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Library Tech Notes

The UNLV Libraries Technology Committee

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A large portion of my time the past few months has been spent on telecommunications planning for the new library building. This work culminated in the preparation of comments on the Design Development plans that were submitted by the architects this month for our review. This milestone is a significant one. Once the Design Development plans have been accepted by the Library, the University, and the State Public Works Board, the preparation of construction drawings will begin. The acceptance of the Design Development plans is expected in early October.

My work on the Design Development plans encompasses all aspects of telecommunications in the new building (and a few other things like card readers). I began several months ago by interviewing Section and Division Heads to determine how they envisioned using technology in their respective areas in the new library. Specifically, I needed to understand how many network connections they would need as well as how many voice, modem, and fax lines they required for each room and each open space in their areas. I drew the network connections on the plans by hand and later re-did them on the next revision of the design plans using rubber stamps that I had custom ordered. My task was to indicate the location and number of network connections in the walls, network connections in the floor, and the seven different telephone instruments and lines we expect to use (e.g. emergency phones, campus phones, pay phones, etc). Myoung-ja Lee Kwon and I carefully and painstakingly documented every single network connection (all 2947 of them!), every telephone instrument, security camera, and card reader on Room Data Sheets developed by Leo A. Daly architects. We then identified how many of the network connections would be "live" on opening day in each area (about one-third) and how many were for patron use vs. staff use. These drawings and associated instructions were submitted to the architects who assigned them to an engineering consulting firm to create the telecommunications drawings.

About two weeks ago, the Library received the Design Development drawings for comment and review. Myoung-ja and I checked each network connection, type of outlet used for each, every phone line and card reader as indicated on the plans. We also reviewed power outlets available in these areas and in the data closets on each floor. Corrections were made to the drawings and were documented separately on forms supplied to us by UNLV Facilities Management. Nine pages of comments on telecommunications and five pages of comments on power were submitted on behalf of the Library! The Room Data Sheets, which number close to 400, must now be updated to reflect these corrections. Plans are underway to put the information that is on the Room Data Sheets into an Access database so we can easily track the number of active and inactive network connections, as well as furnishings, equipment, environmental control, flooring, ceiling treatments, power outlets, doors, and even whether the room has a light switch or not. This project is a classic example of delayed gratification. We won't see the results of our efforts for another three-and-one-half years!

The work we do now on the new building is one way to help ensure that the library will be functional and appropriate for our needs. Although time spent on the building now is time well spent, it has not left much time for me to address current system issues regarding INNOPAC, NEON and its electronic resources, our Web site, and other aspects of systems support. I will continue to ask for your patience and understanding (and your help) over the next six months as we enter into the next phase of the new building process.

Camille Clark Wallin
PC Mechanic

The Big Red Switch

Unless you use your PC very little, you’ve probably at one time or another seen it begin acting bizarrely, such as refusing to recognize certain keys on your keyboard, displaying unexpected error messages, saving files incorrectly, or otherwise being obnoxious. Although it seems to be a well-kept secret, every PC on the market includes a powerful built-in hardware device capable of correcting most problems like these. Learning to use this device can save many calls to support staff, as well as hours of lost work.

This device is informally known as The Big Red Switch. It is, of course, the power switch on your PC. The nickname comes from the original IBM PC, which really did have a large red power switch on the side (and I have to admit I miss the satisfying thunk it made when thrown; those wimpy, soggy push-buttons most new PCs come with just aren’t the same).

If your PC starts acting weirdly, the first thing to do (before panicking) is to exit Windows, if you’re in Windows, and restart it (by typing win <Enter> at the DOS prompt). Windows 3.x has a strong tendency to get squarely after a while, and needs periodic reloading (newer versions, such as Windows 95 and Windows NT, are far less fragile in this regard). You’ll find that this solves the vast majority of Windows problems that suddenly appear after Windows has previously been working just fine (of course, if a problem appears right after you’ve made a major change, such as installing a new program or changing your video settings, it probably won’t help).

If that doesn’t do the trick, or if you weren’t in Windows in the first place, it’s time to use The Big Red Switch. Exit from whatever program(s) you’re running (if you can), and once you’re back at a DOS prompt and your hard disk activity light has stopped flickering, turn off the power and leave it off for at least 10 seconds. Then turn things back on, reload whatever you were doing, and there’s a very good chance that the gremlins will be gone.

Why does this work? A wonderful phrase you’ll often hear from computer people is “file corruption,” evoking mental pictures of bribe-taking diskettes, but actually meaning that some file used by your system has gotten garbled somehow (remember that computer files can contain instructions for your computer’s processor as well as your spreadsheets; these are called “programs.” Duh). These instructions are loaded into the computer’s memory and fetched from there as the computer needs them. If the instructions are garbled, your computer can respond with anything from an almost unnoticeable moment of quirkiness to a complete crash.

It’s actually pretty rare for the file itself (the one on your hard disk) to become corrupted; what usually happens is that after the file is loaded into memory an incorrect instruction somewhere in the program (or some other program if you’re running Windows, which allows you to run several at once) causes the processor to write information to the wrong location in memory, often overwriting important instructions. When you restart Windows, you reload fresh copies of all these files from the hard disk, and the problem is gone (hey, it worked in Jurassic Park, didn’t it?).

With DOS, you have to actually reboot the machine to do this, and since (due to a not-so-well-known feature of DOS) just pressing <Ctrl><Alt><Delete> doesn’t actually erase everything in memory, the problem can still be there. Powering down ensures that memory (which loses its contents without power) is wiped clean.

Just remember two things: Don’t shut off the power while your hard disk is still active (the indicator light on or flickering); and wait at least 10 seconds before turning the power back on.

Kathy Rothermel

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Kwon Kwotes

It's been a long time since the last Kwon Kwotes, so I have a lot to say. I would like to address three major areas.

SYSTEMS ACCOMPLISHMENTS
Camille Clark Wallin has been our Systems Librarian for approximately 10 months. During that time, she and the rest of the systems people, John, Lamont, and Martin, have accomplished a great deal. Many aspects of systems were neglected for the past three years, but now we are making progress in terms of refining our computer needs. INNOPAC adjustments, upgrading of equipment and NEO II developments.

In addition to Camille's regular duties, she has been spending countless hours assessing our network needs for the new building. She has taken over duties as chair of the Technology Committee and has worked with them on several projects; software and hardware surveys were conducted this past FY. She has arranged to obtain software manuals for everyone who uses Microsoft Office Professional. Systems has configured and installed, or replaced, more than 50 computers for library staff, and computer training classes have been implemented. INNOPAC releases 9.0 and 9.1 have been installed, and NEO II has migrated to a new platform (DEC Alpha 2100). Camille coordinated the implementation of the library's web site. The network was expanded in the round building in order to provide new services in Government Publications, such as GPO access and additional NEO II workstations.

At the same time, this network expansion gave other staff members direct internet connections. Jeanne Brown can finally access Netscape from her office!!

The addition of Martin Hellmann to the systems staff has reduced the load on John Fox. There is a continual need for systems personnel as new computers and new features are added. Also, there is a never-ending backlog of projects, troubleshooting, and normal day-to-day requests. The library faculty and staff must always think about priorities when requesting systems service. As the new building project progresses, there will be times when Camille cannot respond to your requests because she has deadlines to meet for the architects. Please continue to ask for help, but bear with us if your needs are not addressed as quickly as you might like. The number one priority for systems staff to fix right away is if NEON or the INNOPAC is down. If you need systems to adjust Windows setup or add things that are useful but not critical, they will attend to them when they have time.

EQUIPMENT NEEDS
All equipment requests received from the various library divisions have been reviewed and priorities have been set. Computer-related equipment is being researched by the systems staff in order to use our resources wisely. We will be trying to stretch our dollars as far as possible.

We are working under these guidelines until we move into the new building:

1) Purchase additional shelving and replace some old shelving with new shelving. New shelving will be taken with us to the new building.

2) Furniture and equipment is being budgeted for the new building. Therefore, any furniture purchased before the move should just be expected to last until we move. In order to conserve our flexible funds, we will not invest much on interim furnishings.

3) We will continue to purchase quality storage cabinets for microform materials, maps, and CDs as needed and take them to the new building.

4) We will continue to upgrade computer equipment as needed and as funds allow. Some computer equipment will be taken with us to the new building.

5) There is $60,000 left from the 1995/97 biennium equipment allocation to spend. The library will be augmenting that with $80,000 taken from various soft money accounts.

The library is in good financial shape this year since Provost Ferraro fought to have our student fees money restored. We will have enough to cover our student wages needs as initially allocated and have enough funding left to help plan for the future.

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Old Shows
New Stuff

Most of us don't have time to go surfing the Internet to discover neat new pages, nor do we have time to read computer magazines. Get quick updates on what's new via an old standby - the TV. Just watch two half hour computer-related shows on Channel 10 on Sunday mornings from 8:00 a.m. to 9:00 a.m. The first show, called simply Internet! reviews and demos webpages. Their basic categories cover business, cultural, silly, youth and travel.

The other show is an old standby with a new twist, Computer Chronicles. Reviewing an assortment of new technologies, taking you to high tech trade shows and reporting on computer business activities, Stewart Chiefet and staff gives you a good grasp for the kind of equipment to look for when you go computer shopping. For really new technology check these sites:

Panda Technologies
http://www.archistrat.com/

Design Firm
http://designedge.com/

HumanCode
http://humancode.com/

Paulette Nelson
What's Wrong With the Web?

I've been answering different versions of that question a lot recently. Each of them can be answered with one generic response. There is too much traffic on the Internet today. Here are some specifics:

Q. “I try to go to a site that I've been to before. Why does Netscape say 'unable to locate server, the server does not have a DNS entry'?”
A. Frustrating, isn't it. Netscape must query a domain name system server to translate your English address (www.unlv.edu) into its corresponding IP (Internet Protocol) numerical address. When all of the DNS servers are busy or Netscape can't reach them, you get that lovely message. We will be seeing an increase in this problem.

Q. “Why is Netscape so slow? Pages that used to load swiftly now just ooze onto the page.”
A. Again, there is too much going on the net. Netscape.com, for instance, is now receiving over 80 million hits a day!

Here are some of the grim facts concerning “Internet Overload.”

Net insiders are predicting that during the coming six to twelve months, the Internet will suffer major slowdowns. Some are predicting that the entire infrastructure will completely shut down, all due to the heavy onslaught of new users and high bandwidth applications. Bob Metcalf, the inventor of Ethernet, is one of the major voices proclaiming the coming disaster. Metcalf, whose columns appear in InfoWorld, calls the Internet “a house of cards,” and says that “it has outgrown what it was designed to do.” Metcalf predicts a series of collapses of the Internet, with people fixing one particular problem only to have the net collapse again. Finally, he believes, a new stable Internet will emerge with one important difference; people will pay for what they use. Vint Cerf, one of the chief architects of the original Internet, agrees. “People need to start paying for what they consume, because if they don’t, there will be no economic incentive to keep building the infrastructure.” Cerf is currently a senior vice president at MCI, one of the big players in the commercialized Internet of today.

Before we examine the problems, let's look at what happens when you view a web page. Usually, this involves sending around a dozen packets of information over at least five separate networks - from the library to SCS to NevadaNet to one of the backbone providers, from the provider through one of the national peering locations to another backbone provider, from the second provider to the web site's provider, and finally to the web site itself. Just in case I lost you at the mention of packets, here’s an explanation. Information sent on the net is separated into tiny packets, each labeled with the destination, return address, and an ID number. Packets are sent to routers. Routers are specialized computers that take incoming packets and compare their destination addresses to internal routing tables and, depending on network conditions, send the packets out to the appropriate receiving router. This process may be repeated many times until the packets reach their intended destination.

Whew! All that work just to view one web site. The Internet worked just fine when we were operating in a text based environment. Imagine the overload when you add all those high bandwidth applications such as sounds, video and such that Netscape users have grown to love. Now for the problem areas. T1 lines can get very slow if lots of users are transferring or downloading say, video clips. One of the biggest problems on the Internet today are at the MAEs, the metropolitan area exchanges where the country’s big Internet providers trade packets back and forth. They are providing the traffic jams on the net. Another problem not yet solved is “route flapping.” Every time a route on the Internet gets turned off or on, that information has to be sent to hundreds or thousands of other routers. When routes go up and down repeatedly they are said to “flap.” Sometimes flaps cause huge delays or interruptions of Internet traffic. Finally, the destination web site may be down. Web servers must accommodate more and more visitors. We've all experienced times when the server at NSCEE is down. It’s pretty scary to think about our information residing on an unstable site. Whether the Web is headed for a major breakdown or an increase in slowdowns, it seems to be apparent that the Internet, as it is presently configured, is heading for troubled times. For further reading, check out Wired, September 1996, or Fortune, August 6, 1996.

Next month, we will examine a more hopeful aspect of the future of the Internet, a report on the Cheyenne Conference on Academic Internet use.

Kay Tuma
This book travels through time, taking you into offices of those who created the world’s greatest communication/information device. Beginning with the 1957 Eisenhower administration’s passion for new technologies, through the 1966 beginning of an intranet on the “most prestigious” third level offices of the Pentagon, and on through the real beginnings of packets, protocols and e-mail: you get kind of a grand tour through what was a very quiet but astonishing revolution.

Where Wizards Stay Up Late: The Origins of the Internet

Where Wizards Stay Up Late is an account of young computer whizzes going where the business giants such as AT&T and IBM thought it not possible to tread. What grabs you more in this book, as people join and leave this mission, through success and failure, reports and contracts — you feel like you’ve been there too, seen and experienced similar occurrences. Who knows, what you have in the works, somewhere, in some file, might be the basis for the NEXT revolution... who knows. Look around you - this book says, IT’S POSSIBLE! (Call#: TK5105 .875 157 H338 1996)

Paulette Nelson

NEW BUILDING UPDATE

On September 18, comments and discussion on the preliminary design development documents were made by UNLV Facilities Management, the library, and the State Public Works Board. The architects have two weeks to bring back revised design development documents. These will be evaluated again by the same group of people.

When Public Works approves the revised design development documents, we can say that the project is 35% completed. Then, construction documents will be prepared by the architects. Construction documents include blueprints of architectural (room layouts), site plans, plumbing, electrical, mechanical, civil, data and telecommunications, and structural drawings, with specifications for everything. The architects have 200 days to accomplish this after the date of the approval of the design development documents, which is set tentatively for October 10, 1996.

While the construction documents are being worked on, the library will be working on more detailed documents such as millworks (carpen-
Unix "Flags"

Flags (usually denoted by a minus and a letter) allow you to further modify your Unix commands. Check the man pages to determine what flags work with what commands. Here are a few interesting flags to use with the ls command.

- `ls -a`: show all files including the hidden or dot (.) files.
- `ls -l`: show information including size of files.
- `ls -p`: show which files are directories by including a / at the end of each directory.

You may use more than one flag per command, just separate flags with a space.

Other nifty flag uses include

- `pine -i`: takes you into pine and directly into your inbox
- While we're on that subject, typing pine and a person's email address will put you in pine, in compose mode, with the email address inserted in the To: line. Try it!

Unix Pipe Command

The symbol for pipe is a vertical line |, sometimes seen as a broken vertical line. It is located in different areas on various keyboards, so you'll probably have to search for a few minutes to find it on your machine. The | allows you to take the output of one Unix command, and "pipe" it through another command. If you type `w`, to show who is logged on to the machine you are using, you may find that more than one screen of information flies by. If you pipe that information through the more command (show information a page at a time), you'll have several pages shown one at a time.

Example: `w | more`

The pipe command is most frequently used with the `more` command, but there are other instances when you may wish to use it with other commands.

Unix Hints

Remember that Unix is so efficient that it never asks you for confirmation. If you type `rm *`, Unix will obediently remove every blessed file in your account without a moment's hesitation.

Use the `man` pages when in doubt. Although they are very technical, they are brief, and if you skim them you will recognize flags and other applicable uses.

Use the `mail` command to mail files to your email address or to anyone else's. Be sure to type the lesser than symbol < before the filename.

Example: `mail tuma@nevada.edu <filename`

If you are bothered by talk requests when you are trying to do something important, typing `mesg n` will prevent talk and write commands from being sent to you. This will last only for the current session, the next time you log in you should repeat the command.
Unix and Other Useful Commands

^c  (control c) stop a process. **very important!** you may use this in a lot of situations in your account or out on the net. Type control c whenever you are “stuck”.

cd  change directory (usage is cd filename)

ls  list files and directories (the equivalent to dir in dos)

rm  remove a file

rmdir  remove a directory

mkdir  make a directory

more  display a file by page (usage is more filename)

cat  display a complete file (useful for "capturing")

pwd  (path of the working directory) use when you’re lost in your account

man  shows the Unix manual page for a specific command or term (example: man rm)

date  gives you the date and time

clear  clears the screen

passwd  lets you change your login password

w  show who is logged on to your machine and what they are doing

finger  find information on a person either by their name or login

talk  use this command to talk to another person who is logged in to the Internet. (Use care, this invades other’s privacy)

write  allows you to send a brief message to someone

whois  use to find information about another site or a very important person on the Internet. Type whois placename (i.e. whois nevada or whois ucla)

msgchk  determine how much space and how many messages you have in your inbox

vquota  shows how much space you have in your account.

asterisk  * is the "wild card" in Unix. Use it in place of some letters at the end of a file name. (Use CAUTION with this symbol)