

# Research and Planning Annual Report 1989-1990

Peter Day, July 1, 1990  
Revised July 9, 1990

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### INTRODUCTION

At the beginning of the school year, Special Projects and Planning (SP&P) was renamed Research and Planning (R&P) and instead of reporting to the Director of Technical Services, began reporting to the Vice Provost for Information Technology. The new charge was to work on long-range plans, to continue being a resource person to ITD staff, and to provide more leadership. Areas where planning was needed included communications, network, workstations, CLOUD, and electronic mail (e-mail). However, projects were underway which needed to be completed and responsibilities needed to be transferred to other groups. The details are given in the following Events of the Year.

### EVENTS OF THE YEAR

#### 6670 Conversion

How to get rid of the IBM 6670 laser printer has been an issue for years, because no one would give it the high priority required to make the considerable effort to find replacement software or convert existing software used to print on it from VM, MVS, UNIX and VMS. Eventually, most 6670 printing moved either to remotely located laser printers such as HP LaserJets and LaserWriters, or to the Data Center's high-speed Xerox laser printers (used mostly by ITD and administrative users). Yet the 6670 remained the only device that PROFS users, students and many faculty could use for laser printing from VM, UNIX and VMS. With the installation of the Xerox printers, Ron Wood asked that the 6670 usage be migrated to them. Initially we obtained TeX for all the systems plus a program called DVIXER to

convert TeX output for the Xerox, and we tried to get people to use TeX on all the systems. When most people ignored TeX, we addressed VM usage by purchasing a product called DCF/PLUS which would allow the VM text formatter to print on the Xerox. Technical problems and turnover of the User Services people assigned to get it running caused its successful implementation to be delayed for more than a year.

When IBM indicated that it intended to drop support of the 6670, the conversion effort was made a project of Special Projects and Planning (SP&P). At that time SP&P was temporarily in charge of User Services and was able to make DCF/PLUS a high priority. Once DCF/PLUS was working, we wrote a command file to allow PROFS to print on the Xerox. Finally we wrote a replacement for the VM FORMAT67 command, and the conversion for VM was complete.

Progress on VMS and UNIX bogged down until we were able to get Ron's agreement to use a PostScript printer for their output rather than the Xerox. While we worked on VM FORMAT67, we hired a part-time programmer to use Eunice to get TranScript, a troff to PostScript translator already running on UNIX, to run under VMS. About the time we got the VM FORMAT67 running, the contractor had the component programs of TranScript working on VMS, but he took another job out of town before getting TranScript fully operational. In the meantime we converted the UNIX format67 to use TranScript, calling it formatps, and got Operating System Support to install the software to enable UNIX to print on LaserWriters attached to the campus AppleTalk network. In the October, 1989 *Public Pages* we announced replacement of VM FORMAT67 effective October 15 and the availability of the UNIX formatps for

testing. By February 15, 1990, formatps was working on VMS, and the only difference in the code for UNIX and VMS was the code that issued the print command. Finally we announced in the March *InfoTalk* the removal of format67 on UNIX effective March 12 and on VMS effective March 31.

### Macintosh Kermit ALA Support

When Special Projects and Planning (SP&P) began making enhancements to Macintosh Kermit (“MacKermit”) a few years ago, Ron Wood expressed a desire that MacKermit be enhanced to support the ALA character set. The request seemed reasonable in spite of the existence of a Macintosh terminal emulation program from Yale called TinCan, since we supported Kermit but not TinCan. Selden Deemer declines to recommend support of TinCan due to its quirky autolog feature and proprietary file transfer program.

We were fortunate to obtain the services of a professional programmer who would accept pay at the graduate student rate for a chance to get experience with a communications program. We chose to have him work on ALA support after implementing printing support.

The programmer had the final version ready in April. Adding ALA support turned out to require a hack job, because the architecture of MacKermit has VT100 dependencies, and assumes that no character over-strikes another. In May, we sent a copy of the source to the official MacKermit developer for inclusion in the official version, and at his request, included a copy of the 3163 documentation so he could add full 3163 support. On July 2 we sent him the results of Selden Deemer’s tests, which found no fatal flaws but enough small problems—some with Kermit, some with ALA—to prevent general release.

### Transfer of Responsibilities

Moving user folders from the uppergate1 AppleShare server to the JUNGLE AppleShare server, and the transfer of management of these servers to Operating System Support (OSS) was complete by March. BITNET (now CREN) node registration responsibilities were also transferred to OSS. Responsibility for following the latest news about viruses by reading the VIRUS-L bulletin board was transferred to Al Shelton in Microsupport; responsibility for following the Novell NetWare bulletin board was given to Craig Myers, and Louis Leon has taken responsibility for reading IBMTCP-L. SURAnet technical liaison responsibilities were turned over to Glen Matthews in Network Services (NWS).

### Planning

The formal planning effort began January 29 with review by the Academic Computing Advisory Committee (ACAC) of a proposed planning methodology. They suggested that we get input from a wide range of people selected for their ability to provide useful input, and that we provide leadership but with consultation. The final document stated the need for the plan, the objectives and scope, the effort which would be applied, and action steps which would be followed. The effort envisioned a survey of what other colleges and universities are doing, and the establishment of working and review groups. The working group would consist of people who would actively help create the plan and provide a balance of knowledge and viewpoint. The review group would provide a way for others interested in the plan to participate without increasing the size of the working group. By February 23, we had obtained plans from other colleges and universities, recruited the members of the Working and Review

Groups, and sent the groups copies of the methodology and the sample plans.

E-mail and network planning were given high priority for the year because both networking and e-mail had been in use long enough at Emory to be fairly well understood and to have longstanding expressions of need for a plan, and certain aspects of e-mail and networking were mature enough that clear trends could be discerned. Furthermore, use of networking and e-mail on campus was exploding, making planning in these areas more urgent. E-mail planning was most urgent due to heavy pressure from Emory departments to recommend and support one or more e-mail systems that could run on a local area network (LAN) and provide a way for these e-mail systems to exchange mail with each other, with existing ITD host-based e-mail systems, and with systems on external networks to which Emory is connected. Networking was next most urgent, because Emory Computing users and ITD staff had an immediate need for a description of the networking facilities and services of Emory Computing, the equipment that it recommends and supports, and the direction in which its networking is headed.

### E-Mail Planning

E-Mail planning, which had been in progress as a background activity for some time, formally began in March. The initial focus was selection of one or more LAN-based e-mail systems. We created a list of Evaluation Criteria to help decide which features and functions were really important, and sent a mailing of background product information to the Working and Review groups. However, the ACAC, when presented on March 21 with an action plan showing the objective, inhibitors, and action items, felt that we should establish a campus-wide mailing service instead of merely choosing one or more LAN-based e-

mail packages. A meeting on March 30 with the Vice Provost postulated establishment of a "flagship" service in the sense that it leads the way for e-mail on campus. The LAN e-mail packages we support would fall out of that.

The envisioned campus mailing service would have a friendly user interface; make it easy to exchange e-mail with recipients whether their mail system is on or off-campus; be accessible when you are away from your office (at home, on the road, at a computing lab, at someone else's office, etc.); provide ITD maintained storage for mailboxes where individuals receive electronic mail; provide store-and-forward routing of messages; have a friendly interface that runs on Macintosh, DOS PC, X-windows client or host with asynchronous access; have ITD maintained gateways to Internet, BITNET, UNIX, uucp, PROFS, VMSMail, and X.400; have a directory service; provide the ability to access local or network-accessible files from the mail program; provide the ability to mail binary or text files either directly or as attachments; be accessible via LAN connection from micros on LANs we support; and have an architecture in which mailboxes can be on a departmental LAN but still be accessible when you are away from your office.

From April 4 to date, the Working Group has held six (6) biweekly Working Group meetings. During that time the Working Group has examined the Andrew Message System, Oracle\*Mail, HP OpenMail, AT&T StarMail, and WordPerfect Office. The result of a survey of 20 colleges and universities, and 3 research institutions was that only CMU is using or plans to use the Andrew Message System. Others are using timesharing and plan to use POP or IMAP, or are using POP and plan to go to X.400. The group also investigated X.400 gateways

from Touch Communications Inc. and the vendors listed above.

R&P examined the archives of a campus-wide e-mail discussion list and found a good survey of directory service plans for 15 schools. It also investigated multimedia e-mail alternatives to Andrew by sending a query to Usenet discussion groups. It obtained information about the recent NSF project EXPRES at the University of Michigan and CMU that researched and prototyped multimedia e-mail functionality and interoperability, read the report on EXPRES ODA (Office Document Architecture), and obtained information on the PS-EXPRES software which supports submission of grant proposals in PostScript format. It also got literature on another multimedia e-mail program named BBN/Slate.

R&P investigated the possibility that a non-commercial e-mail system could be used, and examined three (3) full-screen e-mail programs for UNIX, some of which had PC and or Mac clients. However, none of them was deemed suitable.

The desirability to be able to display and print a received wordprocessor (WP) quality message and see it the way the sender intended it to look caused R&P to investigate four (4) commercial LAN-based e-mail programs to see what types of messages they handle and how they handle attached or enclosed files. All these e-mail programs only allow plain text messages, and will strip out non-text when you paste into the message.

When the HP OpenMail documentation did not support the claims of HP that the product would do everything we wanted, a demo was arranged to resolve the discrepancy. The demo was disappointing, because AdvanceMail (the client to OpenMail) appeared to lack ease of use.

R&P corresponded with Oracle via e-mail to get answers to additional questions about their product, and arranged a demo of the existing host-based system, since they promise to deliver what we want by January 1991. The demo was disappointing due to the speaker's inability to answer our technical questions. We cannot proceed much further with them without a better feel for exactly what they will deliver in January 1991.

At this point the Working Group is considering stop-gap measures and alternative scenarios, and R&P is preparing a report which explains what has been done and gives future direction.

#### Network Planning

Although network planning took a back seat to e-mail planning, we made progress on a number of fronts. We created a partial draft of the document which states what we currently support and our current direction, and in particular includes a description of the backbone architecture.

We created a draft Emory Campus Network Entity Identification Standard which states the policy that ITD controls the name of any network entity (such as node numbers, network numbers, and AppleTalk zones) whose identification must be unique within Emory. The document also states our standards for those names and how they are assigned and obtained.

We have investigated network security devices by obtaining information on the only two known devices so far, the Xerox Encryption Unit (XEU), and the Digital Ethernet Enhanced Security System which includes the Digital Equipment Secure Ethernet Controller (DESNC) and the Key Distribution and Control (KDC) software. The problem with these devices is their high cost and low speed.

## Leadership

Since we had no previous formal training in leadership, we took the InfoWindows situational leadership videodisk training course. Then we tried to provide leadership by influencing others to do the right thing. We accepted the role of Chair of the Technical Services Planning Task Force and used it to lobby Network Services and Operating System Support to do better monitoring of the usage of the systems and networks, with the result that both have begun projects to do so. We have also used the Task Force to explain the importance of AppleTalk phase 2 and push to begin planning for its implementation. We acted as network architecture police and intervened to prevent Network Services from violating the draft backbone network architecture. We instigated and led the creation of the recommendation to phase out Token Ring in favor of Ethernet. We attended the Technical Services and the Information Systems planning retreats, and took leadership of the IS Task Force on End User Data Access. We led Departmental Computing in its investigation of the Nursing School problem.

## IBM Information Network and BRS/Colleague

We investigated a recommendation that Emory Computing become a member of the IBM Information Network (IIN) to provide access to Faxon and BRS/Colleague. Although our recommendation was that this was a good idea in principle since it greatly expanded available information and services, our investigation showed that it was not a good idea in practice, because the cost was too high for the provided service, and the cost associated with usage charges was uncontrollable. Our demonstration of access to BRS/Colleague via the IIN pointed out serendipitously the fundamental

difference between fullscreen access using SNA and linemode access using Telenet.

## Seminars

At the request of a committee addressing morale issues we started a series of technical seminars for the ITD staff. The initial emphasis was standards, particularly networking standards. A total of six (6) seminars have been presented to date, with one more scheduled for July. After the first one, we started having them videotaped so that the material would be available to existing staff who could not come to the talk and to later hires.

## Other Activities

We participated in the IBM Performance and Capacity workshop to analyze the performance of the IBM 3090, discover its bottlenecks, and project the effect of usage increases. We investigated FDDI by reading industry periodicals and attending vendor presentations. We helped investigate Etherstorms, which were found to be caused by misconfigured network devices. We helped NWS select a network monitoring device (the Sniffer™). We researched various issues related to use of the JUNGLE AlisaShare server. We wrote and provided much of the content for the memo to Eric Fliegel commenting on the networking proposal from Digital Equipment Corp. We acted as SURAnet administrative liaison. We found out how to get vanilla PROFS to send mail to a domain address. We helped investigate the Executive Park network problems. We attended some of the meetings about the donor screens, and gave them CUA and other advice. We acted as technical reviewer for *InfoTalk*.

We were a member of five (5) committees, and we attended at least twenty (20) meetings, conferences, presentations, or seminars on various topics important to our research and planning.

For *InfoTalk* we wrote five (5) articles: “New format67 commands,” October 1989; “Internet resource guide available,” and “Computer virus protection,” Nov / Dec 1989; “Command format67 replaced,” and “Network / E-mail plans underway,” March 1990.

### **HIGH-LIGHTS**

- Successful completion of the 6670 conversion and ALA MacKermit projects.
- Rapid convergence to a vision for a campus mailing system.
- Successful transfer of operational responsibilities to others to free time for planning.

### **LOW-LIGHTS**

- Lack of progress on CLOUD. Initially suspended, it has returned as a part of the End User Data Access Task Force which R&P is chairing for Information Systems.
- Failure to identify a product which satisfies the vision for a campus mailing system.
- Failure to review in adequate detail the manner in which Departmental Computing followed our recommended procedure to resolve the Nursing School problem. At one point the procedure called for them to compare the working and non-working systems. The cause of the problem was eventually found to be a configuration issue which could have been detected by comparing the control panel settings of the working and non-working Macs.
- The wide variation in quality of the seminar presenters, and the failure of the videotape sound system for the first thirty minutes of one of the better seminars.
- Disappointing presentations and demonstrations of HP OpenMail and Oracle\*Mail.

- The MacKermit ALA Selden Deemer incident. We gave Selden Deemer a copy of MacKermit ALA to test, not realizing that the MacKermit on which it was based did not support even-parity whereas Selden's line was locked at even parity. Even-parity had not been part of the test because the programmer used the normal dialins—which require no-parity—to access the library for testing. Similarly, the R&P async connection is also no-parity. We apologized to Selden and explained what happened. We later provided him with the final version which fixed the even-parity problem, and he was able to successfully test it.

### **CONCERNS**

We are concerned that running a planning effort such as for the E-mail planning, with frequent meetings (biweekly), lots of research and mailings, and detailed minutes, requires so much effort that one person can really concentrate on only one such undertaking. Yet the research must be done to ensure that all appropriate alternatives are considered, and the detailed minutes are required to adequately inform both the working group members who miss the meetings, and the review group. In addition, the minutes provide an important history of why and how certain decisions were made. The tradeoff seems to be between quality and quantity unless additional workers are added. This is something we need to discuss in the future.