Research and Planning
Annual Report 1991-1992

Peter Day, July 1, 1992

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EVENTS OF THE YEAR

End-User Data Access (EUDA) Task Force

R&P acts as facilitator to the End-User Data Access (EUDA) Task Force, whose members are Susan Ament, Mike Ewanowski, Barbara Germon, Francene Mangham, Susan Mistretta, and Curt Stauffer. Louis Leon has recently joined the group. Shun Yan Cheung, a database expert in Math/CS, agreed to attend vendor presentations when he could. The Information Systems Group established EUDA at its 5-year planning session in May 1990. EUDA's original mission was to address the usage of QMF (within 6 months), a client/server approach for user data access and reporting (1 year), and ease of use, defined as a "front-end that provides a friendly interface to existing mainframe applications (2 years)." By July 1, 1991, MPC had accepted the EUDA recommendation to purchase FOCUS as an easy-to-use end-user tool for data access and reporting that would eventually provide a client/server approach. EUDA then decided to stop meeting for a few months to allow the Information Systems (IS) and Technical Services (TS) groups to devote themselves to the installation of and training for FOCUS.

On January 9, 1992, EUDA resumed regular meetings. The group decided to concentrate on giving general access to FAS and HR data, based on results of an Information Systems Advisory Committee survey. A consideration of the issues raised by these two examples made clear that more work would be needed before end-users could be given easy access to the institutional data that they were authorized to see.

Indeed, access to data such as FAS and HR cannot be made available unless it is controlled based on the value of one or more data elements. The IBM security system (RACF) can only control access to non-DB2 data at the file level. Thus non-DB2 data cannot be made available from a TSO ID to anyone except the owner of the data. Although the FOCUS server can control client access at the data element level, the FOCUS server and gateway are not yet stable enough for production use. In addition, FOCUS-only control does not scale well. DB2 can control access at the data element level, even when access is from TSO.

The group also thought that serving FAS and HR data from the mainframe (whether to TSO users or FOCUS PC clients) would create a demand that could require a higher-capacity mainframe and result in future needs for expensive upgrades.

The group concluded that the data should be made available from a database (called the "data warehouse") located on a cost-effective platform. This database should be relational for efficient support of ad-hoc queries, and for ease of data base design, data reorganization, and data distribution across platforms. The database would enforce security. The data would be stored so that redundancy is minimized.

The group also thought that while it could initially make a copy of the IBM data available from a database in another environment, over time applications should be moved to the new environment so that the data is captured there. A complete application development environment (ADE) would allow legacy applications to be moved by redeveloping them. At the same time the applications would get a new more friendly interface. In addition, the group noted that users trained in FOCUS

were asking about using it to develop applications. Thus IS needs ADE tools it can recommend as well as use.

In particular, EUDA expects to recommend a CASE tool. EUDA took the following position on the Bachman CASE tool that IBM recently presented to Emory Computing: No one should presume that having and using the Bachman tool means that Emory Computing has chosen a CASE tool for the new ADE. The Bachman tool will be valuable in the current environment, and will enable us to get a head start modeling Emory's data. The Bachman tool may or may not ultimately be the choice for the new ADE. If it is not, the group expects the designs done with it to be readily transferable to the chosen tool. In any case, Emory Computing should be careful to avoid locking itself into the existing environment and tools any more than it already is.

IS empowered EUDA to recommend a database product and ADE tools and an environment in which to run them. The IDA (Implementation of Data Access) group chaired by Francene Mangham would recommend the data elements to be in the data warehouse. EUDA decided that the environment should be UNIX so that Emory could choose the hardware power and architecture that is appropriate at a given time. The resulting flexibility in choice of platform contributes to cost-effectiveness and to ease in rightsizing. Emory would then be able to take advantage of new hardware architectures (such as massively parallel processors), since vendors of new platforms now typically use UNIX rather than writing their own operating system. Software systems developed in the UNIX environment could also run on platforms of a size appropriate for departmental use.

The group considered whether FOCUS could be used in the meantime to develop new screens needed for HR and FAS, and whether FAS or HR data could be temporarily served from emoryu1 using FOCUS. Based on testimony from two people in IS, both of whom are familiar with using FOCUS for program development, and one of whom is also familiar with CSP, the group reluctantly concluded that: (a) FOCUS would not be suitable for such program development; (b) the new FAS and HR screens should be developed in CSP; and (c) the FAS and HR data should be temporarily stored in DB2. Developing screens in CSP is easy enough that the screens can be considered to be throwaways. EUDA expects that the design of the DB2 database will directly transfer to any other relational database. Thus the group thought there would be little wasted effort.

EUDA also recommended that the TS/IS planning group resume meeting to develop strategies for moving to the new environment.

EUDA has met 13 times from January 9 to June 11. The group has seen product information and vendor presentations on Sybase and Oracle. Walt Hultgren of Yerkes gave a presentation on Informix. EUDA has seen demos of Oracle and Sybase. At this point, the group is most impressed by Sybase. Peter and Louis Leon have met twice with Teradata, who says they will be able to run Sybase on their hardware.

For the future, the group intends to look at the ADE products that work with Sybase to see if a set of them appears to be satisfactory.

Internet Use Working Group (IUWG)

The IUWG was formed in response to frustration expressed by Selden Deemer, Jim Kruse and Larry Frederick after they attended meetings where they saw presentations of tools created at other uni-

versities to make access to the Internet easier. They were frustrated that

1. Emory had no program to make available such tools to the Emory community;
2. People were asking the librarians questions about Internet access that the librarians could not answer;
3. The number of questions to both the librarians and to Consulting about the Internet was increasing;
4. People were expressing frustration to the librarians and to Consulting about the lack of information and tools;
5. People who tried to access resources on the Internet seemed to have much difficulty, particularly in accessing and using libraries at other institutions (the most popular use of the Internet at Emory).

The IUWG members are Susan Ament, Jackie Ammerman, Richard Brooks, Peter Day, Peter Day, Selden Deemer, Dan Doyle, Steve Foote, Larry Frederick, Rusty Harris, Rod Henshaw, Betsy Patterson, Steve Taylor, Seth Tepfer, Alis Whitt, and Eric Youngstrom. Not all these people attend all the meetings.

The mission of the IUWG is to make access to network services easier, especially services that are accessible by means of TCP/IP. The immediate goal of the group is to deliver a set of tools, and instruction and documentation to faculty on how to use those tools to access network resources. Academic Computing, Technical Services, and Library Public Services have committed their people's time to help in this effort and to create a seminar for the fall.

The meetings initially took place in the Woodruff Library Systems Office, but later moved to the FITC for ease in demonstrating software. It has met twelve (12) times since November 14.

One of the first efforts of the IUWG was to design a friendly menu that would present the user with choices and automate connection to services such as Dobis and other libraries, especially libraries in Georgia. Currently the group is experimenting with a freeware product called Gopher to see if it can provide the needed menu services, and with a UNIX scripting facility called "expect," to see if it can automate connections.

Gopher uses a client/server approach. The server presents the client with objects, the most common of which is a menu. If the user selects an item from the menu, the client then retrieves that item from the server. Typically that item is a submenu. At the bottom of the menu hierarchy are other types of objects, such as text and pictures for display, sound for play, and connection information. On receipt of connection information, the client connects directly to the target system, which might be a library system at another school.

The connection could also be to another Gopher server. This capability allows transparent inclusion of other Gopher servers in a seamless manner. Gopher also is compatible with the World-Wide Web server and the Wide Area Information Server (WAIS). As a result, the user can from one place access resources on servers all over campus, the country or around the world.

Network Planning

R&P leads a Network Planning Working Group, whose members are Susan Ament, Robbie Barber, I. B. Bates, Peter Day, Ken Guyton, Robert Jones, Louis Leon, Ken Mandelberg, Brendan Moriarty, Craig Myers, and Mike Wilhoit.

The NPWG has met approximately two times a month since July 1, 1991, except for September, January-March and May when

it did not meet. During the summer, the group worked on a plan it initiated in June to get a better understanding of gateways. Its approach is to implement some gateways on an experimental basis. The outcome was a plan for a print gateway based on the LPR ("line printer remote") protocol. The vision is for anyone to be able to print anything from anywhere on any network-connected printer to the extent allowed.

As part of the experiment, Departmental Computing set up Clarkston University's so-called Charon gateway on a micro provided by R&P. The Charon gateway allows LPR clients to submit print jobs to a Novell print queue on Departmental Computing's Novell server. In the other direction, it also allows the server to spool a print to a remote LPR printer.

R&P coordinated this effort with the Printing Work Group chaired by Louis Leon. Louis subsequently installed a new version of TCP/IP that provided LPR support on VM. Meanwhile, R&P created an LPR gateway on emoryu1 ("lprgate") and software to use it from VM ("GPRINT"). R&P also created specific support for HP LaserJet printers ("hpLJ2" filter) and for Apple LaserWriters ("appleLW" filter).

The outcome was the ability to print from VM to printers on Novell Networks and to network-connected LaserWriters. In particular, a PROFS user can print mail on such printers, and a SAS user can print listings in rotated and/or condensed print on such printers. In the reverse direction, a user of a Novell network can send a print to a mainframe-connected printer. These capabilities satisfy well-known needs of the Emory user community.

The NPWG is polishing a draft set of recommendations that cover general principles for networks at Emory. Although the NPWG has not yet published a report, the planning process and draft recommendations have been valuable. The group has provided a forum where ITD Network Services could discuss technical issues with people both in ITD and in the user community who are interested in networking issues and can contribute technical networking expertise. For example, the group discussed the upgrade to the SURAnet link and the backup link; the plan to migrate to a routed network; the need for different departments to have different IP subnet numbers; and strategies for placement of bridges and routers.

NPWG discussions have made a difference. As a result of a discussion on security, NWS decided to begin installing non-snoopable SynOptics concentrators as soon as they became available (they are now available). The NPWG discussions on the minimum requirements for workstations to prepare for an environment for distributed computing led to changes in the recommended configurations for microcomputers published yearly by Micro Computing Support.

Network Planning has not proceeded as it might if there had been no network in place and no sense of what needed to be done with basic infrastructure. Instead, the group has attempted to address both long term and short-term planning issues by first formulating philosophies, strategies, and goals, and then applying them. Although this group provides an important and useful function, the members of the group are mostly interested in technical aspects of networking. Anything more than it is now doing is probably beyond what most of the members are interested in doing.

Committees

R&P actively participated in four ITD committees: the Education and Career Development Committee, the Technical Planning and Review Committee, the

Management and Planning Committee, and the Quality Council.

R&P attended four meetings of the ECD; thirty (30) Technical Services weekly planning meetings; ten (10) UNIX status and planning meetings; four IBM disk space and IBM future direction planning meetings; four joint TS/IS planning meetings; nineteen (19) MPC meetings; nineteen (19) meetings of the Quality Council; four ACAC committee meetings; and seven InfoTalk review meetings.

Technical Planning and Review Committee (TPARC)

TPARC has normally met on the first and third Friday of each month since January of 1992. In the period from July 9, 1991, through June 10, 1992, it met twenty-one (21) times.

Early in July TPARC created a handout that outlined the review process and what a proposal should contain. Along with reviews (described below), TPARC worked on the design of a planning database that would allow people to get answers to questions about ITD's plans.

The members of TPARC became unhappy as a result of a perception that they could not do any actual planning. The issue came to a head at the November 15 meeting. R&P brought the question to the next MPC meeting, and confirmed that TPARC could do planning, and in particular, was empowered and expected to produce a consolidated technical plan. At the December 6 meeting, TPARC resolved to concentrate on the consolidated technical plan. The group spent the four meetings in January and February deciding what the technical plan should look like and generating plans. Then at an all-day meeting on February 28, the group created statements of technical vision, mission, and goals based on the existing plans. The group then worked to complete portions of the plan and to formulate a strategy for its initial review. TPARC released draft 1 of the plan on March 27.

To date not many people have provided comments about the plan. Based on responses it has received, TPARC has added terms to the index to help people locate material based on the subject. In addition, TPARC intends to write an executive summary.

TPARC wrote reviews for the following:

1. "Database Design Methodology," from Barbara Germon, August 19. TPARC responded August 26, and Barbara provided a revised proposal on August 28. TPARC solicited opinions on the methodology from Sandra Kidd, Becky Bruner, Susan Mistretta, and John Mitchell. It also considered material from Auerbach's publication Data Base Management. As a result of the responses from people in IS, it was clear that the proposal was controversial and that some whom the plan would affect had problems with it. TPARC recommended that R&P contact IS and ask them to reach out to Data Resource Management (DRM) and involve them in IS planning. TPARC quietly tabled the proposal. Unfortunately, Barbara Germon got the impression that her proposal disappeared into a black hole. However, DRM and IS began joint meetings, and eventually IS invited DRM to give them presentations on database design. DRM and IS also discussed data element naming standards. R&P believes that DRM and IS are essentially in accord on these standards. TPARC eventually sent Barbara a review on November 1. Barbara then had the impression that TPARC was very slow to respond.

2. "Backup Service Proposal," from David Bond for Microcomputing Support, August 22. TPARC had difficulty getting the proposal in writing. Then David was unable to attend many of the meetings when discussion was scheduled. A discussion finally occurred at the November 15 meeting. TPARC sent a draft response on December 6 with a request that David verify that its summary of the essentials of the proposal was correct. TPARC received a response in February, and released the final report on February 24. The essence of the recommendation was that ITD should offer the service in the context of a document explaining ITD's position on backup strategies and frequency.
3. "name ibm select gt," from Louis Leon for the 3270 Network Service Migration Planning Group, March 20. TPARC sent a response by March 24 that accepted the proposal and made some recommendations.

TPARC did preliminary reviews of the following. It only made comments orally.

1. "Library RFP." TPARC had many comments, but confined its comments to telling Jim Kruse that the RFP was inadequate in its presumption of terminal-only access using communications lines.
2. "Proposed ITD Information Security Policy"
3. "Security Database" design
4. "Data Element Naming Standard," from Barbara Germon. TPARC tabled this proposal until it finished reviewing the Database Design Methodology. Barbara subsequently withdrew it.
5. "EUDA Mission Statement," August 7.
6. "Printing Gateway," from the NPWG. The group thought the approach was reasonable, and encouraged completion of the experiment.

E-Mail Planning

The E-Mail Implementation Task Force has not met since last year. One of the key items for that group was creation of information that could act as an E-Mail directory. The group decided to make that information part of the Access Database being designed by the Data Resource Management (DRM) group. DRM has designed and created that database, has loaded names from the HR file into it, and is loading userids from the Data Center hosts into it, matching the names from those systems with the HR names. Where there is not an exact match, someone in DRM manually resolves whom the userid belongs to. Surprisingly, DRM reports that most of the names match exactly.

R&P has been following E-Mail trends and products while working on other things. Recently, the Business School and Public Health prompted R&P to spend more time on the e-mail issue when they each announced that they intended to select an E-Mail product in a month or two. R&P put together a list of people interested in attending presentations and demonstrations of E-Mail products. R&P and this group attended a presentation on Microsoft Mail and Microsoft calendaring and scheduling that the Business School arranged on April 3. Microsoft demonstrated both the e-mail and calendaring on a PC platform, although it said it had e-mail and calendaring for the Macintosh as well.

The problem with Microsoft Mail is that it limits the server to 500 mailboxes. The Business School was unhappy with this limit, because it wants to provide mailboxes for all its faculty and over 800 students. In addition, you cannot dial-in to Microsoft Mail with a terminal. You must use a micro and make a remote connection to the

network. The Business School had a problem with this restriction as well.

So far as I know, neither the Business School nor Public Health has selected an e-mail product yet. The last time I talked with them about it, the problem was that their users wanted to be able to access their VAX mailboxes from their micro without essentially having to use VAX mail. They now use VAX mail through a micro-based friendly interface.

R&P arranged a demo of the Oracle*Mail and Oracle*Schedule clients as part of an Oracle*Express presentation that Oracle did for the EUDA group and Informatics. These two clients are still in alpha test. They presented the demo by means of a video tape. The clients looked very good. However, "their availability is not expected until the beginning of next year." This is the same thing Oracle has been saying about these clients for two years already. R&P generally likes the look of the product, but is concerned about whether Oracle is serious about being in the E-Mail business (other than its use internally to Oracle).

E-Mail is still a rapidly changing technology. The market has yet to determine the major players. Thus R&P thinks it is time to follow the strategy outlined in the E-Mail Planning Report: look at freeware solutions, select at least one to recommend for each environment, and select an environment and product to use to offer an E-Mail service.

SURAnet Administration

During July, R&P worked on a proposal to upgrade the link to T1. At the same time, R&P pursued an alternate link through CDC to provide a backup path, and to provide an alternate way to get T1 speed. On July 25, Advanced Network Services presented a proposal to link Emory directly to NSFnet. R&P prepared a comparison of connecting by way of NSFnet versus SURAnet and presented it at a meeting with Jim Johnson and Larry Frederick on August 14. The decision was to stay with SURAnet and upgrade to T1. R&P worked with SURAnet and ITD Business Affairs to get the equipment listed correctly, get an estimate of the prorated cost given that the installation date was unknown, and to ensure that the purchase order got paid in the current fiscal year.

SURAnet delayed installation of the T1 link beyond the estimated November 15 date due to its migration to use of MCI. R&P tracked the status of the link and kept those who were interested informed. R&P also continued to pursue the alternate T1 connection through CDC. The 56 KBps link was finally switched off December 11. A T1 connection, either through CDC or finally through our own T1 link, has been in place since then.

SURAnet did not generate any usage statistics while we were using the CDC link. Even after we switched to using our own T1 link, SURAnet did not start collecting statistics from the new router until March 19, 1992. An examination of the statistics shows only one outage (on May 6) during the period March 19 through June 30.

The graph titled "Peak Hourly Percent Utilization of 56 Kbps SURAnet Link" shows how the peak utilization changed over the life of the 56 Kbps link. For 1992 with the T1 link, the utilization has never exceeded 13%.

The average daily throughput (in Kbytes) was 329,902 in 1991 and is 496,519 so far in 1992, a 50.5% increase. The graph titled "Average Daily Throughput of the SURAnet Link" shows that the overall growth since 1990 appears to be linear.

The peak hourly throughput (Kbytes — not graphed) went from 24,540 in 1990 to

25,031 in 1991 to 87,867 in 1992 so far. Note that the 1992 peak is 3.51 times the 1990 peak, yet the 1991 peak is only 1.02 times the 1990 peak. The 1991 peak had no room to increase, since it represents 99% utilization. The theoretical throughput in one direction of a T1 line is 694,800 Kbytes, so the peak can now increase from 87,867 by almost a factor of eight (8) before the T1 line becomes saturated.

The graph titled "Average Daily Throughput of the SURAnet Link in Megabytes" gives more detail on the growth. The graph titled "Maximum Daily Throughput of the SURAnet Link in Megabytes" shows that the heaviest days of usage are dramatically greater than last year.

AT&T Grant to the Medical School

R&P acted as the ITD contact for AT&T and the Emory Medical School on matters of Dr. Boring's grant of equipment from AT&T. R&P held four meetings with people from ITD and I. B. Bates of Epidemiology and Biostatistics to discuss issues and coordinate the effort. R&P also called AT&T many times to discuss problems getting the equipment delivered to Emory, getting it installed, and getting it repaired.

The first delivery involved seven pallets of equipment that arrived on October 2. Missing were the coprocessor chips for the PCs, memory for the server, and network cards. It was February 1992, before I. B. finally received all the equipment. In the meantime, AT&T went out of the PC business, and NCR took over support.

The equipment involved a server, 22 PCs, StarLan Interfaces for the server and PCs, five laser printers, twelve (12) StarLan hubs, and four brouters, as well as operating system, networking, and e-mail software.

I. B. Bates reports that he has installed five PC's and one printer in the Rollins Research Building, but these do not yet connect to the server. He plans to test one PC this week from Rollins to the server. He has installed eleven (11) PC's and two printers in the AC S building. Six of those PC's connect to the server. Also one printer connects to the AT&T server and one printer connects to his VAX.

Five PC's run PathWorks and use the VAX as a server. One PC connects to the server on the 5th floor of the Dental School. One brouter resides in the ACS building for bridging purposes only; no routing is being done. Two hubs reside in the ACS building. There is also one hub is on the 5th floor of the Dental School.

TCP/IP, NFS, and StarLan software are running on the server. They use NFS to share disk files with one of the DEC 5000 machines. They use TCP/IP to access the VAX. The DOS software includes WordPerfect, SAS, Harvard Graphics, BMDP, EPINFO, and Lotus 1-2-3. Only one PC runs windows. The rest run DOS.

I. B. expects to install one PC in the hospital, two PC's at CDC, and one PC in Decatur within the next few weeks. With CDC approval he will test one PC to the server through an existing fiber link using AT&T fiber adapters.

He plans to install the remaining PC in the Carter Center. Where to place the remaining two printers is undecided at this time. One might be used in the computer lab at ACS.

He also has a DEC PC connected to the server with an AT&T Ethernet card.

I. B. reports no problems with the installed equipment. He is, however, working to resolve a problem with e-mail.

He thinks a problem Emory was having with NCR regarding the customer account document has been resolved. He says the NCR rep told him that she and her boss reached an agreement with Rex in Purchasing. He does not know the details. Public Health has agreed to pay for one year of software maintenance from NCR for certain items installed on the server.

I. B. notes that the Medical School has recently requested a DEC equipment grant. Dr. Boring has given approval to use any remaining equipment from the AT&T grant with the DEC equipment. If the DEC grant is successful, then I.B. might use some of the remaining hubs and brouters with it.

SACS Accreditation

R&P acted as the unit self-study director for Emory Computing and wrote the self-study

report with input and review by the other members of the Self-Study Committee and excellent cooperation by all who were called upon to contribute. While R&P was able to get a start on the report in the fall, R&P did most of the work in the month before the self-study report was due.

Leadership and Consulting

1. Facilitated an ACAC meeting and got the committee to articulate the need for distributed user support, and these desires for a UNIX database: people should be able to use the database from their desktop system to store and retrieve any kind of data, including sound and pictures (still and motion).
2. Attended the UNIX meetings twice a month to give advice and influence what happens in the area of UNIX at Emory Computing.
3. Attended weekly Technical Services planning meetings.
4. Acted as the Network Architecture police.
5. Advised Network Services on configuration of the Webster Multiprotocol Gateway that will provide dial-in access to the campus AppleTalk network.
6. Advised Network Services on technical issues related to installation of routers. Helped Network Services develop the plan for migrating to a routed network.
7. Helped Louis Leon with issues of TCP/IP and subnetting.
8. Reviewed Barbara Germon's proposals on a data element naming convention and a database design methodology, advised her on their presentation, and encouraged her and IS to work together as a team.
9. R&P wrote an article for Front & Back advising people how to keep JUNGLE from slowing them down.
10. Gave a talk to the IS Steering Committee on "Why UNIX."
11. Gave a talk on "Networking at Emory" to Selden Deemer and a Visitor from Hungary.
12. Also advised Larry about SURAnet; helped Bob O'Halloran with recovery of deleted Mac files; helped Rita Taylor with an AppleShare problem; advised Steve Pittard that we should us MacTCP; helped Selden Deemer with Internet access, Libtel, expect; helped Technical Services review RS6000 proposal; advised installing LPR on IBM mainframe; advised Susan Mistretta and Craig Myers on getting Novell NFS NLM; advised Larry on server proposal; advised Nursing, and Anatomy to try Pegasus Mail; helped Lawrence Randall with e-mail, make file, psroff problems; helped Richard Brooks with UNIX shell and expect; sent Selden Deemer and Jim Kruse gate and Dobis suggestions; gave Jane Parker (Law School) advice on buying a modem; advised Cecelia Peters about writing technical reports; advised Howard Rollins on networking in Psychology; worked with Craig to get a Novell naming standard; advised Bob LePorte about the Grady Link; advised Robert Jones about networking issues including network monitoring.

Presentations, conferences, demonstrations, vendor meetings

R&P attended at least 22 presentations, conferences or demonstrations: System 7 Harland Cinema 7/25; Writing Workshop 10/9, 10/23, 10/30, 11/6, 12/4; Educom 10/16-10/18; Harassment Sensitivity Training 10/31 (2); Bachman 11/1; Transformational Leadership 11/18-19; Rightsizing, Downsizing at Inforum 11/20; CISCO seminar 11/21; VAX/VMS User

Group 11/22; Symmetrical UNIX multiprocessing 12/2; Fractional dimensions of Partially Ordered Sets 12/11; MIPS & Windows NT 2/6; Random Number Generators 2/21; SURAnet User Services meeting 3/9, 3/10; Net'92 3/25, 3/26-27; Oracle Express 4/27; Oracle Seminar 4/28; EDA/SQL for Mac 5/11; Sybase 5/14; Synoptics futures 5/19; Object Oriented design 5/29; CWL Quality 100 6/10; TQM Seminar in Higher Education 6/17-19.

Meetings with vendors included SoftSwitch 7/13; CISCO 2/5 about implementing subnetworking; Sun 2/6 about network printing; Oracle 4/6; Joiner 5/5; Bachman 5/6; Teradata 5/27, 6/12.

General Planning

1. Attended four disk space planning meetings.
2. Participated in three TS/IS planning meetings to date, helping them with various issues including UNIX and long-range planning.
3. Participated in two Informatics planning meetings.
4. Occasionally attended the Emory Hospitals Office Automation Planning meetings.
5. Attended three meetings of the Information Technology Council of the University Center of Georgia.
6. Attended two meetings of ERDA, the Education and Research Development Association.
7. Worked with TS to develop a plan to remove anonymous dial-in access to the Internet.

Other Activities

R&P investigated PathWorks for Mac; Mac gawk; expect; MacX; INITS under System 7; and UREP print filters.

HIGHLIGHTS

1. Success in getting the SURAnet link upgraded to T1.
2. Success in establishing a backup link to SURAnet through CDC.
3. Success in getting LPR installed on VM, getting a Novell LPR gateway running, and in creating a working LPR gateway on Emoryu1.
4. Success in creating a self-study that was well received.
5. Success in revitalizing TPARC and creating a draft consolidated plan.
6. Success in harnessing the desire and drive of people to do something about making it easier to discover and access network resources. The people wanted someone to lead them, and it was a pleasure to take that role.
7. The initiation of TQM, which promises to address many problems with the way ITD does business.
8. Success in getting a list of recommendations from the NPWG and in influencing decisions made by ITD Network Services.
9. The MPC approved the EUDA recommendation to get FOCUS and Emory Computing purchased it.

LOW-LIGHTS

1. Lack of a published network plan.
2. The fact that the network is not yet converted to AppleTalk phase 2.
3. Lack of progress in getting the E-Mail plan implemented.
4. Lack of progress in identifying an E-Mail product to recommend.

5. Problems with FOCUS: Lack of ability of the vendor (IBI) to promptly resolve problems with the FOCUS gateway; IBI's tardiness in delivering FOCUS for the Macintosh; and the bad reputation that FOCUS got as a result of EUDA's experiment to see if FOCUS could be used for application development (it is not suitable for any but simple entry/update screens and reporting).

CONCERNS

1. We do not know who is using the network, how they are using it, and how much they are using it. There is freeware that we could run on the Operator's Sun workstation to collect this.
2. As we get excited by the progress we are making, we might try to take on too much and try to go to fast with planning and TQM, causing us to do a lower quality job than we should.
3. I may be spending too much time in meetings. Yet meetings are necessary to get certain things done. The effectiveness of the meetings depends on who facilitates them. On average, I think the effectiveness of meetings here has improved during the last year. I am able to identify 272 meetings representing 635 hours that I attended in 1991-1992. Assuming 40 hrs/wk times 50 wk/yr = 2000 hrs/yr, I spent 31.75% of the workday in meetings. The average is one meeting per day with an average of 2 hr and 20 minutes per meeting. It seems worse than that, but there are days when I have no meetings and other days when I have meetings most of the day.

GOALS

The long term goals of Research and Planning are to lead selected planning and research efforts related to campus-wide issues as required, act as a technical consultant to other areas, publish reports describing its efforts, and provide leadership.

The following are more immediate goals and how R&P will assess progress.

1991-1992

1. Publish a Network Plan. Assess by milestones met and unmet, and issues resolved and unresolved.
2. Lead the Technical Planning and Review Committee in promulgation of plans and reviews of technical issues. In particular, review the RFP for a new library system, the plan for data element descriptors, and the design of the security database. Assess by availability of plans, existence of reviews, and milestones met and unmet toward creation of a way to promulgate plans.
3. Get the Internet link upgraded to T1. Assess by milestones met and unmet, and whether it is in production running at T1.
4. Get more reliable connectivity to the Internet. Assess by milestones met and unmet, number of situations that could cause connectivity failure, the number of single points of failure, and existence of a written plan on what to do in case of failure.
5. Implement an EIS showing the state of the network. Assess by milestones met and unmet, and whether it is in production.
6. Get us switched completely to AppleTalk phase 2. Assess by number of nodes switched and remaining to switch.

1992-1993

1. Finish the Network Plan. Assess by milestones met and unmet, and issues resolved and unresolved.
2. Lead the Technical Planning and Review Committee in promulgation of plans and

reviews of technical issues and creation of a first release of the consolidated technical plan. Assess by availability of plans, existence of reviews, existence and currency of the consolidated technical plan, and milestones met and unmet toward creation of a way to promulgate plans.

3. Get us switched completely to AppleTalk phase 2. Assess by number of nodes switched and remaining to switch.
4. Lead the IUWG to success in delivering a set of tools, and instruction and documentation to faculty on how to use those tools to access network resources by September 1992. Assess by milestones met and unmet, and issues resolved and unresolved.
5. Lead the EUDA group to success in recommending a UNIX database and software and tools for an Application Development Environment. Assess by milestones met and unmet, issues resolved and unresolved, and whether the group made a recommendation.
6. Lead a reconstituted Electronic Mail Working Group to recommend e-mail products for each environment and an e-mail environment and product to deliver default e-mail services. Assess by milestones met and unmet, issues resolved and unresolved, and whether the group made a recommendation.
7. Assist the TS/IS Planning Group in creating plans to help them meet the needs of Administrative Computing. Assess by milestones met and unmet, issues resolved and unresolved, and whether the group wrote any plans.
8. Get a system in place that collects statistics on how the network and SURAnet connection are being used and by whom. Assess by milestones met and unmet, issues resolved and unresolved, and whether the system is in place and working correctly.
9. Help ITD implement its Total Quality program. Assess by milestones met and unmet, and issues resolved and unresolved.

PROGRESS

Interestingly, the concerns that I expressed in last year's report are receiving attention. Glen Matthews is now doing some network monitoring. The speed and stability of the new SURAnet T1 link and backup link through CDC provide better support for the use of the Internet by a class. As a result of the problems with the link, both Math/CS and Emory Computing have a better understanding of the support needs for a class. Also Emory Computing now better monitors the network connections involved (but they could be better). Finally, the IUWG and EUDA are attempting to address the need to make access to information resources easy.

Details of the progress of various groups are in the section on that group. Also, many items in progress last year succeeded. See Highlights. The following correspond to the items in Goals 1991-1992.

1. A Network plan is still not published. The NPWG has made progress in creating and reviewing a set of recommendations. These issues have been resolved: transparency, media and jack standards, network dial-in, network login, use of routers, security, need for financial plan for upgrades, conversion to FDDI, wiring in buildings. Next to be debated is protocol support.
2. TPARC created a first draft of a consolidated technical plan. It did a preliminary review of the draft RFP for the Library system, and the design for the

security database. It did not review the plan for data element descriptors, which was withdrawn. TPARC has designed a database to use to search the Emory Computing plans, but it has not been created.

3. Emory's Internet connection is now running at T1 speed.
4. We now have a backup Internet connection through CDC. Connectivity failure can still be caused by failure at multiple points. We do not know if there is a single point of failure. If both Emory and CDC connect to the same router at the MCI POP, then that router is the most obvious one. MCI provides alternative routes and 24 hour coverage. We are not aware of a written plan of what to do in case of failure.
5. R&P has not attempted implementation of an EIS due to lack of time, software and a micro on which to run it.
6. The switch to AppleTalk Phase 2 has met these milestones: The server in Departmental Computing is now phase 2, and few if any Ethernet-connected Macs show up in the Ethernet phase 1 zone. There are only two known remaining Phase 1 servers. Psychology is still running the old Novell server (Phase 1) and a new server (Phase 2). As soon as the old server goes away, they will be totally Phase 2. Brendan says he is coordinating the VMS upgrade to Phase 2 with Keith Foster. Once Keith gives him the OK, he will begin the upgrade. Then we can turn off Phase 1 support in the FastPaths and GatorBoxes.

STRENGTHS

1. Analytical, organizational, and writing ability
2. Willingness to fearlessly tackle novel technical problems and situations
3. Ability to work without much supervision; self-motivated
4. Strong background in most areas of computing
5. Ability to deal with very abstract concepts
6. Unburdened by necessity to manage a staff
7. Ability to work well with others at a technical level
8. Ability to explain technical concepts clearly

WEAKNESSES

1. Desire to work in areas where progress can be made incrementally and mistakes can be easily corrected
2. Lack of staff
3. Lack of direct experience with more than one GUI, and with the elements of a distributed computing environment, such as X-windows.