I.T. TIMES

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Network 21: Bringing the Campus up to Speed

by Catherine Curran, Planning, Strategy & Administration

Did you ever think:

- that a cellular phone could save a life?
- that you could "go" to the library on computer?
- that you could send a document over the telephone?
- that your 5th grader would be using e-mail and communicating in real time with a Russian counterpart?

Welcome to the world of Network 21 – UCD's link to what is and what will be.

Network 21 is the term used to describe the fiber optic network that will interconnect the Davis campus and provide it with a high-speed on-ramp to the Information Superhighway (otherwise known as the Internet).

Once in place, Network 21 will make "going" to the library in New York and sending e-mail to Egypt as easy as plugging in a telephone.

The ability to use technology to glean information from places unseen is sending us on a journey in which the final destination has yet to be imagined. New technologies breed new applications. New applications are breeding new users. New users are breeding newer applications and, in turn, newer users. . .

("Network 21" Continues on Page 4)

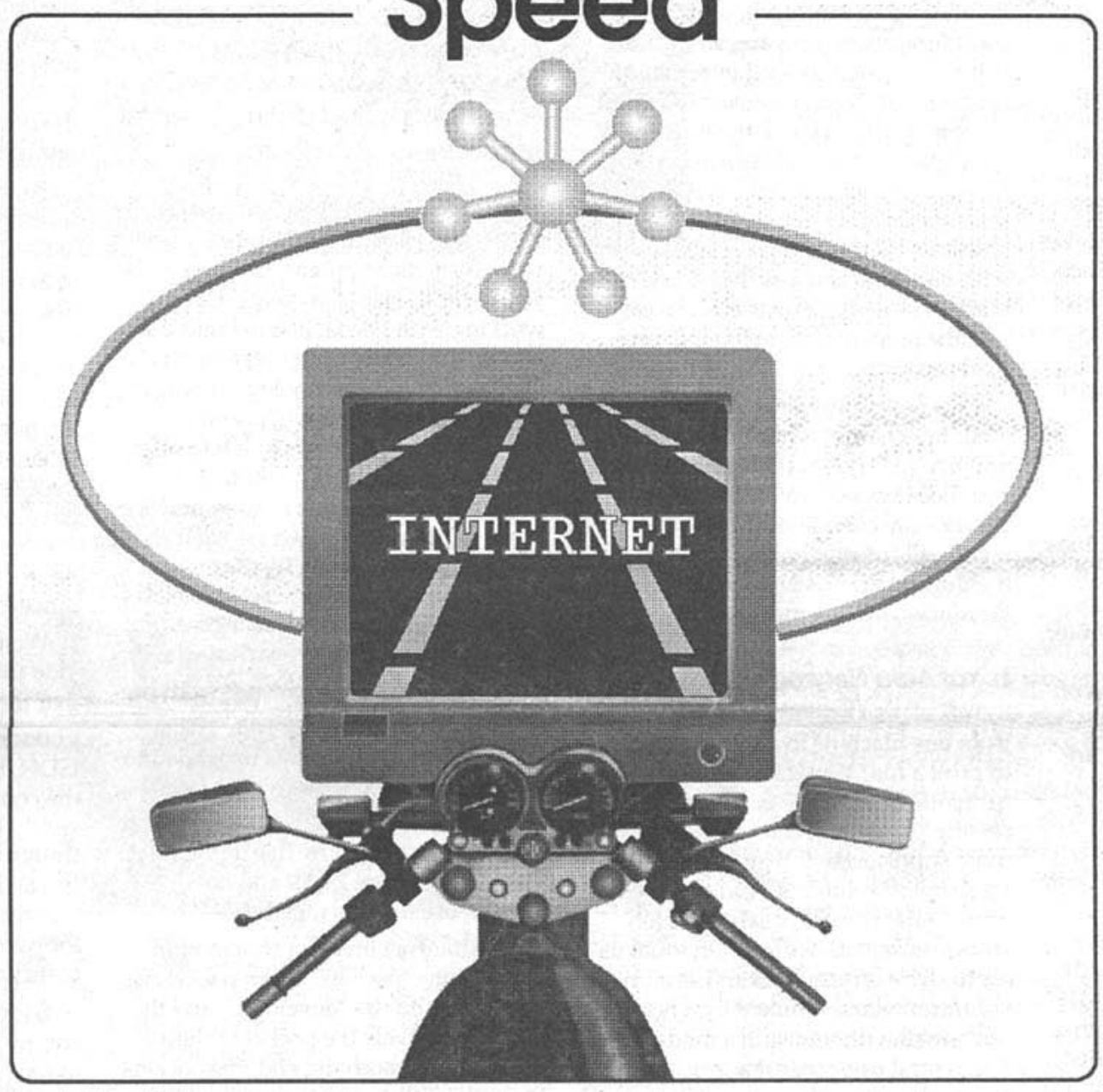


illustration by Hanna Fischer

EDITOR'S NOTE: This issue of the *IT Times* looks at the technical changes that precipitated the need for Network 21 as well as the training and technical tools available to help you navigate the information highway. Topics covered include:

- Faculty Put the Network to Work
- The Evolution of the Network
- Networking Terminology
- Training Opportunities
- How to Get Where You Want to Go

Further information on Network 21 also may be found in the *Network 21 Planning Tips*, a bimonthly publication of the Division of Information Technology. Copies are may be obtained at the IT-CAP in Surge II or by calling 757-3267.

Ivars Balkits, Joan Gargano, Kevin Harrington, Ken Joy, Gee Lee and Katie Stevens also contributed to the Network 21 report in this issue of IT Times.

Faculty Put the Network to Work

by Catherine Curran, Planning, Strategy & Administration

It was just about a year-and-a-half ago that Arthur Huntley, M.D., first used his computer to explore the Internet.

Since then he has added a course on how to use the Internet to the medical school curriculum. He also is using Mosaic to develop a multimedia program that can be used as an alternate method of instruction in Dermatology. Once the multimedia program is finished, Huntley plans to use members of the Davis Community Network as a test market for a lay person's version.

"As I became acquainted with the power of Melvyl Medline searches, I was convinced that it was an indispensable part of medical practice today," states Huntley, an associate professor of Dermatology and chair of the School of Medicine Committee on Educational Policy.

The medical course on how to use the Internet is given totally online with assignments and responses exchanged by electronic mail. Huntley says response to the course can be summed up by one student's comment: "I hated having to learn it. Thank you very much. I really enjoy using it."

Eventually, Huntley would like the **School of Medicine** to use computing and the network for most interactions with students that are currently done on paper.

"I would like to see as much resource material as possible placed on Gopher," he says.

Huntley thinks Network 21 will benefit anyone transferring large files and will "provide something better than our current modem connection for the Dermatology offices on campus."

Huntley is one of many UC Davis faculty who use networking in teaching and research. Here is a brief look at how others see the network at work:

("Faculty" Continues on Page 4)

Preparing for Network 21 through Electronic Communications Training

by Ivars Balkits, Planning, Strategy & Administration

Training programs to prepare the campus community for full implementation of Network 21 are flourishing. Currently, networking workshops are taught by staff of Information Resources, the General Library, and Staff Development & Professional Services.

Information Resources Classes

IT Information Resources (IR) continues to offer to faculty and students the popular workshop "Electronic Communications for the Novice." Demand for this course in winter 1994 required IR to open a new section practically every week during that quarter.

This free workshop, which introduces the novice to the Internet, Telnet, MELVYL, Electronic Mail, Pine, Usenet, Tin, FTP, Archie, Gopher, Veronica, and the Campuswide Information System, is offered again during spring quarter 1994.

Here is the spring schedule:

Apr 21 (Thursday)	3:30-6:30 pm
Apr 22 (Friday)	2:00-5:00 pm
Apr 27 (Wednesday)	3:00-6:00 pm
Apr 28 (Thursday)	3:30-6:30 pm
May 4 (Wednesday)	3:30-6:30 pm
May 12 (Thursday)	3:30-6:30 pm
May 20 (Friday)	2:00-5:00 pm
May 26 (Thursday)	3:30-6:30 pm

All sections of "Electronic Communications for the Novice" are held in 14 Hutchison hall (in the basement). To sign up for a workshop, call Information Resources at 752-2131 or 752-2906 or send electronic mail to learnit@ucdavis.edu. Be prepared to provide your name, daytime phone number, and the name and date of the workshop you wish to attend.

[Editor's Note: For information on advanced training in electronic commu-

("Training" Continues on Page 4)

The Evolution of the Network

by Catherine Curran, Planning, Strategy & Administration

The past 30 years have witnessed changes in the computing world that many of us never could have imagined. And those changes are creating opportunities for applications we have yet to imagine. As computing has moved from a mainframe to a distributed environment, individual users have gained greater access to information and more control over their workstations Here is a brief look at changes in computing that have led to the advent of Network 21.

The Mainframe

Introduced in the 1950s, the first mainframes were card punch machines used to tally data. Widespread use of mainframes became popular in 1960s, and in 1964 the Davis Computer Center was established on campus. Mainframes have tallied literally millions of test scores completed by school children using #2 pencils. Mainframes are still used for powerful applications such as the campus accounting program.

Personal Computers

Introduced in the early 1980s, personal computers took what was inside a mainframe and moved it to the desktop. The IBM-XT came standard with a 10 megabyte hard disk when it landed on desktops in 1983. It was hailed as a godsend to wordprocessors (then typists) and data entry operators. Information was easily updated and portable when stored on a floppy disk.

Seven years later, the XT was replaced by the 486, which has the power, speed and memory to process graphics, video and sound. PCs with even more power are entering the market today, and the more powerful computers will create opportunities for more sophisticated software applications. The two standard PC platforms are DOS and Macintosh. Consumer demand for computers has driven prices down, and today's powerful PCs often sell for half the price of their ancestors – the XT and 286.

The Modem

Users quickly recognized the need to share information and transfer data from machine to machine The modem addressed this need by enabling users to send files from one machine to another through telephone lines. Modems, used in conjuction with communication software, were (and still are) enlisted to send information near and far. Now, modems frequently serve as a network link by those wishing to gain access to information. For example, a user can dial into the campus modem pool managed by Communications Resources and establish a link with databases such as the MELVYL library system. Remote users also call into the modem pool to log into an e-mail program.

Like telephone users, modem users incur toll charges when applicable. If you live in Davis and dial into the campus modem pool, you will not incur toll charges since it is a local call. However, if you call the modem pool from Sacramento, San Francisco, or long distance locations, you will incur toll charges.

Local Area Networks (LANs)

Is it really efficient to transfer data from one machine to another in order to print a file? Why can't all computers in an office share the same word processing program? As users became more sophisticated, they began asking for simplier solutions. And the LAN came to the rescue. Local Area Networks make it easier for individual users to share information and resources. For instance, users linked by a network can e-mail without using a modem. The central computer that runs programs shared on the network became known as the server. LAN managers were quickly faced with new issues like user identificatin, system security, and platform compatibility

Distributed Computing Environment (Client Server Architecture)

Why be restricted to the home base? If you can share information locally, then why not share it globally? That's just what's happening today. We now are part of an international network in which every user is a client and every resource is a server. Our PCs and the programs they store are making us mobile. What we are able to explore depends on the computer we are using – the more powerful the better. For those who want to travel fast and frequently, good roads are vital. For UC Davis, Network 21 is the thoroughfare that will make the information highway accessible to all.

ISDN One Potential Solution for the Davis Community Network

by Russ Hobby, Technology Resources

(Editor's Note: Work continues on a prototype project to take advantage of ISDN technology in the development of the Davis Community Network. This effort is related to solving the intermittent difficulty people are experiencing with access to the campus modems, particularly those who wish to connect to the Internet. Here is an update on that effort from Russ Hobby, Director of Advanced Networked & Scientific Applications and acting Director of Technology Resources.)

I have been involved with the Davis City effort to create a community network form its beginning. Our main objective for the first two years was working with Pacific Bell to build the network on ISDN (Integrated Services Digital Network) technology. Things went quite well for a while, and it looked like Pac Bell was going to offer Internet services over ISDN to the home. However, when it came time for implementation, Pac Bell said that they could not offer Internet-type connections as part of their service. Since Internet connectivity was our real goal, our project was severely set back.

There were positive results from the work with Pac Bell, however. The Davis Pac Bell switch was upgraded to offer ISDN services in October 1993 — well ahead of the original schedule.

Let me explain how Internet connectivity differs from ISDN and how we hope to use the two together.

The Internet breaks a stream of information into "packets." Each packet has an address on the "envelope," and the network delivers the packet to the address. At the receiving end, the packets are gathered up, and the information stream is reassembled. Think of it as a series of letters that tell a story being sent through the US Mail. The advantage of the Internet is that you can use a single network connection to send to many locations at the same time, just as you can send letters to many locations with one mailbox. By the way, an information stream on the Internet can be one of many applications, such as electronic mail, remote login, video conferencing, and more.

ISDN can also be used for the same applications. However, ISDN follows the telephone model where you connect to one number at a time. If you want to exchange information with several locations, you call them up one at a time. Also, ISDN can only connect to other ISDN equipment. The Internet can run over many types of transmission media. For example, on campus we can use Ethernet, AppleTalk, modems, optic fiber, and more to connect to the Internet. And the person using the system does not have to worry what the other person is using. It all interoperates. The main advantage of ISDN right now is that it will work over the phone wires going to everyone's house and is an available service.

So, how do we use ISDN to get Internet connections? Our plan was to use ISDN to connect a home computer to an Internet hub. ISDN cannot connect to several locations at once, but the hub can. This way you can still create all the packets, each with an address, send them over ISDN to the hub, and the hub will deliver the packets to where they are supposed to go. Using the US Mail analogy, it would be like having a pneumatic tube to the post office. The tube only goes between your house and the post office, but the post office knows how to sort and deliver.

We were asking Pacific Bell to provide this hub as a service. They said that they could only sell the ISDN part. Though a third party could buy the ISDN, build the Internet part, and sell the combined services, that method would require two connections: one from the home to Pac Bell's central office and one from the Pac Bell office to the Internet hub. Requiring users to pay for two ISDN lines would bring the costs way up.

So what is a reasonable price? Our survey indicated that to hit the mass market, initial outlay for equipment would have to be less than $500 and the monthly rate would need to be between $20 and $30, with no usage fee. Since a modem uses a standard voice phone at a residential rate of about $12 per month and no usage fee, that approach did not seem cost-effective or marketable.

Though negotiations for an ISDN-based solution continue, the Davis Community Network has two other options under review: cable TV and wireless technologies. Efforts to bring the community online continue in these areas as well.

Online Forum for Higher Education Issues

HEPROC-L is an electronic forum for facilitated discussion of major issues in higher education. Topics include: student motivation and success; faculty tenure; research vs. teaching; staff development; institutional and classroom assessment; reengineering/restructuring; and the use and development of campus and human resources. To subscribe, send the following command in the body of your email message to listserv@american.edu: SUB HEPROC-L yourfirstname yourlastname (Substitute your first and last names.)

JOG Met in Davis in May

The Division of Information Technology hosted the JOG (Joint Operations Group) meeting of May 10, 1994 on the Davis campus. This group of about 20-30 individuals meets three times per year and comprises the chief representative of information technology and associated staff of each of the nine UC campuses.

After morning sessions in the Founder's Room of the Alumni Center, JOG members toured the Center for Advanced Information Technology on campus and visited the Hart Hall facilities for multimedia instruction. Information Technology staff then had the opportunity to introduce themselves, through various demonstrations and presentations, to their counterparts from the other campuses.

Look to the next *IT Times* for a report on the projects, plans, and ongoing operations that were shown to JOG members during this event.

Campus GIS Training: Administrative and Academic Units Collaborate

by Ivars Balkits, Planning, Strategy & Administration

Close-up view of the area around the Drama building shows what the UCD GIS System can do. This image is part of a larger printout produced by an electrostatic plotter. This device produces plots 36 inches wide and up to 17 feet long.

Increasingly more but still relatively few people know that the Davis campus has a Geographic Information System (GIS) in place. Developed and maintained by Facilities Services (formerly the Physical Plant), the UCD GIS System provides accurate maps of campus facilities and associated infrastructure and serves as a central repository for related information supplied by multiple departments on campus.

Even fewer people know, perhaps, that for the past three years Facilities Services staff have been co-teaching a campus GIS lab. Offered to students in Geography 198/298, the lab teaches fundamentals of the user interface, data structure, basic features, terminology, and system environment of the UCD GIS System. The primary instructor for the lab has been Sandra Duncan, GIS System & Project Manager for Facilities Services.

Working together, Mary Cunha of the Cartography Lab and Duncan of Facilities Services have offered this 4-credit, 5-hour course each year to six students, limited to that class size by the number of workstations available at Facilities Services that run the campus GIS (two students per workstation).

Facilities Services also has two one-year-long GIS internships, one for Geography students and one for Civil Engineering students.

Duncan's students have gone on to various careers that employ this training. Two students have gone to work at the UC Office of the President, Division of Agriculture & Natural Resources, in Oakland, mapping natural resources that the University owns. Another is working in Southern California for a mapping company. Yet another works for a chemical company in the Bay Area on its GIS project.

"The students are using these skills and concepts," says Duncan. "All have said that being able to put 'GIS-literate' on their resumes helped get a foot in the door."

The campus GIS is on GDS (Graphics Data System) software and a VAX platform. It was started in 1987. In 1991, McDonnel Douglas gave Facilities Services an educational software grant to establish the annual hands-on class.

The GDS product is a high-end system that was primarily chosen by the campus for its area management capabilities, according to Duncan. This feature allows multiple users to work simultaneously on large index drawings that precisely overlay each other using a Cartesian coordinate system. It also allows the user to open up to 500 files simultaneously and create, adhoc, a map combining exactly the features they wish from the database.

Extremely detailed maps (within 6" accuracy) exist for chilled water lines, gas lines, the electrical system, and numerous other campus features. Using field surveying equipment that feeds data right into the database through a serial connection, Facilities Services is constantly adding new dimensions to the UCD GIS System.

Current or pending projects include:

- working with Planning & Budget to provide all of the maps for the 2005 Long Range Development Plan;
- working with the UCD and City of Davis Fire Departments to develop fire protection maps;
- mapping the sewer/storm system to help compliance with regulations about discharges;
- and so on.

For more information about the UCD GIS System, contact Sandra Duncan at 752-5567.

Academic Training in Arc/Info and Other GIS Programs

Geographic Information System training on campus is not limited to the lab taught annually by Sandra Duncan of Facility Services. While some are learning GDS (Graphic Data System), the software for the campus UCD GIS System, others are earning academic credit this spring 1994 by mastering the Arc/Info package or several PC-based GIS and desktop mapping programs.

GIS training and spatial analysis instruction are being offered as part of the following academic courses:

- EBS/HYD 198 - Introduction to Geographic Information Systems, taught by Dr. Wes Wallender of Hydrologic Science & Paul Grant of IT/Advanced Networked & Scientific Applications
- EBS 298 - Spatial Data Analysis in Agriculture & Resource Management, taught by Dr. Richard Plant of Agronomy & Range Science
- GEO 107 - Color Map Production and Design, taught by Jon Barbour, Ph.D. student in Geography.

** In the summer 1994 issue, the IT Times editorial staff plan a follow-up report on this instructional collaboration between academic department and IT unit possibly through interviews with instructors and students.*

The IT Connection:

EBS/HYD 198 will be exploring Arc/Info on the workstations and X-terminals of the IT-managed **Visualization Lab** in Surge IV. Paul Grant of IT/Advanced Networked & Scientific Applications has taught a non- credit class on Arc/Info in this facility for the past two years. This class has been very popular and useful for faculty, staff and students and will be taught again in summer 1994. For more information, contact Paul Grant at 752-8266 or pwgrant@ucdavis.edu.

Mosaic Provides Myriad Access to the World Wide Web

The fastest growing distributed information service on the Internet is the World Wide Web, advancing at a phenomenal rate of 10,000 new users per week in the last six months alone. The Web is a hypertext-based service providing links to multiple online documents which can contain images, sounds, and animations as well as text.

Contributing to the boom of W3 (another common term for World Wide Web) is the wide availability of the new W3 browser Mosaic. Developed at the National Center for Supercomputing Applications at the University of Illinois, Urbana-Champaign, this software provides a graphical user interface to users who want to explore the many wonders of the Web from their desktops.

Campus users also are employing Mosaic to download Apple software from the enterprise-wide W3 server set up and managed by Information Technology staff. For more information, see the subheading "Cost-Free Distribution of Apple Software Near Implementation" under the Software Sitings column on page 10.

At UC Davis, Macintosh users can obtain a copy of this software from the IT Campus Access Point, 1400 Surge II. (Bring along a blank formatted diskette.) X-Windows users can obtain NCSA Mosaic for Windows (filename: NETWORK.ZIP) via anonymous FTP from lmtest.ucdavis.edu.

Getting Up to Speed on the Information Highway

Network 21...

(continued from page 1)

A story about how an emergency call made from a cellular phone saved a life can convert a whole new group of cellular users. Likewise, a child telling how he used e-mail to "talk" with Russian school children may be just the "push" a parent needs to get on the Internet.

"We are in the midst of an information explosion, and Network 21 is going to make it possible for you to get information in ways that are easier and faster," says Joan Gargano, director of Information Technology's Distributed Computing Analysis and Support.

Databases, slide libraries, software programs, papers and professional journals are just a few of the information resources that can be accessed by computer. And the number of people using the Internet to tap into these resources is mushrooming.

According to Mark Gibbs, co-author of "Navigating the Internet", a new network connects to the Internet every 10 minutes.

In its April 14 edition, Investor's Business Daily quoted Gibbs as saying, "Not knowing how to use the Internet will be as grave a deficiency as not knowing how to read. The Internet will become the world's primary means of communication and will soon carry more mail than the entire postal services worldwide... The Internet now connects more people, resources and services than any other communications system except for the telephone system."

A recent report from the Internet Society supports Gibbs' claim. According to the Society, traffic on the NSF backbone grew by 20.7 percent during the month of March accounting for the largest single jump in the history of the Internet.

At UCD, the Division of Information Technology is assigning more than 1,000 new computer accounts each month. Each new computer account gives one more person license to travel the Internet. For many of those users, Network 21 is an opportunity to more effectively apply existing technology

("Network 21" Continues on Page 8)

Faculty...

(continued from page 1)

School of Veterinary Medicine

Network training is mandatory for new students at the School of Veterinary Medicine. Faculty have developed many multimedia programs to teach everything from radiology to osteology. Dean George Cardinet says the School's goal is to develop a distributed computing environment in which programs can be accessed from classrooms and computer centers throughout the School. Network 21 will facilitate transfer of image files between buildings.

Writers Refine Research Skills

Kathy Dixon has noticed that both skills and attitudes are changing in the "electronic" composition classes she teaches as adjuncts paired with classes taught by Geoffrey Wandesforde-Smith (EST 10, EST 161, POL 122). Dixon said that several years ago some students would enroll in the classes begrudgingly because of the requirement to use electronic resources; this year several students stated they are taking the classes because of the electronic component.

Dixon's students do some of their classwork through e-mail and conduct research using electronic databases and the Internet. The excitement of learning new research methods and being able to access current information has prompted students to abandon the research-it-in-a-day term paper and instead make research a quarter-long process. This, in turn, has given writing a new twist. As one student wrote:

"I gained an immense amount of self confidence in myself, in my writing, researching and, most importantly, in academics. I felt professional while writing the EST 10 paper... I felt as if I finally found a place in this university."

Joy of Networking

The phones in the front office of the Computer Science department don't ring as much as they used to. The department has posted its graduate brochure, class notes, and other student information on the network. Since then, students have been calling up databases rather than administrative personnel.

("Faculty" Continues on Page 8)

Training...

(continued from page 1)

nications, see "Advanced E-Communication Course Debuts in Spring 1994" on this page.]

Staff Development Classes

UC Davis staff are eligible for a similar set of free "Electronic Communications for the Novice," provided by Information Resources through Staff Development & Professional Services. For information about this program, call 752-1766.

The General Library

General Library classes include "Basic Internet Tools," "Internet Information Resources," and "Remote Access to the MELVYL Library System." These and other Library classes are taught in the Microcomputer Room on the first floor of Shields Library. For more information, contact Ken Firestein at 752-1678 or klfirestein@ucdavis.edu.

Center for Advanced Information Technology

Another resource that helps departments and individuals plan for effective use of Network 21 is the Center for Advanced Information Technology (CAIT). Included among the monthly product demonstrations and events scheduled at the CAIT are regular presentations of "Tools for the Digital Highway."

The CAIT is the place to look for software solutions that best take advantage of changing technologies. CAIT staff not only have a keen understanding of where software is going in the industry, but they also have current information about site licenses, volume discounts, etc.

For more information, contact the CAIT at 752-5711. Or, visit the CAIT in person at its location on the first floor of Shields Library. Office hours are Monday through Friday, 9:00 a.m. to noon and 1:00 p.m. to 4:00 p.m.

Monthly Calendar of Classes and Info Tech Events

You might want to take a look at the IT Calendar distributed each month one per campus department. (A limited

("Training" Continues on Page 8)

Meeting the Needs of a Growing IT Client Population

by Paula King, Information Resources

The Division of Information Technology has made a commitment to provide a base level of access to computers and networking for all UC Davis students, faculty, and staff.

Individual research needs are balanced against the competing needs of the more than 16,000 active users of IT-managed systems and machines. As we add new campus users at the rate of about 1,000 per month, we want to make sure we provide access for at least electronic mail, the Campuswide Information System (CWIS), newsgroups, and the instructional uses of computing for which we are funded.

Other campuses have chosen to meet growing access needs simply by not allowing additional campus users to have accounts; they provide higher levels of access, but for a restricted portion of their campus population.

We believe we have chosen a more strategic path by continuing to provide a basic level of access to all, and by helping those who do have computers to find solutions that take advantage of their departmental and personal computing resources.

It should be noted, also, that Information Technology does not make these kinds of access decisions without input from the campus community. In fact, the IT-Campus Access Point is preparing for a new round of open meetings and focus groups soon to develop tactical goals for 1994-1995. If interested in participating, please check the CWIS for announcements under The Campus/Using Computers on Campus.../Information Technology/IT Departments/Campus Access Point, or send e-mail to ithelp@ucdavis, or call 752-2548.

NETWORKING TERMINOLOGY

INFRASTRUCTURE

Here we look at the roadways. The terms listed below are used to describe the various elements of the electronic highway that channels information from computer to computer.

Internet: The international electronic highway of interconnected networks and individual computers that creates a global community by enabling the exchange of information with anyone in the world with network access. The Internet is the existing information highway.

Network 21: The name used to describe the fiber optic network that will interconnect the Davis campus and provide a high-speed connection to the Internet. In the Network 21 environment, it will be possible to transport data at speeds of 155 megabits per second (though actual throughput will depend on the network attachment method, e.g., AppleTalk, Ethernet, etc.). Network 21 also will facilitate the transmission of video signals to classrooms and other desired locations.

UCDNet: The name used to describe the existing campus network. It consists mainly of coaxial cable, a high-bandwidth medium that transmits data at speeds of less than half the speed of the fiber-optic Network 21.

Fiber Optic: High-bandwidth cable, comprised of thin glass fibers, that will replace the coax cable in the existing campus network. It transmits encoded pulses of light.

Develnet: The switching system at UC Davis that manages the connections between campus computers and terminals, PCs, and workstations. When you attempt a connection to IT-managed systems, the Develnet is the entity that presents the "Request:" prompt.

ATM (Asynchronous Transfer Mode): A specification for data transportation used on high-speed networks. In the Network 21 environment, ATM Switches will provide the high-speed transfer of data between buildings.

LAN (Local Area Network): Popular in both academic and administrative units, LANs enable departments to share software, printers, files, and other resources by connecting computers with standard cabling. A LAN may have a file server for sharing specific applications, but can also exist without a server. LANs also can pro

("Terminology" Continues on Page 8)

Advanced E-Communication Course Debuts in Spring 1994

In Spring 1994, IT Information Resources offers for the first time the workshop "Electronic Communication: Beyond Basics."

This three-hour class provides information and hands-on experience to build on your existing knowledge of e-communications systems and programs. You learn basic UNIX commands, more about the File Transfer Program (FTP), the Archie search utility, file compression and translation procedures, modem file transfer methods, and more.

Here is the spring schedule:

Apr 29 (Friday)	2:00-5:00 pm	14 Hutchison
May 4 (Wednesday)	3:30-6:30 pm	86 Hutchison
May 12 (Thursday)	3:30-6:30 pm	86 Hutchison
May 20 (Friday)	2:00-5:00 pm	86 Hutchison
May 27 (Friday)	2:00-5:00 pm	14 Hutchison
Jun 3 (Friday)	2:00-5:00 pm	14 Hutchison

For information on registering for these and other workshops, see "Preparing for Network 21 through Electronic Communications Training" on this page.

Getting Up to Speed on the Information Highway

ITAAC Discusses Mentoring as One Solution to Need for Faculty Info Tech Training

by Ivars Balkits, Planning, Strategy & Administration

(Editor's Note: As part of an effort to determine the breadth and scope of electronic communications training on campus, the IT Times talked to many individuals at UC Davis. This interview with Geoffrey Wandesforde-Smith, chair of the Information Technology Administrative Advisory Committee and professor of Political Science, was conducted entirely online using electronic mail.)

ITT: I gather that some members of ITAAC have suggested a mentoring program be established to foster paired collaboration between faculty who are already well-versed in computing and electronic communications and colleagues (and graduate students) who are new to it. What are the aspects and prospects of such a program?

Yes, there has been some discussion of this, and I'm hoping there will be more before the end of the year. In fact, I intend to put it on the agenda of a future ITAAC meeting. If we were to make a recommendation that the Academic Senate and the administration help organize and support such a program, I can't predict exactly what the response would be, although I'm inclined to think it would be sympathetic.

I can tell you some things, however. First of all, there is a lot of "mentoring" happening already on an ad hoc and informal basis. Faculty colleagues are helping each other. Graduate students are helping faculty. Undergraduates supplement what they learn in the classroom by helping each other out. Staff members are learning how to ask for and find help, too. Sometimes, the exchanges are brief and the topics limited: "How do I print an e-mail message?" Sometimes, the issues are more complex: "How will students react if I start putting class materials on a newsgroup, and require them to use this resource?" Or, "How much value do your students get from the CQ Washington Alert databases accessible through MELVYL?"

But while the campus is rife with this sort of informal mentoring — we would never have come as far as we have building information technology into the everyday life of the campus without it — the second thing to say is that we have no formal program. We have no formal recognition, yet, that such a device would be helpful, or that it is something busy people should be encouraged to spend their time doing. So there is, to put it differently, no clear and accepted incentive for people who do have skills and experience that can be taught and disseminated to spend time doing that, rather than, say, writing a paper or teaching a course.

I should mention the work Dr. Kevin Roddy does as a liaison between the Division of Information Technology and members of the teaching staff who have problems they need to solve, installing a piece of software, for example, or getting help with a particular network application. This work is important and appreciated, but we need a way to build on it and broaden the base.

I'm hopeful we'll be able to identify some ways to do that before the end of this academic year. It would speed up even further, I think, the rate at which faculty, students, and staff are getting the help and information they need to make computers and the network work for them. The analysis of IT's training efforts, which you'll be reporting on later, is going to show just how hungry people at UC Davis are for this information, across all segments of the campus community. It's an issue we need to address, for individual faculty and students, as well as for departments and other academic units that are struggling to cope with both new challenges and diminished resources.

You published a piece in IT TIMES not long ago about the progress being made with technology and networks in Vegetable Crops. More of our people and units need and want to be helped to make that sort of progress, and I think mentoring is part of meeting that demand.

ITT: Some departments already have high-speed capabilities because they have both required and been able to afford them. Can a case be made that high-speed (fiber-optic) connections such as proposed by the Network 21 Project plan will be needed by all disciplines in the future, not only areas of engineering and the "hard" sciences?

Yes, that case can be made. It can be made in the Art Department — ask Harvey Himmelfarb, who is involved in building and managing large collections of visual images online. It can be made in my department, Political Science — ask hundreds of students who now write their term papers using databases in Michigan, New Jersey, and Washington DC. It can be made across a whole range of environmental studies programs at Davis, a nationally recognized strength of the campus, and one that runs the gamut from biology to policy analysis to environmental toxicology — ask Jim Quinn in Environmental Studies, or Debbie Elliott-Fisk in Geography, or Hap Dunning in Law, all of whom are working on problems of ecosystem assessment and management that require very large and very efficient data manipulation capabilities.

Faculty and students also see that it can be made in Shields Library and, increasingly I think, in a variety of what we might broadly call academic services directly related to the central missions of the campus, such as the internship programs we have here and in Washington DC for our students, and the public service research program that reaches our friends in business and the public sector. It can be made in Music, too, and one of the most delightful aspects of my service this year on ITAAC has been learning from Wayne Slawson that that's true.

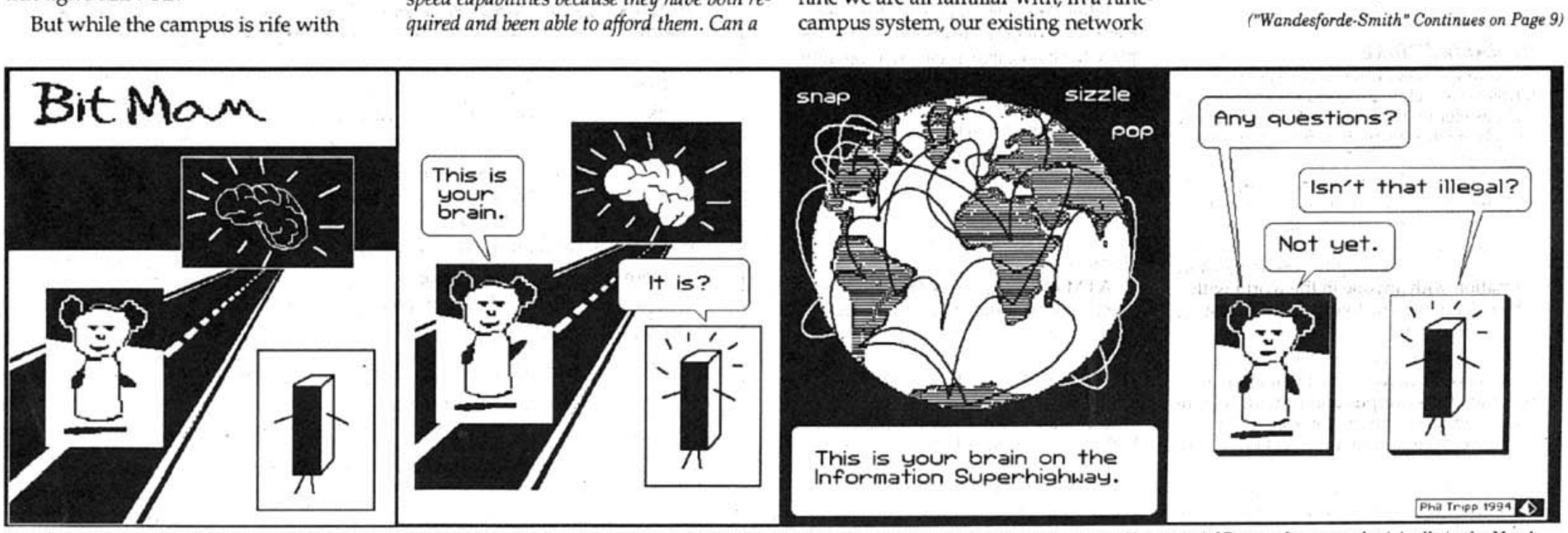
But does it have to be a state-of-the-art, even slightly ahead of the cutting edge, network? Again, the answer is yes. The network we have now is far superior to the one they have in Ecuador, or Guinea-Bissau, where I have former students serving in the Peace Corps who would give their eye-teeth for a good phone connection, let alone network connectivity! But on a realistic relative and comparative scale of one to nine we are all familiar with, in a nine-campus system, our existing network ranks ninth. It's expensive to maintain and gets more so with every passing day. It is neither economically nor functionally rational to keep it, or to improve it bit by bit. We keep it going, but only by performing occasional miracles. And it limits what we can imagine, as well as what we can do.

That isn't good enough, and we had better say that, and then act, before our friends in Sacramento, who are also getting themselves onto the superhighway at a *very* fast clip these days, start to wonder what's taking so long and why we aren't out in front of the pack. That is exactly where the University is supposed to be, all of it, the entire institution, not just the engineers and the geologists. Berkeley and San Diego and Irvine have already made the commitment to connect themselves to research and teaching in the next century, and we have to follow. In the last analysis, there isn't anyone at Davis who wants it any other way.

The most important consideration, then, is to look ahead to the future of UC Davis as a first-ranked national research and teaching institution and to realize that the faculty and the students, the people who *are* the institution, will not be able to survive or prosper without a high-speed network that is everywhere accessible on campus and that connects us to the rest of the world. We need it to teach and to do research at least as much if not more than we need it to run the University more efficiently. Indeed, the latter, I think, is and should remain very much a secondary concern and be a by-product of our research and teaching innovations.

And it's a great mistake to look at the network we have now, and what it can deliver, and to imagine that what we are getting with Network 21 is just more of the same only quicker. That is not the investment we are making. What the Regents have approved, very much to their credit, is the provision of a research and teaching tool many of the uses for which, in the classroom and the laboratory, five or ten years from now we cannot clearly see today. And that's true not just because we will

("Wandesforde-Smith" Continues on Page 9)



This installment of "The Adventures of BitMan" is provided courtesy of the comic strip's creator Phil Tripp of Computing and Information Resources at the University of Denver. It appeared originally in the March 1994 issue of *BUFFER* (University of Denver), Volume 29, Number 3, page 14, and is reprinted here by permission of *BUFFER* editor Rebecca Rowe. "BitMan," Mr. Tripp informs us, "is the only cartoon character I know of with an Internet address (bitman@du.edu)".

Computer Consultant's Association Going Strong

cca.

by Manel Kappagoda, Information Resources

From humble beginnings, the Computer Consultants Association (CCA) has grown into one of UCD's largest special interest groups. What started out as a small coffee group in 1988 has evolved into an organization that boasts a mailing list over 900 strong.

According to Paul Rivette, the association's president, the CCA provides a forum for the campus community to learn about all aspects of computers. "As a group, we're driven by whatever the campus wants to see. If a number of people have a problem connecting to the campus network, for example, we'll have a meeting to explain that. We also showcase the latest hardware and software that's coming out," Rivette said.

By drawing on the specialties of almost all the UCD departments, the CCA brings a wide range of information to its members. "The association tries to get specialized information from each department out to the computing public. The meetings are a great way to keep up on the latest technology," said Jennifer Koester, the manager of the Center for Information Technology, who has served as the association's vice president in the past.

The CCA serves as the umbrella group for several smaller special interest groups (SIGs), such as the Geography Information Systems SIG and the Database SIG. Darby Rivette, the secretary of the CCA, chairs the Desktop Publishing SIG. She feels her involvement in this SIG complements her role as a computer research specialist for the department of Chemical Engineering and Material Science. "The SIG enables me to keep up with the ever-changing world of desktop publishing. My experience as chair of the SIG is invaluable to me as a computer professional."

Given the obvious overlap in subject matter of the CCA and Information Technology, a casual observer might assume the CCA is part of IT. Actually the CCA and IT fill independent but complimentary roles on campus.

While acknowledging the important contribution IT has made to the CCA, Paul Rivette emphasized the CCA's own distinct identity: "IT has been very generous in its support of the CCA providing both funding and equipment. But the CCA is a campus special interest group. It's run by volunteers, and our whole purpose is to serve the campus community."

Katie Stevens, who works within IT as a network systems programmer, explained why the CCA needs to remain autonomous. "The separation between the CCA and IT guarantees that the CCA gets the clients' perspective rather than IT's perspective. The organization has a lot to offer the campus. And we look forward to a productive and continuing relationship with them," Stevens said.

Taking into account the busy schedules of UCD employees, the CCA organizes meetings carefully. "We structure our meetings around the lunch hour. Everyone is welcome, not just those people typically thought of as computer people. If someone is willing to give up their lunch hour for a CCA meeting, we've glad to see them," Paul Rivette said.

The CCA has among four to ten meetings a month. Anyone interested in attending a CCA event should look out for the CCA flyers that are sent regularly to each campus department.

Apple Managers Group Formed

The Computer Consultant's Association has started a new SIG called the Apple Managers Group (AMG). It has formed to bring together individuals who manage Apple products for departments to share ideas, techniques, problems, etc. A online listserv has been established to serve as forum for discussion on the direction the group should take. To subscribe to the AMG listserv, send electronic mail to amg-request@geology.ucdavis.edu with only the word "subscribe" in the body of your email message. For more information about AMG, contact Paul Rivette at prrivette@ucdavis.edu or 752-8687.

New Dialing Procedures Coming June 1994 Dial 9+1 When Calling Out of the Area Code

by Steve Chafe, Communications Resources

Beginning June 20, 1994, new dialing procedures will go into effect for calls dialed from campus and Research Park telephones. To accommodate the new North American Numbering Plan, it will become necessary to **add a "1"** when calling another area code — for example, 9+1+510-555-1212. Calls *within* the area code, as well as international calls, will continue to be dialed with just "9." Similarly, campus callers who use "5" for authorization code dialing will need to use "5+1" when calling another area code.

Operator-assisted and calling card calls will need to be dialed using the area code, even when calling within the 916 area code. For example, to dial a Sacramento number like 440-xxxx using a calling card, callers will need to dial 9+0+916+440-xxxx.

The new dialing scheme is necessary because the area codes in North America are being used up by the rapid growth of such services as paging and cellular phones. Electromechanical telephone systems of the past required that area codes contain only a zero or a one as their middle digit, which along with other factors made only about 150 area codes available. Starting in 1995, however, area codes will be able to have zero through nine as their middle digit, making available 640 more area codes.

The first of the new area codes is expected to be 334, opening in Alabama around January 1995. Since this code is also a prefix in Sacramento, callers must add a "1" if they need to reach Alabama:

9+1+334+seven digits: call is routed to Alabama

9+334+four digits: call is routed to Sacramento

Watch for more details from Communications Resources in the coming weeks. For now, please continue to dial only a "9" before all calls outside of the campus or Research Park.

Note to Centrex users: If your telephone number is in the range 757-3000 to 757-3999, your line is part of a Centrex group served by Pacific Bell. For these lines, the new dialing methods are already in effect *along with* the current methods. After October 10, 1994, only the new dialing plan will be in effect.

Insic

Computer Classroom Opens in 241 Olson

On February 23, 1994, a new Macintosh computer classroom opened in 241 Olson. As with all IT-managed computer classrooms, this facility is funded by Instructional Use of Computer (IUC) funds. Instruction receives priority. No costs are covered by student registration fees. Composed of 30 Macintosh SE/30, this room is intended for academic courses that utilize computer technology in all regularly scheduled classes. Faculty need to provide their own software. To request room assignment of 241 Olson, contact Marie Ellering of the Registrar's Offices at 752-2978 or at ellering.UCD.oramail@Zeus.ucdavis.edu.

Correction to Entry in UC Systemwide Directory

The new Systemwide Directory has a big typo on page 1. The entry for Zackary O'Donnell has incorrect information. Instead of UC Irvine, O'Donnell is with Communications Resources at UC Davis. Also, the phone number is incorrect. The entry should read like this:

DAVIS
Zackary O'Donnell
Communications Resources
(916) 752-5947

CR Installs CableCAD to Help Manage Communications Facilities Infrastructure

Communications Resources (CR) recently purchased CableCad from Enghouse Systems Limited of Toronto, Ontario, Canada. CableCad is a package of automated mapping and facilities management (AM/FM) programs used to design, draw, and maintain distribution networks. It maintains a network by:

- creating records that display and describe that network's plant items;
- producing reports and handling the details of the network's administration; and
- supplying input for the network's business administration.

At Communications Resources, CableCAD resides on a network of microcomputers (486's). Facility Services (formerly Physical Plant) provided the campus base map for CableCAD from the UCD GIS System.* The communications facilities infrastructure is overlayed on this base map.

Over the next 12-18 months, CR Plant Operation will enter data about the various campus buildings and telephone networks on the CableCad system. This unit is responsible for the campus communications maps and floor plans.

See page 3 for more information on the UCD GIS System.

SIMM Stack at IT Campus Access Point

Finally, there is a useful HyperCard stack for the Macintosh: SIMM Stack 4.1.1. SIMMs (Single Inline Memory Modules) are small printed circuit boards that add memory to Macintoshes. This Hypercard stack provides details about the different types of SIMMs (32 pin, 64 pin, 72 pin, etc.), and explains memory configurations possible with Macs. You can obtain a copy of the stack directly from the IT-CAP, 1400 (752-2548); just remember to bring along a 3.5" formatted blank diskette.

Alternatively, you can use anonymous FTP to load the stack down from the Internet server sumex-aim.stanford.edu. The file is titled simm-stack-411, and it's located at the end of the following directory path: info-mac/info/hdwr

Eudora for Electronic Position Description Forms

Information Resources has worked out a potential interim solution for campuswide routing of completed electronic forms used for job position descriptions. The idea is for all parties in the workflow to have Mac Eudora or PC Eudora. This electronic mail software allows formatted documents to be coded automatically at one end, attached and delivered across the campus network, and decoded at the other end.

Eudora is currently the only commercial mail package designed to work with TCP/IP networks, and the University has negotiated a special price. You can pur-

le IT

chase one copy with manual at $32.50 or 2-49 copies without manual at $22.50 each. (The manual costs $9.) Contact Jeff Jacobs of Qualcomm at (619) 597-5019 or eudora-sales@qualcomm.com.

Eudora can be used either with a modem or a network connection. Installation is not trivial and may require expert assistance. Once installed, however, it is a very easy package to learn to use.

Power Mac at CAIT

Apple Computer Company has loaned the Center for Advanced Information Technology (CAIT) a Power Macintosh 8100 for the purpose of promoting and showcasing Power PC technology to the campus community. Stop by the CAIT (on the first floor of Shields Library) to test out your favorite software with this new technology. For more information about the CAIT, call 752-5711.

Network Operations Center Extends Hours

It's after 5:00 o'clock, and you have just finished a report and are ready to send it electronically to a colleague in Southern California. Surprise! You can't log onto the network. Whom should you contact?

In this instance and for other major problems concerning the network, the answer is the Network Operations Center. Staffed by Information Technology personnel, the center provides client support in the evenings and early morning — before the start of the regular business day. The Network Operations Center accepts trouble reports for UCDNet, Develnet, modems and LANS during the following hours:

Sunday :	3:00 p.m. - Midnight
Monday - Thursday :	7:00 a.m. - Midnight
Friday:	7:00 a.m. - 4:00 p.m.

These hours remain in effect until at least the end of the academic year. To report trouble with network or modems, just call the Communications Resources Trouble Desk at 611 from on campus or 752-7656 from off campus, or send e-mail to itnetop@ucdavis.edu.

NOTE: If a major problem occurs during hours not covered by staff of the Network Operations Center, you may contact Information Resources staff at 752-0232. They can send a call out to the network personnel who are available to respond to critical communications network needs.

Seeking Instructional Multimedia Developers

Information Resources is once again attempting to put together a list of names of faculty and staff that are involved in the production of multimedia applications for teaching or training. Even if you only know of someone who is involved, IR staff would appreciate hearing from them or you. Information Resources produces and coordinates distribution of instructional applications of multimedia. By finding out who else on campus is involved, IR and others can get together to determine needs the area of instructional technology. Please contact Catherine Olvera at 752-9625 or clolvera@ucdavis.edu.

Systems Changes in Late July

The UNIX systems Hamlet and Othello are being removed from service on July 30, 1994. Electronic mail and Usenet news services will be removed from the Sun servers Rocky and Bullwinkle, freeing those machines up for active user logins. Please watch for login messages with instructions for moving files from Hamlet/Othello to the Sun servers, and direct any questions regarding these systems changes to sysadmin@ucdavis.edu.

Johnson Lai, Zackary O'Donnell, Jim Burns, Robert Ralston, Loren Bennett, Jennifer Koester, Kevin Kawaguchi, Dave Zavatson, and Catherine Olvera contributed to "Inside IT."

Info Tech Information through Online Newsletters

After you have perused IT Times, why not take a look at these online newsletters covering nationwide information technology topics and trends? All of the following publications are free and "delivered" (after you subscribe) directly to your electronic mailbox.

EDUPAGE

Edupage is a twice-weekly summary of news items on information technology. It is provided as an online service by EDUCOM, a consortium of leading colleges and universities seeking to transform education through the use of information technology.

To subscribe, send electronic mail to listproc@educom.edu, containing the following text in the body of your message:

SUB EDUPAGE <firstname> <lastname>

Substitute your own first name and last name for "firstname lastname."

Back issues of *Edupage* are available by WAIS, Gopher, and anonymous FTP from educom.edu.

NOTE: *Edupage* is now distributed in Spanish and Portuguese translations, courtesy of RNP, a project of the Brazilian National Research Council. For info, send an email query to the following address: edunews@nc-rj.rnp.br.

EDUCOM UPDATE

Educom Update is a twice-a-month electronic information service covering news about Educom, its member institutions, its corporate affiliates, and other organizations that share Educom's goals for transforming education through information technology.

To subscribe, send electronic mail to listproc@educom.edu with the following text in the body of your message:

SUB UPDATE <firstname> <lastname>

Substitute your own first name and last name for "firstname lastname."

To submit news and calendar information, send email to info@educom.edu.

IAT INFOBITS

INFOBITS is an electronic service of the Institute for Academic Technology's Information Resources Group. Each month this group monitors and selects from a number of information technology and instruction technology sources and provides brief notes for electronic dissemination to college and university educators.

To subscribe, send email to listserv@gibbs.oit.unc.edu containing the following one-line command in the body of the message:

SUBSCRIBE INFOBITS <firstname> <lastname>

Substitute your own first name and last name for "firstname lastname." Once subscribed, you will receive a file telling you how to submit email to the list and how to sign off the list.

If you have problems subscribing or want to send suggestions for future issues, contact Carolyn Kotlas at carolynk.iat@mhs.unc.edu.

IAT BRIEFINGS

The Institute for Academic Technology publishes the quarterly newsletter *iat briefings* in both paper and electronic form. The newsletter includes articles on innovative uses of technology in higher education.

To subscribe to the online version, send electronic mail to listserv@gibbs.oit.unc.edu with the following text in the body of your message (leaving the "Subject" line blank):

SUBSCRIBE PUBS-IAT <firstname> <lastname>

Substitute your own first name and last name for "firstname lastname."

The IAT server has other IAT technical publications, as well as back issues of the newsletter, available on the archive. A message will be sent to all subscribers when new papers are put on the archive.

Send any story ideas or topics for potential standalone publication to the editor: Jonathan Pishney, Institute for Academic Technology, PO Box 12017, Research Triangle Park, NC 27709-2017; phone: (919) 560-5031; fax: (919) 560-5047; email: jonp.iat@mhs.unc.edu.

NETWORK-NEWS

Network-News provides access information for various Internet and commercial bulletin board services, including such topics as: new Internet connections, online public library catalogs, interesting information on Gopher servers, recommended reading, special FTP collections, etc. The newsletter is sponsored by Metronet, an online service linking libraries and media centers in Minneapolis and St. Paul, Minnesota.

To subscribe, send electronic mail to listserv@vm1.nodak.edu with the following text in the body of your message:

SUBSCRIBE NNEWS <firstname> <lastname>

Substitute your own first name and last name for "firstname lastname."

Comments: noonan@msus1.msus.edu

Send corrections and/or comments to: Dana Noonan, Metronet; phone 612) 825-9312 or (612) 224-4801; fax: (612) 224-4827; email: noonan@msus1.msus.edu.

TULIP Project Blossoms

In February 1994, the General Library, in conjunction with Information Technology, launched the TULIP project.

Formally known as The University Licensing Program, TULIP provides network access to bitmapped images of approximately 40 journals in the field of materials science. TULIP is designed to work with any device that supports the X windows protocol for display. You may view TULIP images from UNIX workstations, IBM compatible machines, Macintoshes, and X-terminals as long as you have access to an X-server.

TULIP journals may be accessed by entering MELVYL's INSPEC or Current Contents database. All users must have a personal TULIP password which may be obtained by contacting Carol LaRussa at the Physical Sciences Library: 752-0519 or cjlarussa@ucdavs.edu. You will receive detailed information about TULIP with your password.

"There has been an initial flurry of interest in TULIP," says Beverlee French, assistant university librarian and campus TULIP liaison. "Over 50 TULIP passwords have been assigned since February, and we expect that number to grow."

Currently in its testing phase, TULIP is a cooperative research effort between Elsevier Science Publishers and several universities. All nine University of California campuses are participating in the project which is expected to last three years.

"Because we are anxious to learn from this experiment, we welcome comments and suggestions from TULIP users," says French, who may be contacted by e-mail (bafrench@ucdavis.edu) or telephone (752-2110).

Getting Up to Speed on the Information Highway

How to Get Where You Want to Go and How to Do What You Want to Do

How do I get to the information I need? That is the question most of us ask when we logon to our computer. In the Network 21 environment, virtually every computer user on campus will be able to gain network access without a modem. A campus computer account and communication software will, of course, be essential.

Listed below are some networking applications and examples of the kind of software needed to reach them. Detailed information on communication software is available at the IT-CAP. Call 752-2548 or send e-mail to ithelp@ucdavis.edu.

To use E-mail: Desktop-based electronic mail program such as Eudora (Mac), PC Eudora (MS-Windows), or ACORN (DOS), etc. Or, startup of e-mail programs on IT-managed systems, such as Pine (UNIX), mail (UNIX), or VMSMAIL (VMS).

To access Melvyl: Desktop-based communications software such as Clarkson Telnet (DOS) or MACIP (Mac), and access to IT-managed systems or other Internet access (telnet to melvyl.ucop.edu). Or, access through terminals at Library sites.

To access the Campuswide Information System: Desktop-based Gopher client addressing gopher.ucdavis.edu 70 (for port 70). Or, to start up Gopher and connect to the CWIS from IT-managed UNIX systems, simply type:

gopher <return>

To join a local Listserv: First, obtain a current list of the online discussion groups by sending a "lists" command in the body of an e-mail message to listproc@ucdavis.edu. After determining from the list the listserv you wish to join, send the following command to listproc@ucdavis.edu:

subscribe <listserv> <firstname> <lastname>

(Substitute the listserv name and your first and last names.)

To access World Wide Web (W3): Desktop-based W3 client such as NCSA Mosaic addressing hhtp:/ /www.ucdavis.edu 70/homepage.htm1 (to connect to the local W3 server).

To transfer a file: Desktop-based file transfer program such as Fetch (Mac), Clarkson Telnet/FTP (DOS), or Kermit (multiple platforms); or startup of ftp program on IT-managed systems addressing an FTP server. To access the local FTP server from UNIX, type:

ftp ftp.ucdavis.edu

Text files are transferred in text mode. Graphics and wordprocessed files are transferred in binary mode.

Detailed descriptions of specific networking applications appear in the "Quick Tips" disseminated through IT-CAP (1400 Surge II) and other campus outlets.

Network 21...

(continued from page 4)

and information resources to teaching and research. (See the article "Faculty Put the Network to Work" on page 1.)

According to Gargano, Network 21 is designed to handle the kind of heavy traffic that could put communication on the existing campus network at a standstill.

"Thinking that the current campus network can accommodate the growth in computer travel is like thinking that everyone driving from here to Southern California can use Highway 99," says Gargano.

As the name implies, Network 21 is UCD's electronic bridge to the future. While it will work to prevent information gridlock by opening new avenues, Network 21's true value will be measured by where we go, what we see and what we learn once we plug in.

Training...

(continued from page 4)

number are also distributed through the IT Campus Access Point, 1400 Surge II.) This news sheet features up-to-date information on the classes offered by Information Resources, the General Library, and Staff Development & Professional Services, as well as the events hosted by the Center of Advanced Information Technology.

[Editor's Note: The Information Technology Administrative Advisory Committee (ITAAC) also is looking at the issue of electronic communications training, in terms of faculty training faculty. Results of an electronic-mail interview with ITAAC chair Geoffrey Wandesforde-Smith on this topic appear on page 5.]

Faculty...

(continued from page 4)

"Students are very comfortable researching and communicating on computer," says Ken Joy, an associate professor of Computer Science. Joy, who has been using electronic mail since 1983, believes it is the access to information that makes Network 21 so important.

He says the Computer Science curriculum is constantly changing because the network has increased what students can find out. That same access to information is speeding the development of new programs because programmers can modify existing "prepackaged" programs rather than create something from scratch. And from a personal standpoint, Joy says he doesn't have to go to the library as much anymore.

"The work of most other researchers in my field is at my fingertips," he says.

Insect Museum Online

Lynn S. Kimsey sees Network 21 as an opportunity for the Entomology department to put an insect museum online. Kimsey, an associate professor, envisions that the "museum" will integrate full-color images and text. Each exhibit will be interactive and fully transportable to desktops here and abroad. . . once Network 21 is in place.

International Language Lab

Robert Blake says Network 21 could give the language lab in Olson Hall an international flavor. Blake, an associate professor in Spanish and Classics, has applied for a grant which will fund network access for the language lab. He says network access will benefit students by enabling them to correspond with people in other countries and gain access to international works.

Terminology...

(continued from page 4)

vide connection to the campus network, enabling networked departments to exchange electronic mail without need for modems.

Ethernet: A popular protocol for LANs that transports data at speeds of 10 megabits per second over thick and thin coaxial cable, twisted-pair wiring, and fiber optic cable.

10BASE-T Cable: A LAN connection method that permits the transmission of data at speeds of 10 megabits per second on twisted-pair copper wire. This is the preferred LAN configuration option in the Network 21 design, and in most instances, will enable departments to connect existing LANs to the new network without installing new wire.

NAM (Network Access Module): A wall jack where one plugs in a computer or telephone. In the Network 21 environment, an individual will be able to gain network access by plugging their computer into a NAM. Telephones and computers use different types of NAMs.

EQUIPMENT

Here we look at the vehicles. The terms listed here describe the type of equipment you may use to navigate the information highway.

Personal Computer (PC): A desktop computer that houses software programs for personal use. The two standard PC platforms at UC Davis are DOS and Macintosh. In the Network 21 environment, individuals will be able to gain network access by plugging their PC into a NAM.

Workstation: A powerful desktop computer that often acts as a server in a LAN, but which may also be used in stand-alone situations for high-speed and high-volume processing for applications such as statistical number-crunching and scientific visualization.

Terminal: A machine without processing capabilities but one that usually includes a screen display, a keyboard, and an interface to link it to a host computer or network.

10BASE-T Card: Also known as a Network Adapter Card. A computer must have a network adapter card to connect to Network 21.

Client: A computer system or program that requests a service of another computer, program, or distributed information system. In a LAN, for example, a workstation that requests a file from a file server is considered a client of the file server.

Server: A computer system, program, or distributed system that provides services or access to resources. In a LAN, the server is a central computer that stores files and applications shared by workstations connected to that LAN.

APPLICATIONS:

Here we look at ways to travel and destinations to explore. The terms listed here point to things you do and places you can see once you get on the information highway.

E-mail (Electronic Mail): As the name implies, this application is used to send and receive mail messages on a network. E-mail users are assigned an address. On the Internet, e-mail is one the most popular applications.

Usenet: A compilation of thousands of news and discussion forums distributed as through a cooperative worldwide network. Not all host computers on the Internet subscribe to Usenet (though IT-managed hosts do).

World Wide Web: A distributed information service on the Internet that provides hypertext links to multiple online documents containing images, sounds, and animations as well as text.

Mosaic: A client program that provides a graphical user interface for accessing and browsing the World Wide Web.

Gopher: A distributed information service on the Internet that allows a Gopher client to access and download information from multiple Gopher servers using a hierarchical menu interface.

CWIS (Campuswide Information System): Accessible through Gopher to virtually anyone with an e-mail account, the UCD CWIS is a place to look for information on just about anything — computing classes, job announcements, directory listings, Network 21 tips, and campus events, to name a few.

Listserv: An electronic mailing list that groups can create at UC Davis using the listprocessor on the IT-managed UNIX systems to conduct online (asynchronous) discussions. Using one e-mail address, listserv participants can send and receive messages meant for the entire group.

ASSISTANCE:

Here we look at roadside assistance. The terms listed here point to places you can turn to if your journey gets rocky.

NOC (Network Operations Center): Staffed by Information Technology personnel, the Network Operations Center accepts trouble reports for UCDNet, Develnet, modems, and LANS during the following hours: 7:00 a.m. to midnight, Monday-Thursday; 7:00 a.m. to 4:00 p.m., Friday; and 3:00 p.m. to midnight, Sunday. To reach the Network Operations Center, call 752-7656 or send e-mail to itnetop@ucdavis.edu.

IT-CAP (Campus Access Point): Located in 1400 Surge II, the CAP is the place to go for computer accounts and questions about communication software. Call 752-2548, or send e-mail to ithelp@ucdavis.edu.

CAIT (Center for Advanced Information Technology): Walk right in, sit right down, and take a little time to explore leading-edge technologies. Located on the first floor of Shields Library, the CAIT is a place to find out how access to electronic information can benefit you. Whether attending a vendor demonstration, test-driving a new computer, or previewing a software package, you will find the CAIT a place to let your imagination do the walking.

References

"Communications Glossary." Turn-Around Times (University of California, Davis), April 1988, Vol. 17, No. 5, pages 11-15.

"Glossary of Computing Terms." Gettysburg College Computing Services, December 1991

"Request for Comments: 1392 - Internet Users' Glossary," by the User Glossary Working Group of the User Services Area of the Internet Engineering Task Force, ed. G. Malkin of Xylogics, Inc. and T. LaQuey Parker of the University of Texas, January 1993

First Year Use of Financial Aid System Shows Positive Results

by Ivars Balkits, Planning, Strategy & Administration

Two years ago, the Financial Aid Office started training staff and bought the equipment they would need to use the BANNER Student Information System. They began setting up the databases for the Financial Aid Module in early 1991 for implementation in 1992. Deciding to develop the system one more year, they began officially in January 1993.

With 45 staff, the Financial Aid Office in North Hall handles all financial aid for UC Davis students but those in the UCD Medical Center and the School of Law.

"The Financial Aid Office uses the Financial Aid Module pretty much out of the wrap without many modifications," says Michael Cummiskey, Computer Resource Specialist for the Financial Aid Office. "That's because federal regulations drive the way we do financial aid, and the process doesn't differ much nationwide."

The tape load programs have been modified to fit UCD needs, however, and other modifications have been made to accommodate California-based financial aid funding and University and other scholarships.

Students start filing financial aid applications with the federal government each year in January and continue through to the beginning of March. The Financial Aid Office then receives and loads multiple tapes every two weeks (25-26 tapes/year) of information about persons who have applied at UC Davis.

Using this information, the Financial Aid systems staff calculate student need for aid, based on the current budget, costs of going to school locally, and potential family contribution. Then begins the packaging to deal with this need and how to redistribute the money from Cal Grant, Pell Grant, University Grant, Work-Study, scholarships, federal loan packages (such as Perkins Loans), bank loans (such as SLS Loan, Stafford Loan, Plus Loans), etc.

The checks are issued by Student Aid Accounting after a student has signed an offer letter and any supporting documents for his package of aid.

The advantages of the new BANNER system over the old FAMS system are myriad, according to Cummiskey. The old system, on the Unisys A11 mainframe, used a nightly batch process to update separate master files. The BANNER relational database, on the Sequent Zeus, allows interactive querying and updating of multiple linked files (called "tables").

For instance, students used to have to verify how many units they were taking when they picked up checks for the Pell Grant. Now staff at Student Aid Accounting can see Admissions/Registration data instantly online. Also,

photograph by Catherine Curran

Michael Cummiskey

with implementation of the Accounts Receivable Module, students now receive an integrated bill of all they owe and all credits they have. Changes to the bill (housing payments, library fines, Financial Aid, etc.) are recorded instantly and verifiable that day on the new system.

Cummiskey predicts that "students, faculty, and staff are going to be happier with the new system, for its online features, instant access, and the report capabilities that are to come." For more information about the system, contact the Financial Aid Office at 752-2390.

Banner Days for Banner

by Sandra M. Stewart, Information Resources

Want the good news early?!

That's right! Now UC Davis students can call RSVP* and hear their grades right over the phone! During the past six months, Information Resources has concluded the installation of the Banner Student Information System (SIS), and one of the capabilities we have given it is the ability to read student grades and grade point averages over the telephone using RSVP.

But that's not all. Information Resources (IR) has also made it possible for the Registrar's Office to use SCANTRON to scan student grades directly into the SIS Banner database instead of the old way of keying in grades for 22,000+ students. According to Associate Registrar Bob Strobel, IR's introduction of scanning into grades processing has been a great success. "I recommend electronic scanning of data to anyone with a similar need. This kind of processing has worked well for us."

Over 100 new processes and screens ("forms") have been installed during the last six months as part of Phase II of the installation of the SIS Banner system. Many of these processes help the Planning and Budget Office provide student enrollment statistics to the UC Office of the President. Forms also exist for tasks in Accounts Receivable, Admissions, Financial Aid, Graduate Studies, Deans' Offices, Veterinary Medicine, and the Registrar's Office. Among Registrar offerings are five query forms that people can use to display course information, section information, and student information.

Key individuals who worked on the Banner installation project and continue to give consultant and programming support include Debbie Lauriano, Sandra Stewart, Cindy Aubrey, Elizabeth Bullock, Kenneth Komoto, Steve Osterday, Jamila Sahakian, Virginia Slocum, David Squires, Brian Sher, and Randi Thompson.

—

*RSVP (Register Students Via Phone) is managed by the Office of the Registrar. For more information about RSVP, see "Touch-Tone Registration in Effect" in the Spring 1993 *IT Times* (Vol. 1, No. 5, p. 6).

another view

In this column, IT Times features viewpoints on information technology from individuals working outside the Information Technology organization. The views expressed here are not necessarily those of IT. To contribute to this column, please contact the IT Publications Group at 757-3263 or send electronic mail to isbalkits@ucdavis.edu.

Teaching with the Internet: What There Is and What There Might Be

by Kevin Roddy, Medieval Studies

There are three categories of information on the Internet that are useful in teaching:

- source materials (texts, images, and sounds) that are actually studied in the class (Moby Dick, for example, or the Vatican manuscript collection, or Vivaldi concerti);
- scholarly articles about these sources, either as archived by libraries or, increasingly, through electronic journals; and
- the wide-ranging informal discussion among interested parties about the subject, whether it is music or politics or ecology.

I have explored all three categories in my Humanities 40 course, recognizing that each offers its own advantage and complementary disadvantage.

Regarding the first category, directly accessing a source can permit infinite treatment and manipulation, as, for example, discovering all the uses of "white" in Moby Dick. However, this capability cannot substitute for reading a book, listening to a symphony, or attending an art show.

Similarly, though the network has made scholarship on a subject more immediate and more widely available, the computer-screen is ill-suited to conveying broadly structured, tightly logical argumentation. The common practice of downloading and printing these articles simply means that the cost of publication has been shifted from the publisher to the university.

And finally, the Internet conveys, on a large scale, the interactive and fluid nature of all academic work, but it also produces chaos that is often at best only a waste of time.

On the basis of this experience, I feel I can make a few predictions about the future of the Internet in instruction. I believe that we will be able to enhance the Internet's advantages and (maybe less so) avoid its dangers. I also believe that the revolution will be slower and less traumatic than many fear.

Even so, the Internet will continue to change the way we receive and convey information. Faculty will rightly continue to insist that there is no substitute for experiencing a work as it was meant to be experienced, but in general we will benefit from a more convenient access to data bases, especially those in the fields where information quickly becomes obsolete.

photograph by Ivars Balkits

Kevin Roddy

For reasons having more to do with the cost of postage than with speed, more and more full-text scholarship will appear online. With the explosion of this sort of information, we can hope for finding and using filtering tools such as are becoming common in medicine to help us sort the relevant from the irrelevant.

And last, regarding the vulnerability of the network to unconscious or conscious abuse, this condition will unfortunately remain. However, it can be lessened by simple precautions made available to the user and largely the user's responsibility.

On this last point, the notion of some Internet police officer protecting us from potential harm is not in the best interest of higher education. It is a principle of great tradition at the university that the weaknesses as well as the strengths of intellectual discourse constitute educational experiences in themselves.

Wandesforde-Smith...

(continued from page 5)

have a different and better network but also because the people and devices at the ends of the network will also be different and better.

Until last week I thought I would probably retire before I saw the day when my students and I would be able to travel the world together in the classroom, and without ever leaving the classroom. Now I think it may be less than five years before we make that trip together, picking up as we go along, and analyzing in real time as we make an intellectual journey through some province of political science, whatever text, data, images, and sounds we think we need to make sense of what we encounter. Network 21 is about fulfilling that vision, for ourselves as teachers and for our students as learners. It is not about bringing the Gopher and the newsgroups and the ftp transfers some of us can already use to people who will never need them.

Software Sitings

Designed to keep you abreast of the latest computer applications, Software Sitings is a regular column of *IT Times*. The column previews various software programs that may be site licensed at UC Davis, and reports on maintenance release updates to software available through the IT-CAP and other on-campus sources.

Microsoft Select under Review by UCOP and UC Campuses

Information Technology working with the UC Office of the President is aggressively evaluating the Microsoft Select Program. This program entitles the Davis campus to substantial price discounts on the Microsoft Product Line that are in the categories of Applications, Operating Systems, and Servers.

Request for Proposals have been responded to by qualified Microsoft Large Account Resellers (LARs) and are being reviewed by Office of the President and interested Universities. At the same time, the UCD Bookstore is investigating and evaluating other volume discount programs, including the Microsoft Open License Pack Program. Further status updates will be posted in future release of IT Times and electronically through the ucd-microsoft@ucdavis.edu listserv.

New Campus Site License on WordPerfect Corporation Products

The UCD Bookstore in partnership with Information Technology have announced the participation of the Davis campus in the WordPerfect Customer Advantage Program (WP CAP) for a two-year contract period. This arrangement provides substantial savings on the entire WordPerfect software family of products, technical Q&A databases, electronic manuals, interim updates, and much more.

Participation in the WP CAP Program is granted to the business operations of employees, consultants, and contractors within the enterprise and divisions of the University of California, Davis. No personal orders are accepted.

To purchase software through the site license, you submit a Departmental Purchase Order (DPO) to the UCD Bookstore. For product, platform, and pricing information please contact the UCD Bookstore at 752-1945. Other sources of information include the IT-CAP at Surge II, Campus Wide Information System (CWIS), and ucd-wordperfect@ucdavis.edu listserv.

Direct any questions regarding WordPerfect site license services or products offered through the WP CAP Program through the UCD Bookstore at 752-6391.

New Site License on Apple Computer, Inc. Software Products

Information Technology now participates in the Apple Software Site License program through a UC-wide agreement. Software includes: Mac System 7.1, Mac System 7.0 Pro, MacTCP 2.04, and MacX 1.2.

UC Davis clients with network connections to the campus backbone may retrieve the Apple software at no cost from the "pilot" enterprise-wide World Wide Web (W3) server or via anonymous ftp. Those campus sites without network connections can obtain the software from any of the public computer labs or from the IT-CAP at Surge II

Documentation is not included in the site license; however, the UCD Bookstore stocks Apple software manuals for purchase. The UCD Bookstore also continues to sell commercial shrink-wrapped copies of Apple software at educational discount prices.

Information about the Apple Site License program and instructions on downloading from the W3 server can be obtained from the CWIS (using Gopher), or by email from www@ucdavis.edu. Future announcements regarding this site license program and other Apple issues will posted electronically to the ucd-apple@ucdavis.edu listserv.

Jennifer Koester, Doug Hartline, and Ivars Balkits contributed to this issue's "Software Sitings" column.

Training Tapes and Computer Tutorials at UCD Bookstore

The UCD Bookstore now carries audio-based and video-based tutorials at reduced prices. Interactive audio-based training tutorials from Personal Training Systems are available for $25 apiece. Each tutorial contains a 90-minute audio cassette tape, a practice disk with examples, a Quick Reference Card, and an Extra Practice Card.

Topics for Macintosh and Windows include:

Microsoft Excel	Microsoft Windows 3.1
Microsoft Word	Microsoft Windows for Workgroups
Microsoft Works	Microsoft DOS 6
MS PowerPoint	Aldus PageMaker
Adobe Photoshop	Aldus Freehand
Adobe Illustrator	Aldus Persuasion
Macintosh System 7	Lotus Notes
Fonts	Lotus 1-23
Claris HyperCard	WordPerfect
ClarisWorks	Intuit Quicken
QuarkXPress	Claris FileMaker Pro

You also can obtain Mac Academy and Windows Academy videotapes for a Bookstore price of $45 apiece. These tapes offer instruction not only on software such as 4th Dimension, MacProject Pro, SuperPaint, etc., but on general computing topics such as: Financial Aid, Legal Aid, Accounting, Networking, and so on.

For stock availability or for further information, contact UCD Bookstore Computer Shop at 752-1945. For a free sampler cassette from Personal Training Systems, call 1-800-832-2499.

Ask the UCD Bookstore about special pricing if you have taken computer classes from Staff Development & Professional Services or from the Instruction Services unit of IT Information Resources.

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Jury Decision Affects MS DOS 6.0 Users

A Los Angeles jury recently decided that Microsoft Corporation's DoubleSpace data compression technology, used in the MS-DOS 6.0, violates two patents held by Stac. MS DOS users should be aware of the following conditions of that decision:

- Microsoft is not required to recall installed copies of MS-DOS 6 that contain DoubleSpace.
- The DoubleSpace feature has been pulled from future versions.
- Microsoft continues to support existing users of DoubleSpace.
- The UCD Bookstore has stopped selling MS-DOS that contains the DoubleSpace feature.
- Microsoft is sending out a revised version of MS-DOS 6.0* to the UCD Bookstore and future users.

IT Information Resources recommends that you consult with a UCD Bookstore representative before purchasing MS-DOS 6.0 or higher.

**The new version number will be 6.21.*

E-mail Listservs Provide Up-to-Date Vendor Information

by Jennifer Koester, Information Resources

IT Information Resources has established the following electronic mail forums locally to keep you informed of vendor information.

Messages posted to these listservs can include, but are not limited to: monthly meetings, new product announcements or launches, training events, demonstrations and evaluations, site-licensing programs, and product information. In addition, subscribers to these listservs can exchange ideas regarding specific products and departmental solutions.

Please subscribe to any of the listservs that interests you. Monthly vendor events will continue to be posted to itinfo@ucdavis.edu and other general lists while these new lists will exchange product information and solutions.

These vendors are active on campus and ideal candidates for established lists. We welcome suggestions for inclusion of other vendor lists.

ucd-adobe@ucdavis.edu
ucd-apple@ucdavis.edu
ucd-dec@ucdavis.edu
ucd-hp@ucdavis.edu
ucd-ibm@ucdavis.edu
ucd-microsoft@ucdavis.edu
ucd-oracle@ucdavis.edu
ucd-sun@ucdavis.edu
ucd-unisys@ucdavis.edu
ucd-wordperfect@ucdavis.edu

Listserv Instructions

Here are instructions for subscribing, unsubscribing, and obtaining help on using UC Davis listservs.

To subscribe, send electronic mail to listproc@ucdavis.edu with this request in the body of your message:

subscribe <listserv> <firstname> <lastname>

For example:

subscribe ucd-apple@ucdavis.edu John Hancock

To unsubscribe, send e-mail to listproc@ucdavis.edu with the following request in the body of your message:

unsubscribe <listserv>

For example:

unsubscribe ucd-apple@ucdavis.edu

To receive an extensive help file, send e-mail to listproc@ucdavis.edu with the following request in the body of your message:

help

Computers Create New Opportunities for Physically Disabled

by Catherine Curran, Planning, Strategy & Administration

The same technology that pushed the typewriter out of the office is opening doors of opportunities for people with physical disabilities.

Thanks to a number of adaptive computing features, individuals with visual impairments and limited use of their hands can exchange electronic mail, explore the Internet, edit publications, input data, and design databases.

Putting technology – and information – within reach of UCD's disabled population is the Disabled Student Resource Room, an adaptive computing lab located next door to the Center for Advanced Information Technology (CAIT) on the first floor of Shields Library. The Disability Resource Center maintains the lab which is funded by a grant from the Department of Rehabilitation, instructional equipment funds, student registration fees, and donations from Delta Gamma women's fraternity.

The lab houses both Macintosh and DOS desktop computers equipped with adaptive features and "mainstream" programs (e.g., WordPerfect, Microsoft Word, and Excel). And, of course, there is network access. Students with use of only one hand can enter data on standard keyboards using special system software. Students with cerebral palsy and other conditions which limit control of their hands can enter data by using a voice input program which translates speech into text. Visually-impaired students can use screen enlarging to read text and data. And blind students can "read" the screen with a voice output program in which a computerized voice serves as translator. (Remember Hal?)

"A steady stream of students uses the lab throughout the school year, and it is not unusual to see all equipment in use during midterms and finals," says Bill Cooper, who coordinates lab operations for the Disability Resource Center.

"These students are bright and motivated, and we are seeing that computers can really make a difference in their lives," says Lorraine Beaman, a counselor for the Disability Resource Center.

"Even just two years ago most disabled students had to rely on others to do reading, dictation, and sometimes data input," says Beaman. "Now, technology is giving them independence."

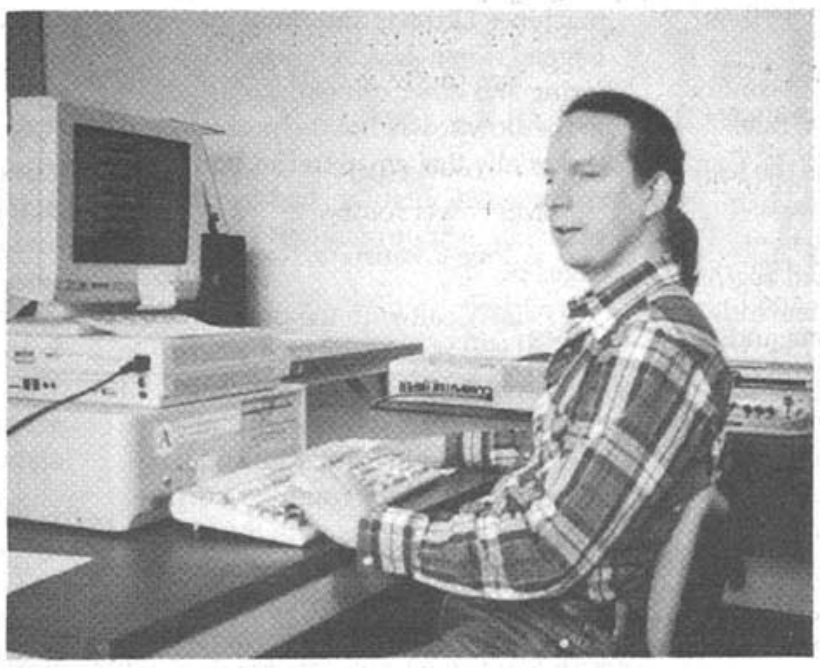
And that independence is giving them new opportunities. Historically, employment opportunities for the disabled were very limited, Beaman notes. Now, almost any job can be made accessible.

"Thirty years ago, people who were totally blind usually worked as medical transcribers, photo processors, or chair carvers," says Beaman. "Now blind individuals are working as lawyers, professors, and research scientists."

Here is a brief look at just some of the adaptive computing equipment and software programs on the market today. The list is not exhaustive and there are many other programs available.

- **CloseView** is a screen enlarger program that comes with every Macintosh sold. You can find it on the utilities disk. A commercial version with many important enhancements is called **InLarge** by Berkeley Systems. For the DOS-based PC, there are several screen enlarger programs available including **MAGIC** and **LPDOS.**
- **Easy Access** , a keyboard modifying system utility, comes free with all Macintosh computers. It allows users to work the keyboard with just one finger. Similar programs are available for DOS-based computers.
- **Flipper and Vocalize** are screen reading programs that enable the user to read the screen orally. They mimic sight reading by allowing the user to scan the screen and read selectively. **Outspoken** is a similar program for the Macintosh.
- **IBM VoiceType** allows users to dictate 20 to 30 words a minute, while translating spoken words into text. It keeps a model of the user's voice, so this tool can be used effectively even by individuals with speech impairments. Other systems sharing the same technology are published by Dragon Systems for the PC and Articulate Systems for the Macintosh.
- **TDDs** (Telecommunication Devices for the Deaf). These mechanical devices are used by the hearing impaired to communicate over telephone lines. The devices work only if the person on the other end of the line is using a TDD. Although TDDs are still used, e-mail is giving the hearing impaired a communication channel that makes their disability transparent to others.

photograph by Catherine Curran



Paul Carver uses an audio screen-reading program on one of the computers in the Disabled Student Resource Room in Shields Library.

photograph by Catherine Curran

Macintosh Closeview (a screen enlarger program) aids LaWanda Hawkins in her work designing a newsletter for CalTrans.

Students Put Computer Skills to Work

EDITOR'S NOTE: The Disabled Student Resource Room in Shields Library is an adaptive lab serving UCD's disabled student population. Below are profiles of Paul Carver and LaWanda Hawkins – just two of the many UC Davis students with disabilities who have benefited from advances in computer technology.

Paul Carver

As an intern at PG&E, Paul Carver performed the traditional tasks of a computer engineering consultant. He designed databases, installed new hardware and software and provided network support.

Sounds pretty routine, until you stop to consider that Paul Carver is blind.

"Computers are becoming the standard in the workplace, and this is making it easier for the disabled person to perform," says Carver.

In addition to standard computer equipment, Carver relies on a handful of adaptive technologies. A Braille printer, speech synthesizer program and an audio screen-reading program allow him to input, output and interpret computer data.

These technologies enabled Carver to complete his degree in computer engineering at UC Davis last quarter, and he is confident these same technologies can help other blind individuals secure a spot in the workplace.

This month Carver began working as director of training at the Lawrence Marcelino computer center in Sacramento. Operated by the National Federation for the Blind, the newly established center will provide computer skills training for the blind high school students and adults.

One of Carver's goals is to give his students skills demanded by employers.

"I think a real important aspect of the program will be working with employers to develop a program that will meet their needs," says Carver. "We need to find out what kind of skills are needed, and what kind of jobs are out there."

LaWanda Hawkins

Before she was introduced to computing, LaWanda Hawkins relied on friends and roommates to help with writing and editing assignments. Now, despite having vision severely blurred by congenital cataracts, Hawkins is using a computer to edit and design a newsletter for CalTrans.

"The computer is a lot more convenient," says Hawkins who was introduced to computing her second year at UCD. A double major in English and African American Studies, Hawkins now edits with the assistance of a program that projects text 16 times its actual size.

Hawkins' computer skills enabled her to land a journalism internship at CalTrans where she composes a newsletter for the construction division. She uses WordPerfect for writing and editing and PageMaker to do the newsletter layout. Macintosh Closeview (a screen enlarger program) is the adaptive feature that enables her to read the screen. CalTrans has provided a 14-inch monitor to facilitate projection of the magnified text.

The computer also has helped Hawkins in the classroom. She has used the Student Disability Research Lab to participate in "e-mail assignments" and "network research." These types of computing projects are becoming popular with UCD instructors who are using technology as a teaching tool.

Next year, Hawkins will be studying abroad in Ghana. After graduation, she plans to attend law school.

Discussion List Serves Disabled

(OFF THE INTERNET):

ABLE-JOB is an open discussion list dedicated to the advancement of people with disabilities. Subjects pertaining to research, development, and assistance with online job opportunities for individuals with disabilities will be discussed. Suggested topics might include work that can be done at home, companies employing or interested in employing people with disabilities, job development, sources for adaptive technology, etc..

To subscribe, send e-mail to listserve@sjuvm.stjohns.edu, and in the body of the message type this one-line command:

SUB ABLE-JOB <firstname> <lastname>

(Substitute your own first and last names.)

If you have any problems or questions, contact the list moderators:

Dick Banks
rbanks@uwstout.edu
Robert Ambrose
ambrose@rdz.stjohns.edu

IT Responds to the Spiraling Increase in E-mail Communication

by Brian Hill and Johnson Lai, Information Resources

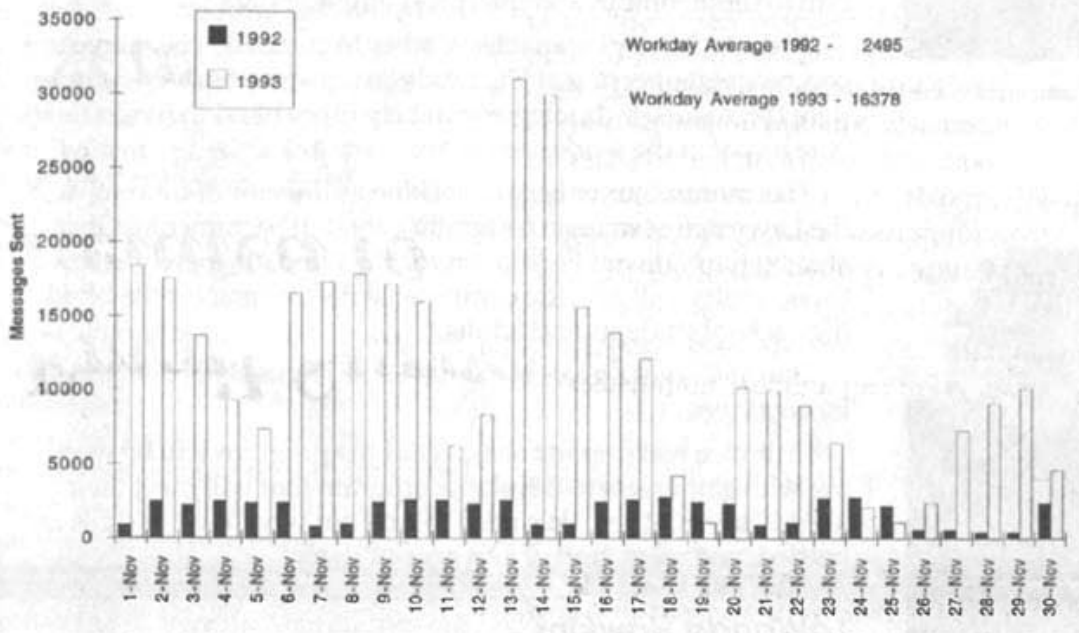
The Division of Information Technology has effectively responded to the recent increase in electronic mail communication. Factors contributing to the dramatic growth have included:

- an effort by the campus, responding to Phase III cuts, to encourage electronic communication to save money and enhance faculty-student interactions;
- a recent surge of interest in the "Information Highway" nationwide; and
- a substantial increase in subscriptions to electronic mailing lists/discussion forums.

In November 1992, the number of email messages processed on a weekday averaged less than 2,500. During the same month in 1993, nearly 17,000 messages were handled per weekday average. And in the last 6 months, email use rocketed — with nearly 39,000 messages processed daily in February on weekdays!

IT expects e-mail usage to continue to expand at an exponential rate.

IT has begun to examine the technology necessary to handle increasing demands in the future. Implementation of much of this technology will begin this summer and continue as demands on the email system increase. Electronic mail has become an increasingly mission-critical tool for the University of California. IT will continue to provide and ensure reliable, secure, and timely email delivery.



In November 1992, the Bullwinkle mail server processed on average less than 2,500 electronic mail messages on a weekday. In November 1993, it handled nearly 17,000 messages per weekday average.

Electronic Mail Crisis Has Passed

by Dan Dorough, Distributed Computing Analysis & Support, and Dana Drennan, Information Resources

Around second week of January 1994, electronic mail on IT-managed machines Ucdavis and Bullwinkle bogged down. Load on network monitoring and other software contributed to the slowdown, but the problem was essentially that email traffic, both incoming and outgoing, had reached a phenomenal rate of almost 40,000 messages per day.

IT staff dealt with the problem in several stages over the next weeks. On February 21, the most significant change occurred when we installed new email routing software and completely changed the routing structure. After a few problems with the software were worked out, email began transmitting normally again. On February 27, we put new processor boards on Bullwinkle, which further increased the capacity of that system. No problems with email delivery have been reported since then.

Now IT is looking to get ahead of the wave — by adding a Sun SparcServer 1000 to handle email routing. This machine will add four times the capacity of the current Bullwinkle (retaining the name Bullwinkle, however). IT expects that the new machine will handle email traffic without problems for another year. At the end of one year, IT will increase system capacity again as needed.

User Expectations for Email High

During the crisis, IT found out just exactly what its clients expected in delivery of electronic mail to locations off campus and across. Expectations had outstripped the capacity of the system.

The system was originally designed for a 2-day turnaround. That is, after two days, undeliverable mail is returned to the sender. However, for many years, email users have received and expected much faster delivery. It was rare for a local message to reach an on-campus destination in more than an hour. During the recent crisis, people were upset that it was taking 4-6 hours for email transmission. In some instances, it took a day.

Some situations come up that are completely out of local control.

For example, a number of departmental systems on campus have frequent periods when they do not accept electronic mail delivery. When mail is sent to a user on such a system, delays in email delivery may occur. IT does not control those systems.

Another example: Outgoing messages addressed to the same system may take different paths over the Internet. Sometimes, an earlier message can arrive after a later message sent to the same person. IT has no control over electronic mail once it has left campus.

IT remains committed to meeting expectations and strives to provide a service that delivers 99% of messages in one hour. With the recent and pending changes to the system, client satisfaction should be on the rise again.

Email Surge Related to Surge in New Computing Accounts

More than 7,000 new computing accounts have been assigned to campus users since the beginning of the 1993-94 school year, reports Joan Gargano, director of Distributed Computing Analysis and Support (in a report generated March 21, 1994).

There are 24,500 e-mail accounts assigned on campus, and 7,343 of those accounts have been created in the last six months. Gargano estimates that about 16,000 accounts are really active.

The database identifies about 4/5 of total account holders as follows:

Faculty	1610
Staff	10835
Student	7758
Visiting Faculty	34
Visiting Staff	63
Visiting Students	48

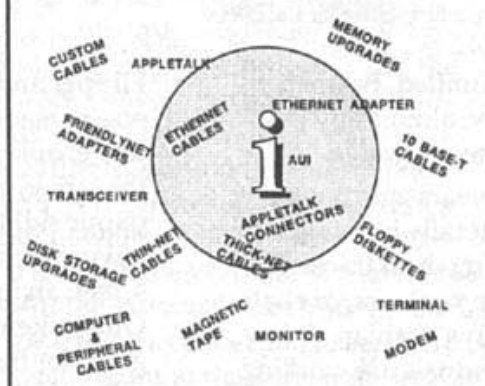
IT has been able to keep up with the demand for accounts and do it online, without paper, through a new account registration program that uses Oracle and preloads much of the information from other University databases.

In one 10-day period in March 1994, for example, 200 new computing accounts were added to the accounts database. For 126 of these accounts, representation from the major schools and colleges was as follows:

Ag and Environmental Sciences	28
Engineering	10
Graduate Studies	20
Letters and Science	64
Business Administration	1
Veterinary Medicine	1
Law	2

Faculty, staff and students interested in opening a new account should contact the IT Campus Access Point at 752-2548.

Are You Connected Yet?



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Quick Tips Now at Reserve Desk and Classical Notes

Distribution of the "Quick Tips" series produced by the IT-Campus Access Point (IT-CAP) has been enhanced.

You can now obtain these 2-page documents on information technology topics from the Library Reserve Desk for checkout/photocopying, as well as from Classical Notes in 165 Memorial Union.

Classical Notes, which charges a minimal fee, distributes the "Quick Tips" in the form of complete packets. One packet contains all the "Quick Tips" that pertain to use of Macintoshes. Another contains all the PC-related "Quick Tips."

For more information about the "Quick Tips," contact the IT-CAP (1400 Surge II) at 752-2548 or ithelp@ucdavis.

I.T. TIMES

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Use of trade or corporation names in this publication does not constitute endorsement by the University of California, Davis.

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