

# Information Technology Newsletter

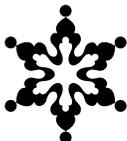
January 1997 from the **Office of Information Technology**  
This newsletter is an information resource for the University of Minnesota.

Volume 1  
Number 10

## Acceptable Use Policy, No. 2.8.1

*Yvonne Carlton, Central Computing Operations, Data Security*

### What's new



A common question at the beginning of the year. The University has a new policy it is implementing soon.

For the first time, the University of Minnesota will have a policy relating to acceptable use of computers, networks and electronic facilities.

### What's that?



All authorized users of University supplied technology facilities are responsible for knowing about this policy and following it. The policy was developed over the past year with input from faculty, staff, and students and across coordinate campuses.

### What's the short and long of it?

The short of it is: you have a responsibility to abide by all University policies and procedures and all current state, federal and international laws when you use computing resources supplied by the University.

The new policy outlines your rights and responsibilities relating to computer use.

The "long of it" will be available via the University Policy Development Office's web page <<http://www.fpd.finop.umn.edu>>.

### Aren't there already policies relating to this?

Yes there are. The project team decided not to restate what was in other policies that specifically related to special areas. This policy focuses on computer and network usage and doesn't restate what is contained in other policies.

### This is serious stuff. What if I have questions?

Contact your system administrator if you have questions about this policy.

A detailed table of contents of all sections of the Academic/Administrative policy and procedures manual is available at <<http://www.fpd.finop.umn.edu/2/AAContents.html>>. ■

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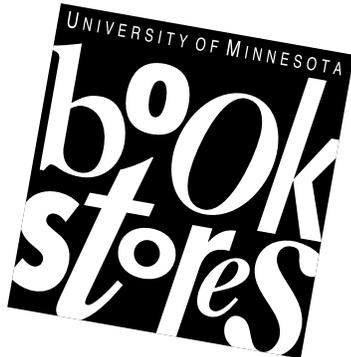
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*Some funds are provided by the University of the Minnesota Bookstores.*

*For more information about the computer products sold at the Computer Store visit their web page*

*<<http://www.computerstore.umn.edu>>.*

*You can access the Bookstore's Books in Print site at <<http://bip.bookstore.umn.edu>>.*



Associate Vice President for Academic Affairs and  
Acting Director of Information Technology  
Donald R. Riley, Professor ..... 626-9816

## ▼ Help

## Monday–Friday

CCO (BASIS/AIS/CCS), 7 am–4:30 pm .....	624-0555
central systems: IBM, EPX, NVE, UZ, VX, VZ	
web: <a href="http://www.umn.edu/ccs">http://www.umn.edu/ccs</a>	
Internet/E-mail, 9 am–5 pm .....	6-7676
by e-mail for U of M: <a href="mailto:help@tc.umn.edu">help@tc.umn.edu</a>	
Microcomputers, Distributed Systems	
9 am–4 pm, 152 Shepherd Labs .....	6-4276
1-4 pm, 93 Blegen and 50 Coffey Hall	
web: <a href="http://www.umn.edu/adcs/">http://www.umn.edu/adcs/</a>	
NTS: 24-hour Repair Desk .....	5-0006
web: <a href="http://www.nts.umn.edu">http://www.nts.umn.edu</a>	
Training Library, ADCS Short Courses .....	5-1300
web: <a href="http://training.micro.umn.edu/">http://training.micro.umn.edu/</a>	
Password: Forgot it? Call the Micro helpline .....	6-4276
Students go, in person, to any Micro helpline.	

## ▼ General

## Phone

Academic & Distributed Computing Serv. ....	5-1300
Computer Store, Williamson Hall .....	5-3854
CUFS .....	4-1617
Digital Media Center .....	5-5055
Disability & Computing Services voice/tty .....	6-0365
Engineering Services .....	7-4525
Data Custodians • Data Warehouse Databases	
IDEA web page <a href="http://notes.ais.umn.edu">http://notes.ais.umn.edu</a>	
Facilities Mgmt, Kris Boike • SPAM .....	6-7896
Financial Sys Support, CUFS Help • CUFSRDB ..	4-1617
Grad School, Genny Rosing • GSRDB .....	5-9839
Human Res Info Ser, Gary Ogren • APSO .....	7-4341
Inventory Ser, Luke Madsen • INVENRDB .....	6-8217
Ofc of the Bursar, Sandy Pearson • STARS .....	6-8698
Ofc of Human Res, Nancy Highsmith • SDRDB ..	4-8374
Ofc of Planning & Analysis, John Kellogg .....	5-3387
• AARDB/MARDB • CLRDB • FARDB • RETDB • RRDB	
Ofc Scholarships&FinAid, PhilMorgan • SCHOL ..	4-6586
Payroll, Ann Beattie • HERDB .....	4-3869
NTS (Networking & Telecom Services) Helpline ..	6-7800
Statistical Support, SAS .....	4-3330
SPSS, BMDP, Minitab (VX/EPX) .....	6-8366

## ▼ Dial-in Computer Access

Internet/SLIP: up to 28,800 bps (V.34) .....	627-4250
Internet/SLIP: ADI and ITE (with MKO) .....	3-0291
SecurID Access High Speed (V.32) 19200-N81 ....	6-1061
2400-N81 (no parity/8 data bits/1 stop bit) ...	6-7770

## ▼ Internet Addresses

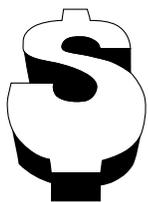
## Quick Guide

LUMINA (Library) – web: <a href="http://www.lib.umn.edu">http://www.lib.umn.edu</a>	
Telnet/TN3270: <a href="http://admin.ais.umn.edu">admin.ais.umn.edu</a>	
News Server: <a href="http://news.tc.umn.edu">news.tc.umn.edu</a>	
Internet/E-mail account management	
web: <a href="http://www.umn.edu/validate/">http://www.umn.edu/validate/</a>	
Gopher (public can log in as gopher):	
<a href="http://consultant.micro.umn.edu">consultant.micro.umn.edu</a>	
OIT web: <a href="http://www.umn.edu/oit">http://www.umn.edu/oit</a>	
UofM Twin Cities web: <a href="http://www.tc.umn.edu">http://www.tc.umn.edu</a>	
Information Technology Newsletter	
web: <a href="http://www.umn.edu/oit/newsletter">http://www.umn.edu/oit/newsletter</a>	
University of Minnesota Bookstores	
web: <a href="http://www.bookstore.umn.edu">http://www.bookstore.umn.edu</a>	

Last updated January 1997

# More Internet Access Changes

## Client/Server versus Interactive Mail Shell Free Basic Services and Expanded (Interactive) Services for a Fee



Internet access is becoming an increasingly important component of campus life. People not only use it to exchange e-mail but also as an on-line reference, such as looking up zip codes <<http://www.usps.gov/ncsc/>> or visiting the Academy of Achievement <<http://www.achievement.org/>>.

Now that it seems everybody's using it, we need more options for managing this growth. In our October 1996 issue we announced one change for those who use their modems over 30 hours a month (they must pay an additional fee). Networking and Telecommunications Services has since expanded on that announcement; details are on this Fee and FAQ web page <<http://www.nts.umn.edu/services/modembilling.html>>.

This article announces an additional fee (Table 1) for people who use the Interactive Mail Shell (Figure 1). This fee also gives people space on our central system so they can set up a personal web page.

### Client/Server versus Interactive

We're dividing all accounts into two groups:

- a. Basic (no charge) services: client/server
- b. Expanded (fee) services: Interactive Mail Shell access

These divisions apply to everyone regardless of how they reach the Internet, for example with a modem or through an Ethernet connection.

People who use client/server software, such as POP-mail, Netscape, Internet Explorer, gopher, and Minuet, use basic services. People who use the Interactive Mail Shell require expanded services and must pay a fee. This means people who want to continue to use Telnet (interactive software) so they read their e-mail with Pine must pay the fees shown in Table 1.

The payment methods differ for faculty, staff, students, and alumni. We are also working on setting up fees for friends of the University, such as visiting scholars, enabling departments to sponsor an account.

Generally Internet accounts created since August 1995 have been initially set up as client/server accounts, but people have been able to change their account type without paying an additional fee. People have also been able to set up personal web page accounts without paying a fee. We will begin charging for both of these services.

To learn more about client/server versus interactive access read the *Client/Server versus Interactive* sidebar.

**Table 1: Expanded Service Fees**  
**Interactive Mail Shell and Personal Web Space**

	Per Quarter	Per Semester	Per Year 0-12 Months
<b>▼ Category A</b>			
Registered Students	\$10	\$15	NA
Faculty and Staff	NA	NA	\$40
<b>▼ Category B</b>			
<i>Interactive Charges are in Addition to Other Charges</i>			
Unregistered Students	\$10	\$15	NA
Alumni	NA	NA	\$40
Other Categories	NA	NA	undetermined

### When Will It Happen? What Do I Get for My Fee?

Changes will begin to take place in January 1997. The first group to see these changes will be those whose accounts are created on January 1st. Those who elect to pay the fee for an Interactive account will get

1. 20MB of mass storage (disk space on a central system) and
2. 20MB of *personal* web space with CGI (Common Gateway Interface) and other services

We will accommodate power users and people who have large web sites by letting them purchase additional mass storage and web space (we're still working out the details of this enhancement).

Note: departments that rent space in our Web Hotel already receive an Interactive account so they can update the information stored on that web server. The change we're announcing here will not effect Web Hotel charges.

## Unregistered Students Must Pay

We're also enforcing a cutoff for students who have not registered for classes. Students can continue to keep their Internet account active if they pay a fee; this option lasts for one year since they last registered for class(es). The fee is \$20 per quarter or \$30 per semester. These fees include the same basic (client/server) access that registered students receive. Interactive access is an additional cost (Table 1).

Those with student accounts who aren't registered for classes or don't complete their term will receive a cutoff notice and information about how to extend their accounts. People who don't respond to the message will have their account inactivated. When

accounts are inactivated all stored mail is deleted and any mail sent to that account gets bounced, i.e. returned to the sender.

Unregistered students who want e-mail forwarded to non-University accounts must pay the quarter or semester fee.

All notification about Internet access changes will be by e-mail.

## January–July 1997

We're still working on billing and other details. But by July 1997 all students, faculty, and staff will have to pay to maintain an interactive (expanded) account. The timing for the interactive account change will be different for those who pay an annual fee for their account, such as Alumni.

■ Mary Kelleher, Frank Grewe, Academic and Distributed Computing Services

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# ▼ Tips and Trends: 1996 Notables ▼

## ✓ The Nobel Foundation

Information about the 1996 Nobel Laureates is available from the Nobel Foundation's web site <<http://www.nobel.se/>>. The *Nobel Prize* section of their site includes information about previous year's Laureates and prizes.

Each December since 1901 the Nobel Prizes have been presented to the Laureates on the anniversary of the death of Alfred Nobel, who died in 1896. In connection with the centennial of his death, the Nobel Foundation plans to create an electronic museum that will include information aimed at young scholars. Information will mainly be in English but include translations into other languages.

## ✓ IG Nobel Prizes

The IG Nobel Prizes: amuse or abuse? Decide for yourself by visiting the prize's 1996 home page

<[http://www.eecs.harvard.edu/ig\\_nobel/](http://www.eecs.harvard.edu/ig_nobel/)> or the home of mini-AIR, the abbreviated, online version of *The Annuals of Improbable Research* <<http://www.improb.com/>>. The 1996 winners include George Goble, who has lighted a charcoal burner faster than anyone else, and the President of France, for commemorating Hiroshima's 50th anniversary with atomic bomb tests.

## ✓ Science News

This online service is an offshoot of the weekly news magazine, *Science News*. They've grouped their most important stories and put them online <[http://www.sciencenews.org/sn\\_arch/12\\_28\\_96/newsyear.htm](http://www.sciencenews.org/sn_arch/12_28_96/newsyear.htm)>. The subject headings include Environment and Computers & Math, and lead to stories such as "Children exposed

to polychlorinated biphenyls in utero exhibit IQ decrements through at least fifth grade."

## ✓ Internet World

*Internet World*, January 1997: *The Best and the Worst of the Net 1996* includes commentaries on the state of the net and addresses of interesting sites. You'll find the current hardcopy issue (and lots of other magazines) in the Microcomputer HelpLine in 152 Shepherd Labs. You'll also soon find the contents of the January issue on the Internet World web site <<http://www.iw.com/>>.

## Visit Project Gutenberg's Site

Project Gutenberg is listed as the best source to download free electronic texts. The Gutenberg web site <<http://promo.net/pg>> includes a lot of accessible information about the project and about new releases. ■ M. Kelleher

# Client/Server versus Interactive



People can access their University Internet accounts in two ways: by using client/server software or by using the Interactive Mail Shell (Figure 1). The interactive shell gives people access to the Pine mailer software and is an affordable option for people whose older computer setups are incapable of running client/server software and for people who need access to the UNIX shell.

## Client/Server

Client/Server programs are modular. Typically the client and server functions run on separate machines in a computer network. The machine that acts as a server dispenses information or services. The machine running the client software queries the server for the information it needs. POPmail, Minuet, Netscape, and Internet Explorer are examples of client/server software. People who have installed the client modules of these programs can do things such as fetch mail (POPmail, Minuet) waiting for them in a virtual post office box and query a web page (Netscape, Internet Explorer) to read documents, for example this FAQ about client/servers <<http://www.abs.net/~lloyd/csfaq.txt>>.

## Interactive

Interactive sounds like it could be modular, too. In this case interactive means exchanges between mainframe computers and terminals or computers running terminal emulation software, such as ProComm or TinCan. Today few people use terminals, most use microcomputers. Typically people use Telnet to log onto the Interactive Mail Shell (Figure 1).

In terminal sessions the mainframes do all the work, including processing each keystroke for everyone using the system. This leaves the microcomputer very little to do. Because buying enough central computing capacity to handle interactive transactions for a population the size of the University would be very costly, in the fall of 1995 all new Internet accounts were automatically assigned client/server status.

## What about LUMINA & Student Access?

Those who use client/server software to handle their e-mail can still use the Telnet and tn3270 software that's included in their Internet kits to access other mainframes, for example LUMINA and the Student Access system <[admin.ais.umn.edu](mailto:admin.ais.umn.edu)>.

■ Mary Kelleher, Frank Grewe, Academic and Distributed Computing Services

**Figure 1: The Interactive Mail Shell**

```
*****
*                               Central Computing Services Interactive Mail Shell                               *
*                               Please send comments to <help@tc.umn.edu>                                       *
*****

Account Owner: William Gates (gates099)

1. Electronic Mail (No mail)                                           [Mailer: pine]
2. U of MN Phone Book (X.500 Directory)
3. Gopher
4. World-Wide Web                                                     [Browser: lynx]
5. USENET News                                                         [Newsreader: tin]
6. Public Access (LUMINA)
7. Validation Utilities and Services (passwords, mail forwarding, etc.)
8. Special Utilities

Press '?' for help, 'q' to Quit:
```

## Internet Server and User Names

People use a wide variety of software to handle e-mail, browse the web, and engage in other on-line activities. Different activities and software ask for or require specific server, host, or Internet account IDs. Here's a review of common "labels" and University of Minnesota identifiers.

Where you see <username> in the samples below, you should substitute your own username, for example gates099. Usernames are unique identifiers and are included in e-mail addresses. Increasingly you will see e-mail addresses that identify a function instead of a specific person. For review, the most common form of University e-mail address is

username@tc.umn.edu

Notice that the @ symbol separates the username from the rest of the Internet identifier. Here's a specific example of an e-mail address for the username "oitnsltr." It's the address you use to subscribe to our newsletter.

oitnsltr@tc.umn.edu

### Interactive Access

Interactive access users should log onto the machine named: username.email.umn.edu

Do not try to log into any <username>.tc.umn.edu machine or to machines formerly called maroon and gold.

### Client Software

Table 1 lists the names you may need to use in configuring the various client software to access your University Internet account.

## Domain Identifiers

Since the University is an educational institution our domain name ends in .edu.

The .umn portion of the name is the University of Minnesota's identifier. Together these two names identify the University's "lower" domain: umn.edu

A Domain Name Server (or Service or DNS) acts much like a paper phone book, which maintains a list of names that are associated with a number. A DNS matches a name with its current numerical IP (internet protocol) address. Although DNS plays a major role in enabling you to access Internet resources, its work is generally invisible to you. Inquiring minds might wonder: should I use numerical addresses rather than host or domain names? The answer is no. You're more likely to access your intended location or information if you use its name.

To make the University's service more robust, we maintain more than one DNS. The software that needs DNS service queries one DNS first, and if it does not get a response it queries the second DNS. To spread the workload, different University locations use different "normal" and alternate DNS's.

Location	Normal DNS a/k/a Primary	Alternate DNS a/k/a Secondary
Minneapolis	128.101.101.101	134.84.84.84
St. Paul	134.84.84.84	128.101.101.101
Duluth	131.212.32.32	128.101.101.101
Morris	146.57.57.57	128.101.101.101
Crookston	128.101.101.101	134.84.84.84

■ Mary Kelleher, Phil Kachelmyer, Academic and Distributed Computing Services

**Table 1: A Handy List**

Common Label	University Identification
Username or user ID	___ username
POP username	___ username
E-mail address	___ username@tc.umn.edu
POP server	___ username.email.umn.edu
Mail server	___ username.email.umn.edu
POPmail e-mail account	___ username@username.email.umn.edu
SMTP server	___ smtp-gw.tc.umn.edu
Telnet server	___ username.email.umn.edu
	___ • to access Interactive Mail Shell
NNTP or News server	___ newsstand.tc.umn.edu or news.tc.umn.edu
VIDL	___ • not currently supported

Where you see *username*, substitute the actual user identification of a University Internet account holder.

# Casting a Web for Information

Nancy K. Herther, *Integrated Information Center of the University Libraries*

## Common Questions

Occasionally I use comments and questions that I receive from *Information Technology Newsletter* readers as the basis for articles, and this is one of those times. One topic of constant interest to faculty is the use and increasing importance of the World-Wide Web for researchers. Many of you feel at sea when trying to find information on the web and have requested some help or guidance in being able to evaluate the information presented.

The web is nothing like any other electronic resource in the Libraries. We do not and could not shift through, 'rate' or evaluate the quality of the information that you may find there. Anyone can put up a web page, and given the enormous growth of Internet usage, apparently many people have done so.



One faculty member called to complain that the web was like reading brochures, and in many cases that isn't too far from reality. If you do have specific needs or questions, feel free to contact reference staff and we will be happy to help you to the extent that we can. Two words of caution: consider the source whenever you read or use information from the web; and, second, read through the information carefully because many of these sites have been created by marketing departments to help 'sell' their products.

## All the News That's Fit to Read

Recently a faculty member asked for some ideas on how to best use the web to keep up-to-date on events and issues outside of his primary research area.

Most publications -- newspapers, magazines, trade press and professional journals -- now have web sites that you can use, at least in part, for free. Beware of commercial/private sector sites, however, because they are largely doing this to test the waters of electronic

commerce and may in the future charge for their services. Use Yahoo! or one of the other indexes to help you find lists of available electronic texts.

One of the best in terms of design, layout, as well as content, is the *New York Times* at:  
<<http://nytimes.com>>

Here are two local favorites:  
<<http://www.startribune.com>>  
<<http://www.pioneerplanet.com>>

For an index to over 460 newspapers available on the web connect with <<http://www.freenet.msp.mn.us/people/trasstw/newspaper.html>>.

Additionally there are lots of general interest periodicals on the web. Here are three of widespread interest:  
<<http://usnews.com>> (U.S. News & World Report)  
<<http://time.com>> (Time)  
<<http://newscientist.com>> (New Scientist)

It may take a little searching, but you should be able to get at least the most recent editions -- or portions of these editions -- by checking out the web sites.

## But That Isn't All

Let's not forget the 50 databases available to current students, staff, and faculty of the University through LUMINA (telnet to [admin.ais.umn.edu](mailto:admin.ais.umn.edu)) by selecting the INDEXES option.



This option includes Academic Index -- a wide variety of research and popular press periodicals, some in full-text -- Business Index, Current Contents, Magazine Index Plus -- which also includes some full-text of articles -- Newspaper Abstracts -- which covers 25

national papers and the NEWDT option to the 90 US and International newspapers available from the DataTimes company. Most of these are updated monthly, some daily, so these are also excellent sources for up-to-date information.

### CD-ROMs

This Fall another edition of the Libraries' CD-ROM directory was published on our web site <<http://www.lib.umn.edu>> and Gopher. It includes over 300 titles and many of these cover current publications as well as the research literature in virtually every academic area of interest.

All these reference databases are available for searching free-of-charge to current students, staff, and faculty at the University. For more convenient review, you can download results of searches to bring them back to your offices. Check out the directory for yourself!



### Our Web Page

The Libraries' web page <<http://www.lib.umn.edu>> is getting a new look this year and is consequently in transition. If you go into the web page you will find important information and bibliographic guides to materials owned at the University as well as links to important research sites around the world. The various Library units have also created some interesting and often critical information resources themselves that may be of value.

Bio-Medical Library <<http://www.biomed.lib.umn.edu/dbis.html>> has a special *Health and Medicine in the News* section in which the reference staff scour daily issues of the Star Tribune and New York Times looking for medical-related articles and add these to their own quick index. I was able to find cites to articles on childhood cancers and parental smoking within days of hearing about it on the news.

Business Reference Service <<http://134.84.113.86/bus/busref.htm>> has developed a series of important links to other web sites under the heading *Business Resources on the Net*. These links gives you quick access to stock prices, NBR Business News, SEC Edgar, and the Minnesota Job Bank, as well as other worthwhile sites.

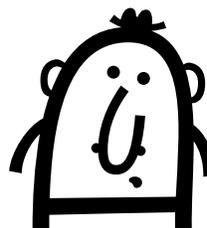
Science and Engineering Library has one of the best web pages in the Libraries. Their site includes a very important section called *Library Issues Forum* <<http://sciweb.lib.umn.edu/s&e/issues/crisis.htm>> which discusses some critical issues facing scientific research libraries today. Currently the site discusses journal cancellations and the serial pricing crisis facing the Libraries. Not only can you get some information on these important topics, but you can give us your thoughts and input.

### Shifting Pendulum?

When I first came to the University in 1985 we were still in the era of mediated database searching. Searching was so arcane and expensive that people wanting searches of the literature would pay for the searches run by highly trained Libraries staff.

With the advent of CD-ROMs and better search engines, the Libraries have cut back on these services and instead encourage patrons to do it for themselves. However, with the flood of electronic information there seems to be a resurgence of interest in off-loading or outsourcing these time-consuming tasks.

Will we again see a return to mediated information searching? Only time will tell.



### Ideas? Questions?

Feel free to stop by any reference desk or contact any Libraries staff for assistance or contact me: Nancy K. Herther, Manager, Integrated Information Center, 6 Walter Library, East Bank; 624-2020; <[n-hert@tc.umn.edu](mailto:n-hert@tc.umn.edu)>. ■

# IBM Mainframe Upgrades

Michelle Christiansen, Central Computing Operations

## ▼ Migrating to the OS/390 Operating System

In November 1996, Central Computing Operations staff completed a major upgrade to the MVS/ESA software that supports the IBM 9021-860 mainframe. This upgrade was the first significant milestone in migrating to the OS/390 Operating System.

The OS/390 Operating System is the first truly integrated enterprise server operating system available today, and it transforms MVS. With this upgrade the mainframe can provide UNIX, DCE, object-oriented, client/server and multimedia functionality; and it will run current MVS applications unchanged.

OS/390 is much simpler to plan for and install. The base elements that make up the OS/390 Operating System along with the optional features are integrated and tested with each release of OS/390, so technical staff will no longer have to investigate what release and version levels work together, nor will they have to individually order and install them. This will result in significant cost and time savings and allow our staff to devote more time to support the integrated client/server environment.

## OS/390 in 1997

Plans are underway to install OS/390 in 1997.

The upgrade also met the necessary requirements needed to install IBM's new Internet Connection Server for MVS/ESA mainframe. This technology provides World-Wide Web capabilities to MVS customers. The server can interoperate with other Internet servers, act as a repository for web home pages, images, sound clips, and video clips and enable direct web browser access to existing applications and data maintained by CICS, DB2, and IMS. This service will be available to our customer in 1997.

## ▼ Internet Connection Upgrade

For the past seven years we have used an Ethernet LAN Controller (BTI Box) to connect the IBM/MVS mainframe to the University's network backbone. In November Network and Telecommunications and Central Computing Operations staff replaced the Ethernet LAN Controller with two 7507 Cisco routers, each with an ESCON fiber channel attachment to the mainframe and an ATM interface to connect to the University's network backbone.

## The Upgrade Supports Rerouting

The Cisco 7507 is one of Cisco's premier high-end platforms of multiprotocol routers. The Cisco 7507 includes the ability to reroute mainframe sessions from one Cisco router to the other using Virtual IP Addressing (VIPA) technology from IBM. In other words, mainframe sessions can be rerouted, in the event of an outage or failure, without affecting customer sessions. We're excited about the new capabilities this technology offers to our customers and to our department.

The next step includes the migration of the old Ethernet, Token Ring, and ATM connections from the old routers to the new Cisco routers and the replacement of the current IBM Communications Controller used for routing and connecting to our SNA network customers with new Cisco routers. This is currently being tested. ■



### Some Upgrade Highlights

- *With this upgrade the mainframe can provide UNIX, DCE, object-oriented, client/server and multimedia functionality; and it will run current MVS applications unchanged.*
- *Mainframe sessions can be rerouted, in the event of an outage or failure, without affecting customer sessions.*

# What's a Legacy System?

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What is a legacy system? It is a single-subject specific transaction based computing system.

The Peoplesoft Human Resources and Student applications that are part of the University's preparations for the year 2000 will provide this type of legacy computing service. They will be client/server based, meaning that they will reside on a down-sized platform (something smaller than a mainframe) and be accessible by a personal computer.

and purges. They typically do not make detail or historical data available and reporting requires knowledge of the file formats as well as a programming or reporting language to extract the data. This is where a Data Warehouse adds value. The legacy data is replicated, modeled, integrated and cleansed so that data from many different legacy systems can be joined together to create valuable information. Trend analysis, historical analysis, and the ability to drill down into detailed information are reporting options made available by the data warehouse.

## Data Warehouse Adds Value

Legacy systems are created to provide optimum transaction processing and response time. They are not built to provide complex or large volume queries. The queries will slow down the primary function of transaction processing and cause response delay's for those entering transactions. Legacy systems usually are set up to do daily, weekly monthly and yearly updates

## Year 2000 Preparations

The Peoplesoft Human Resources and Student Systems are some of the large projects being done in preparation for the year 2000. All other legacy computing systems will be evaluated or modified to accommodate the new century.

■ Ann Warner, Integrated Systems Solutions

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## Hotsite Test Successfully Completed



Central Computing Operations (CCO) staged its second successful Hotsite test in just over six months on November 26th and 27th.

### Disaster Recovery

CCO's recovery strategy is to use a third-party disaster recovery provider. The third party provides equipment and space to enable CCO to recover information systems and data in the event of a disaster. The vendor provides mainframe equipment at the "Hotsite" location in Sterling Forest, New Jersey, with communication capability from their site in Eagan. The team was able to do a full test of recovery capability from the local site (a welcome option on Thanksgiving week).

The goal of the test was to fully restore all mainframe operating system components, utilities, subsystems, applications, and network capability. After the systems had been fully restored, Laurelyn Enger joined the team in Eagan to run transactions on several student systems to further validate availability of the on-line systems.

CCO staff and management are very pleased with the results from this test. 'Lessons learned' from this test are being incorporated into revisions currently being made to the CCO Continuity Plan. The next test is being scheduled for Spring 1997.



### Questions?

If you have any questions about this test, or continuity planning in general, please call Kathy Sampair, Continuity Planning Specialist, at 612/626-1512.

■ Yvonne Carlton, Central Computing Operations, Data Security

# PowerBuilder Update

## ▼ Time Entry System

A new Time Entry system originally developed as a PowerBuilder prototype has been enhanced over the past several months. The application allows employees to report their hours directly to a database, replacing paper forms previously keyed by Data Entry. The system features functions for the set-up and maintenance of employee records, project records, and timesheet records. Security modules provide for access control to different parts of the system based on roles. For example, employees will be able to update their own timesheets but not timesheets of other employees.

In addition to providing a faster and less expensive process for time reporting, the system is easier for employees to use. Congratulations to Jann Owen and her project team. The main Time Entry window is shown in Figure 1.

We'd be happy to give you a demo of our new Time Entry application and to customize it for other departments needing a time reporting system. Just contact Shanthi Kannan (624-8236) or Alice de la Cova (624-9365).

## ▼ Powersoft License Tracking

In order to keep track of our Powersoft licenses, Alice de la Cova built a prototype license tracking system using PowerBuilder. This will allow us to keep track of our Powersoft licenses, to whom they are assigned, and to which platforms they have been transferred. The system has functions to set up a new employee, a new license, a new version of a license, and a new license assignment to an employee. It also provides reports for us to

send to Powersoft on license usage. The License Assignment window is shown in Figure 2.

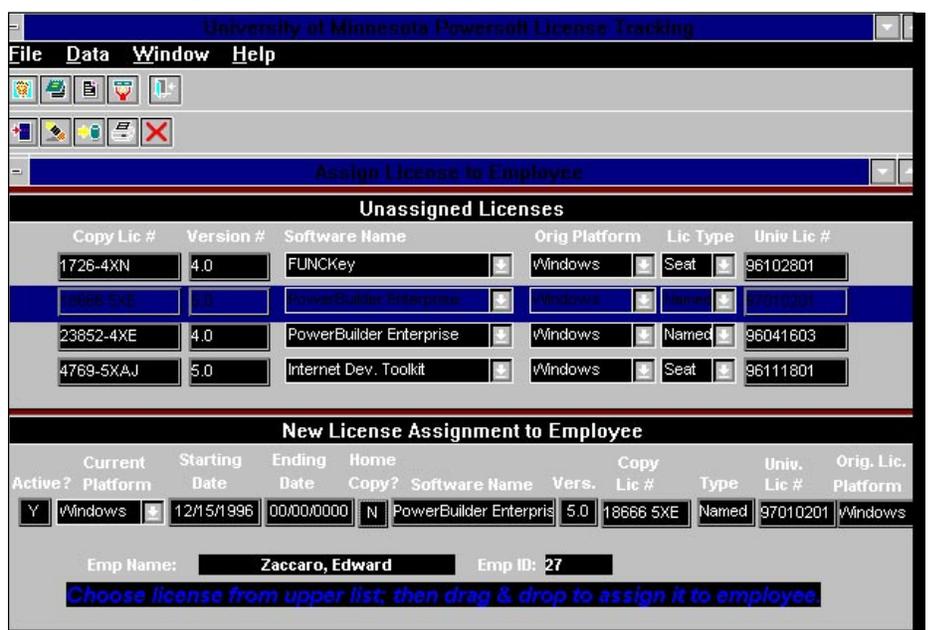
The PowerBuilder team would like to share and customize the system for other department's tracking

licenses of any kind. If you'd like to see the application, please contact Shanthi Kannan at 612/624-8236 or Alice de la Cova at 612/624-9365. ■ Alice de la Cova, Integrated Systems Solutions

Figure 1: Main Time Entry Window



Figure 2: License Agreement Window



# Create Dataset Profiles in RACF

## Under Your Own HLQ: Higher Level Qualifier



What's RACF? It's the security package used on the IBM mainframe. If you use that system you probably want to read the rest of this article.

The need may arise where you would like someone to be able to download, copy or edit one of your TSO datasets on the University's IBM administrative mainframe. It is possible for you to *permit* another user access to your TSO datasets. Figure 1 shows the necessary steps; Figure 2 shows example commands. Your access level choices are shown below.

### ALTER

allows the user to delete the dataset as well as UPDATE and READ capabilities

### CONTROL

allows the user to write or modify VSAM datasets (same as UPDATE capabilities but in relation to VSAM datasets)

### READ

allows the user to browse or copy the dataset

### UPDATE

allows the user to write or modify the dataset as well as READ capabilities

### Questions?

If you have any questions on the use of these commands, please contact the OIT-CCO Customer Assistance Center at 612/624-0555. ■ Michele Berner, Central Computer Operations, Data Security

## Figure 1: Permit Another User Access to Your TSO Datasets

1. From the TSO Command Processor (Option 6) you must *define* the dataset profile to RACF with the following command, where txxx# is your RACF id or HLQ:

```
%addsd 'txxx#.datasetname' g <enter>  
dd 'txxx#.datasetname' g <enter>
```

- This will delete the dataset profile.

```
sr mask(txxx#) <enter>
```

- This will display your dataset profiles.

2. After defining the dataset to RACF you must *permit* the user to the dataset profile with the following command:

```
PERMIT 'txxx#.datasetname' g id(tzzz0)access(read) <enter>
```

3. You **must** also grant the storage administrators *alter* access so that they can backup, restore and move your dataset as needed:

```
PERMIT 'txxx#.datasetname' g id(STGADMIN)access(ALTER) <enter>
```

## Figure 2: Example Commands

```
%addsd 'tabc0.payroll.data' g
```

- This adds a *dataset profile* called TABC0.PAYROLL.DATA to RACF.

```
permit 'tabc0.payroll.data' g id(tzzz0)access(read)
```

```
permit 'tabc0.payroll.data' g id(stgadmin)access(alter)
```

- Note: There does not need to be a space between the id parameter and the access parameter. All other spacing is required for the command.

# Frame Relay at the University

Tim Peiffer and Lawrence Liddiard, *Networking and Telecommunications Services*



In early 1996, the University of Minnesota began offering frame relay service to its units, starting with the Landscape Arboretum in Chanhassen.

An existing project, Access Minnesota, also used this lower cost offering to extend their project viability beyond the initial 18 month NTIA (National Telecommunications and Information Administration) grant that ended June 30. Access Minnesota members are now self sufficient in paying for internet infrastructure. Originally the Access Minnesota grant had sixty county Minnesota Extension Service (MES) members. At the end of the grant period, thirty joined the University of Minnesota frame relay partnership and ten more have since.

Background note: for information about how Frame Relay works you can read the article in our May 1996 newsletter <http://www.umn.edu/oit/newsletter/0596-itn/frame-relay.html>. Another technology discussed in this article is ISDN (Integrated Services Digital Network), a topic covered in our April newsletter <http://www.umn.edu/oit/newsletter/0496-itn/ISDN.html>.

## LATAs

The United States is divided into 198 LATAs (Local Access Transport Area). A LATA boundary defines where all aspects of end-to-end service can be done by the Local Exchange Carrier (LEC) when both ends are within the same LATA. If one end is in a different LATA, such traffic (inter-LATA) must be handed off to an InterExchange Carrier (IEC).

## Supported Protocols

Currently only IP (Internet Protocol) is supported within the University of Minnesota frame cloud. (A frame cloud envelopes frame relay connections, considered a "black-box" system with amorphous edges.) Figure 1 shows eleven frame clouds.

With IP, you get applications and services such as electronic mail (POP-mail), remote login (telnet), and web browsing (Netscape/Microsoft Explorer). Printing services can be handled by LPD (Line Printer Daemon, a UNIX system printer application) servers.

We plan to allow IPX (Internetwork Packet Exchange, Novell) and AppleTalk (Macintosh) protocols when solutions supporting large IPX and AppleTalk networks over low bandwidths are available. Right now, those chatty and active protocols would seriously degrade throughput in a frame cloud.

## How is the Cost Lowered?

The University of Minnesota's remote campuses (Duluth, Crookston, Morris, and Rochester) were providently located in what became the separate LATAs within Minnesota. Co-located hubs at these campuses support frame relay presences in the LATAs, as shown in the map in Figure 1.

Frame relay costs within a LATA became lower last Fall when US West switched to flat-rate rather than distance sensitive charging. Frame relay traffic going outside a LATA (inter-LATA) is still expensive.

Each remote campus hub has T1 access circuits to US West frame relay switches, and the hub also connects to the Twin Cities campus via exist-

ing T1 lines. The local access circuits were set up to provide one-to-many connectivity at the hub sites and support a 4:1 overbooking by statistical multiplexing.\*

A ratio of 4:1 is an industry accepted overbooking that results in lower rates for users. It is used extensively by our Internet partner, the Minnesota Regional Network (MRNet).

\* Multiplexing: The process of combining a number of individual channels into a common frequency band or into a common bit stream for transmission. [From the *Telecommunications Glossary of Terms* at <http://www.umn.edu/mhec/telecom/glossary.html>.]

## Some Cost Comparisons

Frame relay can be viewed as an economical departmental or unit alternative to dial-up that is asynchronous. A 56K line, whether frame relay or an ISDN B channel, can support a remote site with several users.

If you assume standard LAN network modeling, then 80% of the traffic stays on the local LAN, and 20% or less is headed toward campus (off-site). The break-even point compared to asynchronous modems can be as low as six employees. In such a comparison:

- Assume the employee remains connected:
  - 8 hours per day, 5 days a week (40 hours)
  - Total connect time: 160 hours a month per employee
- The site is located off-campus but still within the flat-rate mileage limits of the various US West frame clouds.

**Table 1: Departmental Fees**

<b>Estimated Monthly Fees</b>	<b>Interactive Access</b>	<b>Modem Pool</b>	<b>Frame Relay</b>	<b>ISDN</b>
US West phone charges	\$25/line (X6)	\$25/line (X6)	\$80	\$75
Recurring NTS Charges	\$66/line (X6)	-	\$120	\$220
Recurring modem fees	-	\$4/user/30 hours	-	-
	\$150 + 396	\$150 + 120	\$80 + 120	\$75 + 220
<b>Total Recurring Monthly</b>	\$546	\$270	\$200	\$295

*Note: Our User Services Specialist personnel can give you more exact values for these services.*

- The ISDN line is a single unlimited B Channel into the University server and the user is within ISDN service distance from a central office.
  - Note: Under the current charging algorithm, the modem pool is 75% subsidized. Thus the \$4/30 hours after 30 hours does not cover the true cost, while frame relay does.
- Engineering Services at its new location on Summer Street.
- Possible future sites: Mechanical Engineering's Center for Diesel Research at the U.S. Bureau of Mines site; the University Greek Society, with 40 Fraternities and Sororities, is discussing services for all members.

## Access Minnesota: the Project

The Access Minnesota project <http://www.mes.umn.edu/Accessmn/> is funded by a grant from the Telecommunications and Information Infrastructure Assistance Program (TIAP) which is a part of the National Telecommunications and Information Administration (NTIA) at the U.S. Department of Commerce.

### A Collaborative Effort

Access Minnesota was to set up a telecommunications infrastructure providing local access to the resources of the National Information Infrastructure for Minnesota Citizens. The project would help communities evaluate the information resources available throughout the Internet and would stimulate community discussion about telecommunications infrastructure issues.

Access Minnesota was a collaborative effort of many partners: Minnesota Extension Service (MES), the University of Minnesota, the State of Minnesota (MNet), K-12 public schools (InforMNs and SciMathMN), the

United Way (FirstCallNet), public radio and television (MN online), and the Northwest Minnesota Initiative Fund.

Over the 20-month project period (October 1994 to June 1996), 60 public access centers were connected through high-speed, 56k frame relay lines and routers to provide public access to the National Information Infrastructure. This represents two-thirds of Minnesota's 87 counties. Two additional sites joined the Access Minnesota network with their own funding, providing public access through dial-up modems.

Through the Access Minnesota project partnership with Internet for Minnesota Schools (InforMNs), eight public K-12 schools moved from dial-up modem technology to high speed, networked access to the internet.

### Community Education and Development

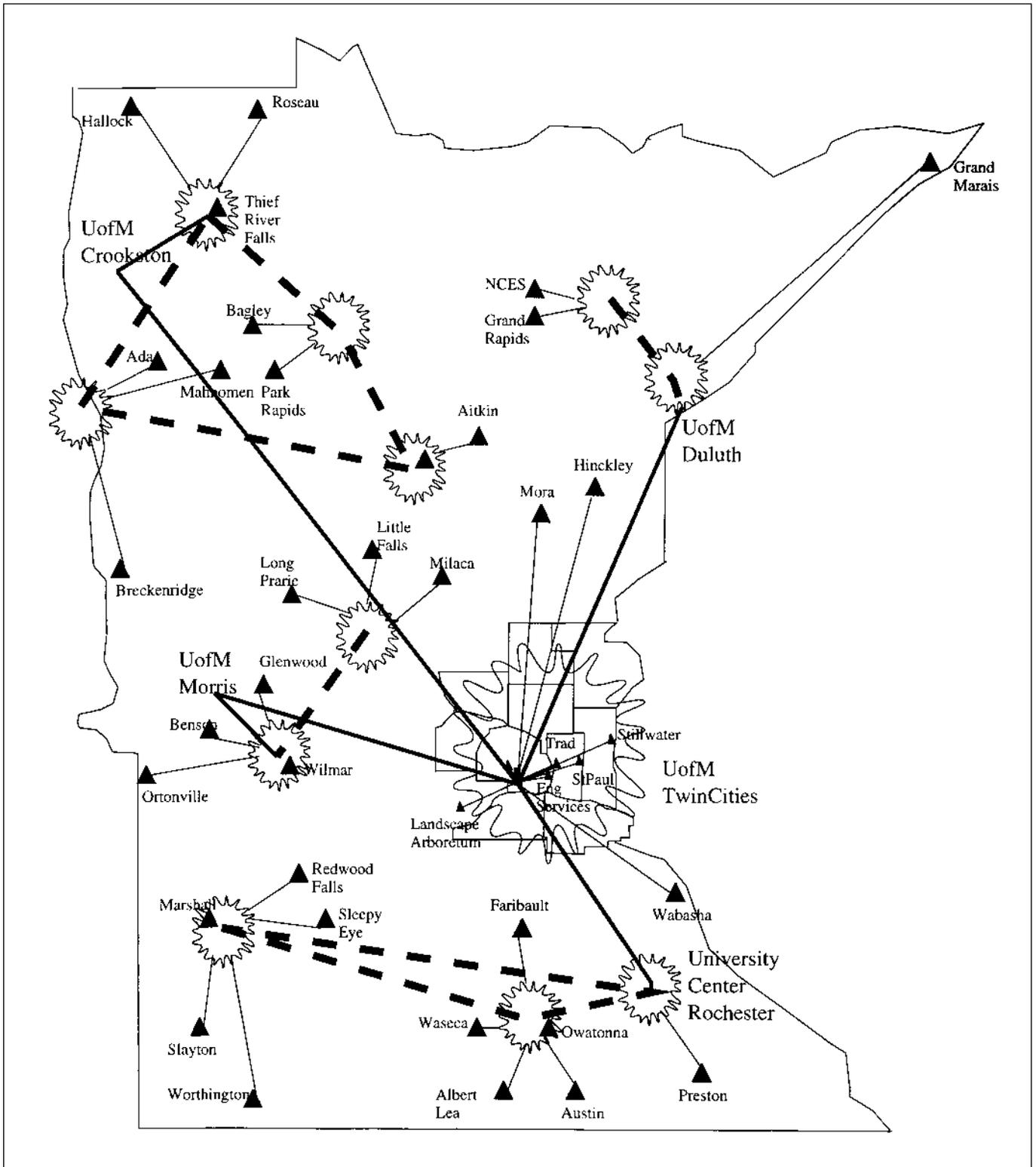
A major emphasis of the Access Minnesota Project was providing a community education and development

program at each site. Community effort acquainted small business owners, K-12 educators, local government and nonprofits about special applications and benefits available using access to the National Information Infrastructure.

Access Minnesota clearly met its main goal of giving community members the opportunity to evaluate and learn about the new information and communications technologies. Evaluation results show the project reached many first time users. This made a difference by allowing them to realize the possibilities provided by the technology and through information they retrieved.

Beyond the individual level, communities benefited from educational sessions, public meetings, open houses and conferences. These brought diverse groups together to address how information and communication technologies could be used to improve the quality of life within the community.

**Figure 1: Frame Relay Map**



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