

Special Projects and Planning

1988-1989 Annual Report

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SUMMARY

Special Projects and Planning worked to advance the computing capabilities and services at Emory; to keep current in computing techniques and technology; to disseminate knowledge to the university community through presentations, consultation, handouts, reports and articles; to discover new facts and increase understanding through careful testing and measurement; and to participate in the world academic community through electronic bulletin boards, the sharing of Emory-written code, and the writing of Mathematical Reviews.

We worked to keep current in computing techniques and technology by reading numerous technical publications, attending twenty-two (22) technical conferences, talks and demonstrations, and reading technical electronic discussions amounting to over 200 electronic mail items per week. We gained a deeper understanding of the AppleTalk and IP protocols by capturing and analyzing packets and investigating network problems.

We ran numerous tests and benchmarks involving computers and networking, and found the answers to numerous questions. We also helped numerous users with issues relating mostly to networking, LANs and e-mail.

We disseminated knowledge to the Emory community by giving fourteen (14) talks and demonstrations; by writing twenty-two (22) articles, reports and handouts; by writing two *Public Pages* articles and providing text for eight (8) more articles; by consulting with, helping and giving explanations to at least thirty (30) EUCC staff and twenty-nine (29) Emory people outside EUCC; and by meeting with eight (8) departments to answer questions and give advice about networking.

We helped save money by finding ways for LAN-attached workstations to use only their LAN connection instead of an asynchronous connection to access EUCC multi-user computers ("hosts"). In particular we searched for

low cost 3270 emulation programs, and identified, obtained, tested, configured, demonstrated and delivered Brown tn3270 for the Macintosh, and Cornell TN for the MS-DOS PC. VT100 emulation programs were already available from work we did the previous year.

For Novell Netware LANs we identified a 4 megabyte per second broadband interface and showed how it can be used to network the LANs to the EUCC IBM host through the broadband using only one network interface per LAN at a list price of less than \$900. This is much less expensive than using an Ethernet bridge at a cost of around \$11,000.

We also demonstrated 3270 emulation and file transfer through this Netware broadband connection using the Novell SNA Gateway. The Novell 3270 emulation software is cost effective, since it is licensed with the gateway instead of per workstation.

Eliminating asynchronous connections reduces not only the number of broadband interfaces needed for workstations, but also the number needed for hosts. The LAN-connection alternative along with freed broadband interfaces reduces or eliminates the need to buy further network interface units.

In particular, EUCC was able to give Computing Lab users the capability to login to hosts from any Lab Macintosh without the need to install additional asynchronous network interface units in the Labs. We provided a written plan for doing this in which all the EUCC Computing Lab AppleTalks were linked, and we made sure the network numbers and zones were properly assigned. We identified, installed, configured, tested and got operational the GatorBox gateway that provides the link between the Lab network and the Data Center Ethernet to which the hosts are connected. We did the same for the EUCC AppleTalk network using a Kinetics FastPath.

We also configured, tested and demonstrated the GatorBox's capability to make an NFS (Network File System) server look like an AppleShare server. In this way a host or workstation with the widely available NFS server support can be used as a Macintosh file server without the need to install AppleTalk and AppleShare support on each server. This approach also eliminates the expense and support effort associated with AppleTalk and AppleShare code for a particular host or workstation. Using this capability, Lab Reps are now able to have Macintosh space on EUCC's UNIX host.

We directed the creation of a public domain Macintosh software and shareware collection for Emory, and made it available on a server accessible by any Macintosh in the Labs or on any net bridged to the Emory Ethernet backbone. We also directed the creation of a HyperCard stack which documents the software. We turned over support of this collection to the new software coordinator along with instructions which we wrote on how to manage and maintain the collection. By making this collection available, we enable Macintosh users to increase their productivity by taking advantage of the many useful tools there without having to spend valuable time duplicating the collection effort.

We are directing the effort to provide Macintosh file space on the VMS VAX using the AlisaShare software which we had previously obtained. Named JUNGLE, this server not only provides a PUBLIC volume which houses the Macintosh shareware collection, but also will be used to provide private file space for any Emory user with suitable network access. In particular, we have worked hard to get the private space of EUCC staff moved to JUNGLE from the current Macintosh II server (named Uppergate1). When complete, the move will reduce the extra operations effort of backing up yet another system and will provide more disk space for the users.

We modified Macintosh Kermit to support host-initiated printing (such as from PROFS) on any printer to which the Kermit-running Macintosh can print. The code will be incorporated into future versions of MacKermit. A "world-class" university should be a player in the Macintosh development arena. With this project we were able to meet our need for the printing capability and contribute something to a world from which we have mostly taken. Significantly we were unable to find adequate talent at Emory to do the work, but were able to get a professional Macintosh programmer to donate time to the project by working for us at the same rate we normally pay a graduate student. The total of his charges was only \$710.

We worked to keep Emory current among its peers in electronic mail ("e-mail") by helping Operating System Support (OSS) configure and test domain support. Domains are a new way of specifying the host name in an e-mail address. Without domain support, Emory e-mail users would be unable to send mail to or reply to mail from users with domain addresses. We also identified the desire of users of LAN-attached workstations to be able to send e-mail to people outside their LAN using their LAN-based e-

mail software. We investigated a number of LAN-based e-mail packages, and ordered one (POP) that should be suitable for use by students from Macintoshes in the labs.

One of the special efforts of Special Projects and Planning this year was to turn over to operational EUCC groups many of the hardware and software products that we have pioneered and tested. We turned over management and maintenance of the Proteon SURAnet gateway, the GatorBox and the Kinetics FastPath to Network Services. Various aspects of the Novell bridge to the Data Center token ring and the SNA Gateway were turned over to Operations, Microsupport and OSS. The JUNGLE server was turned over to OSS. The PUBLIC volume on JUNGLE was turned over to the Software Coordinator. We are in the process of turning over AppleShare services to the EUCC Business Office. In all cases, we provide initial training, documentation and follow-up consulting.

We made good progress on the 6670 migration project, which seeks to move all usage of the IBM 6670 Information Distributor laser printer to other laser printers so that the 6670 can be removed from service. When the project is complete, VM users will be served by the Data Center Xerox laser printers, and UNIX and VMS users will be served by LaserWriters located in the Data Center. Removal of the 6670 will not only save the cost of its maintenance, but also the cost of IBM software needed to support it.

The term "Cloud" refers to EUCC technology to provide a simple, user-friendly interface between a user and a computer-based service. Typically the user will access the service from a microcomputer that has graphics capability. As part of the "cloud" project, we researched and tested various products to get a better understanding of available technologies, and we created a first stab at an architecture which will guide us in the creation of products. We expect to keep interested parties up-to-date by creating and distributing working documents which explain the concepts, architecture and plans.

We managed the Uppergate1 AppleShare server, provided user support to EUCC staff using Macintoshes, and helped with various issues relating to AppleTalk networking. We reconfigured the Chemistry FastPath and directed reconfiguration of other AppleTalk routers on the internetwork to straighten out a problem with the zone names and network numbers.

We attended all the conferences with Applitek and provided technical support in our efforts to get Applitek to provide suitable TCP/IP support. We ran benchmarks on the new VAX and UNIX computers, including a timing test that was used to set rates on the VAX. We hosted the BITNET Technical meeting associated with the DECUS conference in Atlanta. We analyzed an IBM 3090 performance problem, and we confirmed that more memory was needed. We ensured that users who had paid for copies of SAS/PC and BMDP/PC got their copies by organizing and directing the duplication of the diskettes. We acted as SURAnet Administrative Contact at Emory and created an automated system to provide data for graphs of SURAnet usage. We helped plan the Executive Park network and its connection to the Emory Internet.

NEEDS

Lan Diagnostic Tools

We need for Microsupport to have LAN diagnostic tools such as the Sniffer protocol analyzer.

Budget

This year we had a \$10,000 budget to pay for assistance. This budget has been essential to our paying contractors and getting enough assistance from Microsupport. We need a budget of about this size next year.

Plan Perception

Although we have published a networking plan ("EUCC Connectivity Standards", *Public Pages*, March-April, 1987, pp. 3-4), we still occasionally are told that Emory has no networking plan. The circumstances remind us of similar remarks heard in the past that Emory has no computing plan. The pattern of the contexts in which the remarks occur suggests that the accusation of lack of a plan is code which means we are not doing things the way the accuser thinks they should be done, and we have been unsuccessful in giving the accuser a warm, fuzzy feeling that everything will be alright. The problem is thus a lack of consensus rather than one of definition. We need the Vice Provost for Information Technology to direct the effort necessary to make the Emory community comfortable that we have adequate plans for networking and for computing.

Dissemination Direction

We have heard hints more than once that we are keeping too much technical information and plans bottled up. If the effort documented in this report to disseminate technical information and plans has been inadequate, then we need direction on how to make it adequate. Those who feel that information has been inadequately disseminated may be reacting to the quandary in which we all may find ourselves: that there is not enough time to know all that we wish to know.

Introduction

The following is a fairly detailed listing of what we did. It is intended for the next level of management, who can use what they wish in their own reports, or just use it to get a better understanding of what we did. There are many small items listed, because larger projects and goals are advanced by the solution of small but key problems and the acquisition of knowledge which provides key capabilities. The material is presented in bullet-list form so that you can quickly scan the details and draw your own conclusions. The summary already provides conclusions in narrative style.

Personnel

- Ray Leung, a Math/CS graduate student, worked on Kermit printing during the summer and Fall semesters.
- John A. Oberschelp began work on Kermit printing in January.
- Terry O. Greenlaw was hired in April to work on format67 conversion for UNIX and VMS.

Meetings and Visits (helps all users)

We attended meetings, presentations and demonstrations which helped keep us informed and up-to-date, and thus helped us help all users.

- EDUCOM, 10/25-28
- DB2 Presentation, 8/4
- SIGGRAPH, 8/2
- IBM Training, 11/14-18
- Mobius demo, 1/4
- DEC Announcements, 1/10
- SoftSwitch seminar on e-mail, 1/17
- Novell 2.15 AppleShare, 1/24
- Digital Product Announcements, 2/28
- Apple New Product Introduction, 3/7
- Novell Product Presentation, 3/21
- Library of the Future, 3/21
- Novell Non-disclosure meeting, 3/28
- Excelan Users Group, 5/4
- BITTECH, 5/5
- IBM Office Products Announcement, 5/16
- SAA presentation, 5/18
- QuickMail demo, 5/22
- CUA Workshop, 5/30-31, 6/1
- X-terminal demo, 5/30
- Apple New Product Roll Out, 6/12
- Interoperability Seminar, 6/14
- Apple University Consortium, 7/25-28

Talks and Demonstrations (helps all users)

We gave a number of talks and demonstrations to groups inside and outside EUCC in an effort to spread our knowledge.

- "Electronic Mail Problem Investigation" to Consulting Group, 10/4
- "Network Terminal and File Services" to Chemistry, 11/21
- "Connecting to BITNET" to Business School, 11/30
- Alisa Terminal Demo, 12/2
- Timbucktu' demo, 1/12
- "LAN Login" to General EUCC Staff 1/17
- "AppleTalk Concepts and Lab Network" to some EUCC staff, 1/25
- "Networking at Emory University" to Novell, 2/27
- "LAN Options" to Psychology, 4/13
- "Special Projects and Planning" to IBM Status Meeting, 4/20
- SNA Gateway Demos, 4/24, 4/25, 5/2
- Networking Review for DeKalb County Health Department, 4/25
- "LAN Options" to Business School, 5/17
- CUA Prototype of Dobis screens demo, 6/8

Training (helps me help users)

Keeping up with rapidly changing technology requires considerable effort, which includes much reading.

- Monitored various BITNET news groups to keep up with what is happening and find out interesting tidbits.
 - © Groups included IBMTCP/IP for VM, NOVELL, BIG-LAN, VIRUS-L, KERMIT Digest, BITNET-2
 - © Traffic averages 40 e-mail items per day
- Read *Communications Week*, *Computer System News*, *MIS Week*, *MacWeek*, *Connection Magazine*, *UNIX Review*, *LAN Times*, *ComputerWorld*, *LAN Magazine*
- Read AppleLink, finding such things as how to send mail between AppleLink and BITNET and Internet.
- Read about security issues including various papers on Internet worm
- Read about LAT and X-windows
- Read *Inside AppleTalk*

Articles, Reports, Handouts (helps all users)

We attempt to document our work by writing articles for Public Pages (see the items under that heading below), creating diagrams, and writing reports and handouts.

- We participated in the worldwide community of scholars by writing three Mathematical Reviews.
- Wrote explanation of how BITNET mail is gatewayed to Internet, 9/5
- "IBM 3090 9/29/88 Performance Problem Investigation, Preliminary Report", November
- "IBM Display Speed Timings", 1/5, 3/28, 4/20
- "Proteon Support", 3/17, 5/15
- "Sending Mail over BITNET with PROFS and Extended Profs", 4/10
- "EUCC Network Links", updated 4/17
- "Installing AppleShare Workstation", 4/19
- "GatorBox Configuration Change", 4/21, 6/9
- "SNA Gateway Demo", diagram 4/25
- "SNA Gateway Connectivity", diagram 4/26

- "Managing JUNGLE:PUBLIC", 4/28
- "Public Files Documentation Card Form", 5/1
- "Sharing Files on JUNGLE", 5/1
- "EUCC AppleTalk Internetwork", updated 5/3
- "BITTECH Agenda", 5/6
- "Dial-up Telnet Access to Internet For DECUS Attendees", 5/7
- "GaState Networking Plans", memo
- OSI/ISO Emory Diagram, 6/6
- "GatorBox Software Update", 6/7, 6/9
- "EUCC AppleTalk Notes", 6/7, 6/13
- VM Format67 Architecture Notes, 6/22
- "EUCC AppleTalk Concepts", 6/7, 6/22

Projects

6670 (affects mostly academic users)

We support printing on the IBM 6670 Laser Printer with software we developed to run on UNIX and VMS. Equivalent software for VM was purchased from IBM. Our project is to provide equivalent support for other printers so that the 6670 can be discontinued. "format67" is the name of the command used on all systems (VM, VMS, UNIX).

- Wrote span80 program to fix format67 on VMS so JNET could be used to send files to the 6670. This provided users with much more reliable service.

DCFPLUS is a program we located which converts output from the IBM document formatter (DCF/SCRIPT) so that it will print on the Xerox 4050. During the previous year, we had worked with Xerox to define appropriate Xerox fonts to support the character set of the formatter (named nroff) used on UNIX and VMS.

- We defined the nroff fonts to DCF and got them working with DCF/PLUS.
- Helped Consulting get DCFPLUS to print correctly
- Investigated and evaluated ditdvi
- Created GML profile for nroff fonts
- Wrote software to make VM FORMAT67 print on Xerox and documented the program flow. Routines are FMT6797 EXEC, FRM6797 EXEC, FRM9700 EXEC, NL67 MODULE, DMS36797 EXEC, PLS97 MODULE, plus modified data and macro files DSMP6797 SCRIPT, FPR36797 SCRIPT
- Analyzed UNIX/VMS format67; wrote requirement specifications, and hired a contractor to do the work
- Mainframe accessible postscript printer: Investigated Kodak printer
- Obtained postscript test file and sent to Imagen
- Sent sample DCF/PLUS output to Marty Levin, Sociology, 12/13
- Wrote format67 architecture description for UNIX and VMS 3/30

AlisaShare (helps EUCC staff and Faculty)

AlisaShare is software which runs on the VMS VAX and makes the VAX appear to be an AppleShare file server named JUNGLE.

- Directed configuration and upgrading of AlisaShare (wrote specs)
- Helped with testing

- Organized setup of AlisaShare to provide volumes EUCC, VINES, PUBLIC, XERXES
- Wrote documentation on how to use it.

AppleShare Network (helps EUCC staff and all other potential AppleShare users)

- Administered Uppergate1 AppleShare server, taking calls and fixing server problems and helping users with AppleShare, Macintosh and related questions and problems.
 - © Added to server: ISMJE, CSLGM, ISJRK, USJDG, ISGEK, ISBCB, USLDV, ISMAJ, USJCB, CSMBO, 3 IS people at church, ISSHE, PCDJK, USMSM, VPJWJ, BAJJD
 - © Handled problems such as failure of server to come up after backups and out of disk space.
 - © Obtained and installed surge protector on server.
 - © Updated software in Share folder.
 - © Created Forms group.
- Used monitoring to identify malfunctioning Macintosh that caused CRC errors on network

AppleTalk

- Kinetics FastPaths
 - © Reconfigured Chemistry Kinetics FastPath.1/30
 - © Upgraded EUCC Kinetics FastPath model 1 to version 4 ROMs and distributed information about upgrade.
 - © Investigated FastPath support of AppleTalk 2.0 and advised EUCC to upgrade their FastPaths to Model 4
 - © Memo to Gene Trowbridge, Chemistry, explaining issues of FastPath upgrade and advising Chemistry to upgrade to Model 4, 6/21
- Obtained update to Apple Inter•Poll network diagnostic program and gave copy to Network Services.
- The Solana R-server allows a Macintosh to connect to an AppleTalk network via dial-in.
 - © Got R-server upgraded and working.
 - © Created dial script for it 1/17, made available with instructions 2/8, but unplugged 2/21 due to 20% packet loss to it.
- Monitored EtherTalk and AppleTalk (packets and traffic) and became more familiar with the AppleTalk protocol and how it works.
- Investigated hang problem reported by Ken Mandelberg of Math/CS by analyzing EtherTalk packets, and learned about the "router of the moment" and the Apple Transaction Protocol's "exactly once" option. 2/15
- Obtained timbucktu' from Apple and tested it
- Created diagrams of AppleTalk Internetwork links
- Sent information to interested users about AppleTalk Phase 2, 6/12
- Called Kinetics about AppleTalk phase 2 and sent summary to Internet news group info-AppleTalk and to interested Emory users. 6/19
- Got and tested Kinetics' network diagnostic program named "LAN Ranger". 7/5

Applitek

- Created statement of connectivity needs (relative to TCP/IP support)
- Acted as contact for TCP/IP product to explain what we wanted.
- Wrote request for Applitek to support the Serial Line IP (SLIP) protocol in its TCP/IP product.
- Created plan and diagram for TCP/IP product testing at Emory.
- Meetings with Applitek and conference calls to Applitek: 8/1, 12/14, 1/6, 3/20, 4/18

AU/X Source

We did the initial work to get the A/UX source. After the non-disclosure forms had been signed by various Emory people and sent back to Apple, the release changed and we had to start over. At that point Microsupport took over what was now appearing to be a continuing effort.

Benchmarks

We have created a suite of timing tests which we run on all our computers. We ran these tests on the VAX 8550, as well as the Whetstone floating point test, and a large SAS run. The SAS run was used to determine a factor for setting new rates.

BITTECH

BITTECH is a one day meeting of BITNET Members' Technical Representatives to discuss BITNET technical issues. It is held in conjunction with the user meetings Share (IBM) and DECUS (Digital Equipment Corp.). Emory hosted BITTECH in conjunction with DECUS in Atlanta this summer.

- We Directed arrangement of rooms and refreshments.
- We Provided printed agenda and signs.
- We Arranged for Internet access for BITTECH and DECUS attendees via TELNET captured account on VMS.

Cloud

The term "Cloud" refers to EUCC technology to provide a simple, user-friendly interface between a user and a computer-based service. Typically the user will access the service from a microcomputer that has graphics capability. One technology being explored for use with Cloud is Arbiter, which is software that runs under MVS and provides virtual disks for PCs. Another is CL/1, which is a protocol for making connections and sending SQL requests to database servers.

- Attended Cloud meetings 4/9, 4/17, 5/9, 5/25, 5/31, 6/2, 6/8, 6/30.
- Arranged for evaluation copy of Token Ring driver for Arbiter.
- Located the type of bridges (Source Routing) that Arbiter requires.
- Installed CL/1 server on A/UX 6/6 and demo client on SE20 6/12.
- Installed and demonstrated CL/1 and Matrix/Layout .
- Installed and demonstrated Dobis CUA prototype, 6/8

E-MAIL (helps all users)

The focus is Campus-wide Electronic Mail: implementation of electronic mail between computers on campus with access to other universities as well. Domains provide a method of e-mail addressing which uses a hierarchical approach similar to a USPS mail address.

- Diagnosed user-reported e-mail problems.
- Directed changes to the VM MAILER configuration file for domain support.
- Handled fixing problem of loss of EMRYCC from BITNET tables, discovered March 16.
- Tested QuickMail, a Macintosh e-mail package.

UREP (helps academic). UREP is the UNIX RSCS Emulation Program which enables the UNIX machines to participate as full-function BITNET nodes.

- The University of Pennsylvania wrote to say we were in violation of the UREP license agreement. We wrote letters and talked with the Univ. of Penn. contact Dr Lambert until the situation was straightened out.
- We wrote a program called "bitblank" to translate a BITNET note's blank line header separator to a null line so it would be recognized by UNIX mail.

PMDF. (Helps VMS users, esp. Chemistry and Medical School). The Pascal Memo Distribution Facility provides mail transport services to VMS which allows it to participate in e-mail with other computer systems using RFC822, the defacto standard e-mail header format for BITNET and the World Internet. The use of PMDF allows Emory VMS systems to exchange e-mail with each other using dial-out modems or broadband NIUs in addition to Ethernet and DECNET, and allows them to exchange e-mail with computers on BITNET and the World Internet. All users of VAX VMS systems on the Emory campus potentially benefit from this software, by its direct use on their computer to access each other or to access the EUCC VMS system as a gateway to other networks, or indirectly via DECNET access to the EUCC VMS system as a gateway.

- We worked with Brendan to create, install and test the PMDF configuration file to support domains and BITNET mail through JNET, which implements the BITNET protocols for VMS.
- We tested the PMDF domain configuration against the UNIX configuration file.
- We wrote awk scripts to reformat the HOSTS.TXT file of all Internet hosts for the PMDF configuration file.

PROFS. (Helps mostly administrative and EUCC users).

We identified Profs Extended Mail (XPROFS) to provide the capability to address e-mail to domain addresses from the PROFS environment, and to read and reply to such mail. After testing XPROFS and providing a default user profile suitable for Emory, we announced it on 2/9.

LANs. Users of LAN-attached workstations want to be able to send e-mail to people outside their LAN using their LAN-based e-mail software.

- We investigated a number of packages: CC:MAIL, Coordinator, Higgins, Network Courier, PC Mail, Microsoft Mail, QuickMail, and POP.
- We got the Stanford POP client for Macintosh and PC and the MH server software for UNIX.
- We investigated SoftSwitch which converts between micro-based e-mail formats.

Kermit Enhancements (helps all users)

Two enhancements to Macintosh Kermit were planned: provide VT102 printer support, which allows escape codes received by Kermit to dynamically direct received text to the screen or to a printer; and support for a subset of the IBM 3163 terminal with the American Library Association (ALA) character option.

- Got Kermit code from Paul Placeway and made changes necessary to get it to compile and link under MPW 2.0.2. This included finding on AppleLink a file (environs.h) which was not supplied.
- Located a professional Macintosh programmer named John Oberschelp and directed him in making the printer support changes.
- The printer support was delivered to Paul Placeway on 6/11 for integration into the next release of Macintosh Kermit.

GatorBox (helps academic)

The GatorBox not only connects the Computing Labs AppleTalk network to the Data Center Ethernet, it also converts between AppleShare and NFS, allowing any NFS server to be an AppleShare server.

- We specified the GatorBox for connecting the Labs to the Ethernet; we configured it, tested it, wrote maintenance documentation, and turned it's maintenance over to Network Services.
- We set-up an Emory XT (LoadServ) to act as the primary load device for it.
- We supervised three (3) GatorBox software updates
- We wrote a memo Operations: How to restart the GatorBox and verify that the restart worked. 4/11
- We sent information on GatorBox updates to interested people inside and outside EUCC.

IBM Performance and Capacity Planning (helps all IBM users)

- Attended meetings on 11/9, 2/17, 4/28, 10/3, 10/4, 11/12, 12/21.
- Studied performance monitoring manuals for RMF, the IBM Resource Monitoring Facility.
- Wrote 7 awk scripts to process monitor data for plotting (awk is a UNIX data manipulation utility).
- Created 46 graphs.
- Wrote a preliminary report.

Labs (helps academic)

We directed the creation of a public domain and shareware software collection for Emory.

- The shareware was obtained from bulletin boards.
- A HyperCard stack was created to document the holdings and allow the browser to run programs from within HyperCard (where possible).
- The software and stack was installed on the JUNGLE server in volume PUBLIC.
- We wrote documentation for Marie Matthews explaining how to manage and maintain the collection.

Computing Lab Networking:

- Provided a written plan for linking all the EUCC Computing Labs with AppleTalk and made sure network numbers and zones were properly assigned.
- Configured NCSA and tn3270 for computing labs zone.
- We held meetings about the Lab network: 8/5, 8/17

Micro Software Copying (helps academic)

The project was to make copies of SAS/PC and BMDP/PC, each of which consists of a very large number of diskettes. We organized and directed this effort. 9 copies of SAS/PC 6.03 and 6 copies of BMDP/PC were made, enabling users to finally get their copies.

Misc

- Licensed PROHCPY, the program that enables PROFS to print on a micro-attached printer, to the Smithsonian Institution in Washington, DC, and sent the software on 3/12.
- We managed the update to the Campus Life entry for EUCC.

Networking (helps all users but mostly academic)

- Searched for low cost 3270 emulators that work through a network connection and run on VMS, Macintosh and IBM-PC.
 - © New Eunice provides tn3270 for VMS.
 - © Identified, obtained, tested, configured, demonstrated and delivered Brown and Cornell tn3270 for Macintoshes, Cornell tn3270 for PCs and Novell SNA Gateway for PC LANs.
 - © Use of Brown tn3270 for Macintosh has reduced EUCC staff pressure on lines, helping to hold down costs.
 - © Cornell tn3270 supports PCs with AppleTalk card.
- Got Ethernet monitor at no charge that works on Macintosh II.
- Answered questions by Faxon and Library about connection possibilities.
- Advised EUCC Operating System Support (OSS) on questions relating to version 1.2 of IBM TCP/IP for VM.
- Helped Business School with BITNET connection.
- Helped Yerkes with BITNET connection.
- Created diagrams of Campus Internetwork links.
- Helped Network services with evaluation of terminal servers, including updating their feature list. Meetings 4/4, 4/19, 5/10, 5/24.
- Helped with networking plan for Executive Park 5/25, 6/4, 6/5, 6/20.
- Sent summary of Interoperability Seminar to interested users.

PUBLIC PAGES (helps all users)

- Acted as Technical Reviewer
- Wrote
 - © "SURAnet Link Operational", 9/88
 - © "LAN to Mainframe Connection Plans", 4/89
- Provided text for these articles from BITNET lists that we read:
 - © Comserve article, 11-12/88
 - © "New Macintosh Virus", 3/89

- © "BITNET Technical Meeting Here", 4/89
- © "Disinfecting Macintosh Viruses", 5/89
- © "Summer Institute in Supercomputing", 5/89
- © "Supercomputing Workshop and Institute ", 5/89
- © "Computers and the Humanities", 5/89
- © "IBM Announces Competition on Advances in Numerically Intensive Computing", 5/89

Staff Support (EUCC) (indirectly helps all users)

We answer questions and generally help EUCC staff with problems. We also spend a lot of time explaining concepts.

- Susan Ament (AppleShare problems, tn3270)
- Debbie Baxley (DCF/PLUS Training)
- Linda Chiappe (Macintosh questions and problems)
- Kim Comstock (Macintosh and ftp questions and problems)
- Tony Dean (AppleTalk networks)
- Dan Doyle (Calc D/A)
- Sandi Ewanowski (AppleShare, ImageWriter, MultiFinder questions)
- Keith Foster (Phonenet problems, FastPath and GatorBox support)
- Larry Frederick (questions about Macintosh launch preference, AppleShare, EtherTalk, networking, Biometry network proposal, tn3270)
- David Gardner (find D/A)
- Barbara Germon (Macintosh questions, PhoneNet problem, AppleShare questions)
- Ken Guyton (Brown tn3270, networking, DCF/PLUS and FORMAT97 futures and plans, SNA Gateway)
- Rusty Harris (NCSA Telnet, FTP)
- Ruth Honekamp (lots of Macintosh questions)
- David King (SURAnet, BSMTP, IBM TCP/IP for VM)
- Graydon Kirk (AppleShare)
- Jim Kruse (questions about tn3270, AppleShare, NSFnet access to Dobis, ftp)
- Elizabeth Lipson (ftp VM to Macintosh)
- Glen Matthews (Proteon software upgrades and configuration changes, network testing and investigation, Ethernet configuration)
- Marie Matthews (JUNGLE PUBLIC and diskette copying strategies)
- Susan Mistretta (LAN questions)
- Brendan Moriarty (AlisaShare)
- Craig Myers (networking)
- Arnold Robbins (e-mail problems)
- Curt Stauffer (Arbiter)
- John Stiles (Network diagrams)
- Tommy Stripling (Proteon update, Executive Park networking)
- William Taylor (how tn3270 works)
- John Wiley (GatorBox for Fereydoon Family)
- Ron Wood (various Macintosh problems, read AppleLink)

SURAnet (helps academic users)

- Obtained TFTP at no charge and set up an XT (LoadServ) to act as an independent load server for the Proteon. This provides the capability for the Proteon to reload after an outage even if other Data Center machines are not up.
- Investigated problems of Emory connectivity to ARPAnet.
- Directed software and hardware updates by Network Services to the Proteon.
- Wrote Proteon maintenance procedures for Network Services.
- Created automated collection of statistics for monthly graphs of the usage of the SURAnet communications line.

Tests (helps all users)

- Timings of File Transfer and Page forward via SNA Gateway.
- AlisaShare speed compared to local disks and Macintosh II server, 11/3.
- Xerox 4050 printer carriage control from UNIX and VMS, 12/1.
- AlisaTerminal timings, 12/5
- Timbucktu'
- Avatar 3270 emulation
- GatorBox and other AppleShare server timings versus local disks
- tn3270 timings from various machines through various gateways
- Program loading timings through R-server via broadband
- IBM RT
- Novell AppleShare program loading timings
- Asynchronous AppleTalk through dial-in at 19.2Kbps to R-server
- Timings through Ethernet connection
- Matrix Layout memory requirements
- GatorBox NFS AppleShare to UNIX protections, 5/21
- Ability to capture passwords with program "peek", 5/22

Token Ring Broadband Bridging (helps Administrative users)

The project bridges Token Ring networks to the Data Center via the broadband so that a workstation can use just its LAN connection to access the IBM mainframe for login and file transfer.

- Initially selected and directed testing with Allen Bradley cards.
- Obtained SNA Gateway and bridging software.
- Evaluated and selected the Zenith Z-LAN 4000C card. Only one card is needed per LAN. It is very cost effective.
- Demonstrated the services to the satisfaction of EUCC staff and the Registrar.

Users Helped

We helped many people in the Emory community by answering questions, explaining concepts and helping them with problems.

- Steve Blevens, Scholars Press (networking to communicate with authors)
- Joel Bowman, Chemistry (telnet problem, e-mail problems)
- Courtney Brown, Sociology (TOPS)
- Centers for Disease Control (BITNET access)
- Richard Daigle, Campus Life (AppleShare questions)
- Fereydoon Family, Physics (GatorBox, tn3270, networking)

- Eric Fliegel, Business School (networking)
- Jamie Henriquez , Law Library (AppleShare 2.0, Apple Internetworking)
- Craig Hill, Chemistry (e-mail problems)
- Robert Jones, Chemistry (AlisaShare, AlisaTerminal)
- Mike Kutner, Medical School (networking)
- Lenny Liebskind, Chemistry (AlisaTerminal and NCSA Telnet)
- Marty Levin, Sociology (SPSS on VM expired)
- Chang-Kwei Lin, Yerkes (UREP, LaserWriter access)
- Mike Lynn, EpiBio (networking)
- Ken Mandelberg, Math/CS (e-mail and networking problems and issues)
- Beth Mellon, Cancer Research Facility (campus Internet)
- Dr Neissor, Psychology (e-mail address problems)
- C. Nicolaysen, Registrar (LAN questions)
- Dr Padwa, Chemistry (e-mail problems)
- Sid Perkowitz, Physics (3090 access from off campus)
- John Palms (how fast is a certain model Cyber)
- Howard Rollins, Psychology (networking)
- Frank Schipani, EpiBio (networking)
- Dr Schulman, Medical School (BITNET)
- Aubray Soskolne, Dental School (BITNET)
- Gene Trowbridge, Chemistry (PhoneNet)
- Kim Wallen, Psychology (PC network connection)
- Dr. Waring, Ophthalmology (networking)

VIRUS

- Obtained anti-virus programs (Disinfectant, GateKeeper) 3/28, 4/24.
- Kept interested EUCC staff up-to-date on virus alerts.
- Gave early warning about Internet virus.