI desktop workstations and Linux PCs running in CAVE-simulator mode.

A.4.b. Petri-Net Network Modeling

No new activity to report this month.

A.4.c. Network Monitoring

Netlogger-formatted network monitoring has been integrated into CAVERNsoft G2. This feature will appear in the next official release of the system.

A.4.d. Low Latency State Transmission Over Long Distance Networks

We are working to identify the overhead imposed by our Forward Error Correction (FEC) codes, in order to improve the algorithm. We also identified a bottleneck in our local area network that was preventing high-throughput transfers between EVL and SARA in The Netherlands.

B. Accomplishments

B.1. No-cost Extension of vBNS

On February 24, the NSF announced that the original five-year, $50M cooperative agreement between NSF and MCI-Worldcom (MCIW) runs through March 31, 2000 but, to insure a smooth transition, MCIW and NSF have entered into a no-cost extension of this cooperative agreement for another three years. This makes the vBNS award co-terminus with the STAR TAP and HPIIS (Euro-Link, TransPAC and MIRnet) awards. Further information is available at the NSF Advanced Networking Infrastructure and Research (ANIR) Division's High Performance Connections (HPC) Newsletter website:
[http://www.interact.nsf.gov/cise/html.nsf/html/ani_newsletters?OpenDocument].

B.2. Euro-Link Applications

Active US/European collaborations utilizing high-performance research networks are being documented for CERN, Renater2, SURFnet, NORDUnet and IUCC. Brief summaries will soon appear at [http://www.euro-link.org/APPLICATIONS/].

B.3. Meetings Attended

February 24-25, 2000. Linda Winkler and John Jamison attended I2 Routing and Multicast working group meetings at University of California, Santa Barbara, to coordinate international activities with Abilene and CA*net3.

February 18, 2000. EVL hosted Dr. Chris Greenhalgh of the University of Nottingham, United Kingdom. There were discussions on potential virtual reality collaborations.

February 10, 2000. Tom DeFanti participated in the NSF's Network for Earthquake Engineering Simulation (NEES) initiative's briefing [http://www.eng.nsf.gov/nees], and talked about virtual reality, the computational grid, and global collaboration.

February 3-4, 2000. Tom DeFanti and Maxine Brown were in Paris, France. DeFanti gave a presentation on Global Research Networks to ~150 people at Atelier [www.atelier.fr], a group of financial and technical people who meet regularly for information sharing and lectures on the economics of the internet and computer technologies. The director general of Atelier.fr is Jean-Michel Billaut. DeFanti and Brown also met with:

- Philippe Quéau, director of the Information and Informatics Division, UNESCO (United Nations Educational, Scientific and Cultural Organization)
- John B. Rose, program specialist, Information and Informatics Division, UNESCO
- Henrikas Yushkiavitshus, Undersecretary General for Communication, Information and Informatics

- Alain Giffard, Minister of Culture and Communication, France
- Xavier Dalloz, consultant

B.4. Publications

Ray Fang, "Forward Error Correction for Multimedia and Teleimmersion Streams," EVL internal technical report. February. [http://www.evl.uic.edu/cavern/FEC/RayFangFEC1999.pdf]

Steven N. Goldstein, Maxine D. Brown, Thomas A. DeFanti, "The Science, Technology and Research Transit Access Point (STAR TAP)," La Recherche, Paris, France, No. 328, February 2000, pp. 50-51. [http://www.startap.net/PUBLICATIONS/pubs.html#Application Papers].

B.5. Software Releases

CAVERNsoft G2, a C++ toolkit for building collaborative networked applications or "logistical networking" applications, is now available. It has low and mid-level networking classes to support general collaborative applications building, and high-level modules to support tele-immersion (or collaborative virtual reality.)

The distribution includes full source for SGI, Linux and Win9x/NT/2000. Currently, graphics support is only supported on the SGI through IRIS Performer. The distribution comes with the full source of Globus 1.1, and allows the user to generate both Globus and non-Globus versions of CAVERNsoft. For more info and download, visit [www.evl.uic.edu/cavern/cavernG2]; for more info on Globus visit [www.globus.org].

C. Collaboration Activities

- Ongoing with SARA in Amsterdam. We will upgrade their Saranav software to the new version of CAVERNsoft (CAVERNsoft G2) once it becomes available.
- Working with SARA in The Netherlands to experiment with an EVL-designed packet-level Forward Error Correction scheme.

D. Summary of Award Expenditures (February)

The spending rate is within budget. The UIC contract for NOC services provided by Indiana University is now in place.