



Fermi National Accelerator Laboratory

FN-476

**HEPnet Technical Coordinating Committee
Meeting Minutes
September 17-18, 1987
Brookhaven National Laboratory***

George Rabinowitz
Brookhaven National Laboratory
Upton, New York 11973

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George Rabinowitz / Greg Chartrand

STATUS OF X.25 BACKBONE PROCUREMENT - Rick Schnetz

Rick described status of switch acquisition. Tony Hain is project engineer for Hepnet x25 backbone project, Rick is responsible for implementation. After 3 months of vendor surveys the decision was made in July to pursue a sole source acquisition of the Telefile switch. The Telefile service organization was found to be satisfactory, no other vendor met all the requirements, and Telefile demonstrated compatibility with a Camtec switch at LBL. Telenet entered the bid process and a competitive bid was required. RFQ's were sent to eight vendors; only Telefile and Telematics responded by the bid deadline of Sept 1. Anticipate that the contract will be awarded on Oct 9 with lease to ownership financing. Telefile claims they will be able to provide x25 1984 windowing by the time the switches will be delivered. There was an extensive discussion of network management. Telefile currently has a limitation of only supporting a single central management system. Raw data is available at local sites but is not very easy to use. LLL anticipates that there will be a coordinator at each site. Harvey emphasized the desirability of full management functionality at each site. There was a general feeling that successful operation of the network would require the participation of technically knowledgeable people at each site. The provisional schedule for installing the backbone has the leased lines and modems due Nov 1 and deployment of the switches to the sites starting in Dec. Telefile will install the switches and training will be provided to techs from each of the sites so that there will be some on-site maintenance capability.

DECWORLD/DECNET - Mark Kaletka, Greg Chartrand

Mark set up a Hepnet booth at Decworld with a Microvax II tied to Hepnet and LEP3net via a link to MIT. The motivation for doing this was to advertise Hepnet to a wider audience. There was interest in the area filtering scheme and in the general question of how to manage a large Decnet network. One point that emerged again was the desirability of having a description of Hepnet to distribute to non-HEP people.

Greg described the meeting between Hepnet and Dec which was set up in conjunction with Decworld. Jim Davis is the Dec person responsible for the DOE account. Myran Morgan is Dec's liaison person between DEC engineering and DOE. Davis is attempting to increase awareness within DEC of the size and scope of Hepnet. Some of the areas of concern presented to DEC were - We need to ensure that phase V does not have the limitations that posed such problems with phase IV. - DEC needs to understand that many networks do not follow the model of a centrally managed corporate network. - We will need assistance with the phase V migration planning There was some discussion of DEC's



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future plans with regard to the level of support for TCP/IP in VMS. DEC does not intend to provide full support for TCP/IP - it will not be native to VMS as DECnet is. An attempt was made to convey to the DEC people a sense of the impact NSFNET is having on the university community and the resulting relevance of TCP/IP.

STATUS of X25 ROUTER - Greg Chartrand

The X.25 router under field test at LBL has been working for 10 days. The earlier problems were due to an installation problem. The question was raised of when PSI would be working under VMS 5.0. We need to know whether the shipment of 5.0 is dependent on PSI working under it. DEC will take getting an answer to this as an action item.

NETWORK SECURITY ISSUES - Greg Chartrand

The incident involving the Chaos hackers getting into a SPAN system has focused attention on the security issue. There have been several known intrusions at Hepnet sites in the last two years. There are a number of known loopholes in VMS security. DEC had been distributing an unofficial patch to prevent the use of a portion of the user authorization file to store pilfered passwords. This patch was not distributed in a very systematic manner. Jim Davis requested that we express to DEC in writing our concerns about the manner in which DEC handled this matter. SPAN is putting together a security document (60 pages) summarizing information obtained from DEC manuals. This document is ready for review and can be made available for distribution in the HEP community.

The security problem will only become worse as workstations proliferate. Solutions will have to be provided by DEC; local ad-hoc fixes will not be adequate. Concern was expressed that in reaction to the hacking incidents DOE might impose security restrictions limiting the use and growth of the network. The discussion about appropriate levels of security touched on the need to balance the requirements for free information flow in a research network with security considerations. Any proposal to restrict access should be brought before the HRC.

There was discussion of how to handle hacking incidents. Phil Demar suggested that area managers should be aware of problems in addition to the managers of the systems involved. There should be a formal structure for disseminating information about hacking incidents. The SPAN security manual addresses this question.

ESNET STEERING COMMITTEE REPORT - George Brandenburg

The MFEnet review and the ESnet program plan were discussed. The proposed budget (wish list) over the next five years provides for network



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support personnel at the backbone nodes and funding for tail circuits. The next meeting of the steering committee will take place in one month at LBL at which time the funding requests for 88 will be considered. We need to communicate our requirements to Stu and George. The IG is conducting an audit dealing with networking expenditures - looking at numbers of lines, degree of coordination, etc. It was not clear whether the object was to verify that the proper papers and signatures were in place or whether issues of substance relating to convergence with the national networks was the object. Bill Bostwick suggested that there be a meeting at which all the groups involved in ER networking would be present - HTCC, HRC, MFE - as a means of coordinating our efforts. There could be individual committee meetings followed by joint discussions. A tentative date in early March was suggested.

HEPNET REVIEW COMMITTEE REPORT - Larry Price

Larry reported on the HRC meeting which took place at SLAC on June 29-30. C. Prescott presented SLAC comments on networking. Currently most costs are borne by the users, so the cost to SLAC is low (<20 k /year). SLAC is willing to support networking for the general community at a modest level, perhaps up to 200K/year. In a recent policy change SLAC will now permit terminal pass-thru unless technical problems arise. Sandy Merola provided responses to a series of questions which had been posed to the HTCC (see the June Fermilab minutes).

A number of policy questions were considered. The HRC took the position that HEPnet should retain an identity distinct from ESnet on the grounds that not all HEP networking needs will be met by ESnet. HEPnet was defined as consisting of all wide area networks used by US high energy physicists. The answer to the question of some form of the HRC existing on a continuing basis is provisionally yes. The HRC endorses the active role of the HTCC in managing HEPnet in both DECnet and other components. They also endorsed the provision of funds as early as possible in FY 88 by ESnet to extend the X.25 backbone to allow DECnet and terminal connections at the five major HEP labs and at MIT for LEP3net. Finally the HRC endorses the use of HEPnet lines for HEP-related BITnet traffic .. as long as non-HEP traffic can be effectively excluded.

INITIAL USE OF X.25 BACKBONE

As soon as the selection of the Telefile switches is official manuals should be sent to each site. Each switch site should provide a dial up port for use by MFE. The switch has two console inputs - one will be used by MFE for diagnostic purpose, the second can be used for a local monitor. It is the responsibility of the individual sites to acquire pads. For purposes of management access it is desirable that the pads be acquired from Telefile.

There was extensive discussion of the addressing scheme to be used in the network. Apparently it is not possible to obtain a DNIC for Hepnet use. Tony



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Hain described the addressing scheme he favors, which uses a structured address. This has the advantage of being efficient in call setup with respect to switch cpu cycles for table lookup. Using a structured address raises compatibility problems with the Cern and LEP3 use of the address space. Harvey disagreed with the MFE proposal, preferring to use unstructured field. The possibility of obtaining additional digits of address space from the vendors will be pursued - Harvey will contact Telenet, Rick will speak to Tymnet. It was agreed that this issue will require additional work. We need to work with Cern to see what their preferences are; investigate use of the call data field; continue the discussion via electronic mail.

Site contacts are needed to establish the network. A first pass was generated

| SITE | COORDINATOR | TECHNICAL CONTACT |
|---------|--------------------|-------------------|
| BNL | George Rabinowitz | Frank Lepera |
| MIT | Mark Kaletka | Jamie McCauley |
| FNAL | Greg Chartrand | Vito Grigaliunas |
| ANL | Ed May | - |
| LBL | Sandy Merola | Serge Plevitzky |
| SLAC | Les Cottrell | Les Cottrell |
| FSU | Ken Hayes | - |
| CERN | Francois Fluckiger | - |
| LEP3net | Harvey Newman | - |

DECNET CIRCUIT COST PLAN - Phil DeMar

Phil circulated a proposal devised by himself, Ken Adelman, Charlie Granieri and Bruce McLendon. The proposal deals with the use of circuit costs in setting up desirable routing characteristics. Access to the NML object is required for any system connecting to HEPnet (this provides the capacity to access the DECNET data base). The proposal was endorsed by the HTCC.

FORMATION OF SUBCOMMITTEES - Greg Chartrand

Greg suggested the formation of subcommittees to deal with specific issues. In the X.25 area it would be helpful to capitalize on the experience of more expert people. There are a range of issues on which we should maintain close contact with DEC - circuit costing, phase V migration, etc. He suggested a group of people with responsibility for DECNET be involved i.e. Ken Adelman, Phil DeMar, Greg and Frank Lepera.



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SPAN STATUS REPORT - Bruce McLendon

They have experience using the Proteon 4200 gateway with the recently introduced DECNET option. This makes it possible to pass both IP traffic and DECNET through the same gateway. SPAN is working on a new version of their security manual and are willing to distribute it when it. They distribute current checksums on key system components to SPAN nodes.

BITNET STATUS REPORT - Les Cottrell

The BITNIC has moved to Princeton, where it is now operated by EDUCOM. The BITNET/ARPA gateway operated at WISCVM is scheduled to stop operating Dec 15. Offers to provide a gateway have been received from six sites. EARN is testing BITNET over public X.25 switched virtual circuits. There are currently over 1900 nodes in 33 countries with 50 new nodes being added each month.

CENTRALIZED TELENET/TYMNET ACCESS - Les Cottrell

The question was raised of centralizing access to the public nets. This access is useful for accessing low usage destinations, people on trips, access to non-HEP organizations. Centralizing access would reduce the fixed monthly charges and possibly provide volume discounts. The suggestion was made that LLL could serve as an access point and that the matter should be referred to an ESnet committee member. Les will follow up with a message to Stu and George B.

TCP/IP DIRECTIONS FOR HEPNET

The NSFnet currently is well endowed with bandwidth and offers increasing connectivity nationwide. The question was discussed of how HEP might benefit from this development. Hugh M. commented that we should justify acquiring our own bandwidth, expressing concern that reliance on NSFnet would lead to loss of programmatic leverage. A potential problem was seen if access to NSFnet were controlled by computer center. BNL is connected to NSFnet via NYSERnet. FSU is on SURAnet and FNAL is getting connected to the Illinois Supercomputer Center. Harvey volunteered to be the Internet contact.

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CC**
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ATTENDEES

| | | | |
|---------|--------------------------------------|-----------------------------|-----------------|
| SLAC | Les Cottrell | Charles Granieri | |
| HARVARD | George Brandenburg | | |
| CALTECH | Harvey Newman | | |
| FNAL | Greg Chartrand | Phil Demar | Hugh Montgomery |
| SPAN | Bruce McLendon | | |
| LBL | Serge Plevitzky | | |
| DOE | Bill Bostwick | Bob Woods | |
| DEC | Jim Davis | Myran Morgan | |
| MFEC | Tony Hain | Rick Schnetz | |
| FSU | Ken Hays | | |
| MIT | Mark Kaletka | | |
| TRIUMF | Lawrence Felawka | | |
| BNL | Graham Campbell George Rabinowitz | Rich Horwitz Dave Stampf | Frank Lepera |