Texas' oldest university installs newest technology

Richard Anderson
Comptroller
Southwestern University

Chartered in 1840, Southwestern University in Georgetown is Texas' oldest university. In the last 10 years, strategic planning and a commitment to excellence have helped this small liberal arts college achieve recognition as one of the best small colleges in the country.

Southwestern's academic program continues to grow and earn respect. One of the University's goals in the early 1980s was to raise the caliber of the faculty. Stressing diversity in its faculty recruiting process and elevating faculty salaries have been important in achieving this goal.

With a highly respected academic program in place, the University has turned recently to added emphasis on the student life programs and infrastructure to meet the demands of the school into the next century. In planning for the next decade, Southwestern set forth new goals for telecommunications in its Vision 2000 master plan in 1990. The existing telephone switch was functioning well but operating at full capacity and with obsolete technology. The University was negotiating with several switch manufacturers to provide a replacement switch and system which would economically provide voice and data connections to all campus network locations, including up-to-date message-taking and relaying capabilities.

The University's old phone system, a ROLM CBX II switch, was acquired in 1979. In 1986, some digital phones and data capabilities were added. By the early 1990s, the deteriorating reliability and functionality of the old system necessitated the planning for a system to meet the needs of a vibrant, intellectually stimulated campus community.

A community of 15,000 people 30 miles north of Austin, Georgetown has advantages and disadvantages. The friendliness of the small community of 15,000 people 30 miles north of Austin, Georgetown has advantages and disadvantages. The friendliness of the small community of 15,000 people 30 miles north of Austin, Georgetown has advantages and disadvantages. The friendliness of the small community of 15,000 people 30 miles north of Austin, Georgetown has advantages and disadvantages. The friendliness of the small

Nominations are being sought for ACUTA's Institutional Excellence in Telecommunications Award for 1994. The awards are presented to member institutions for telecommunications excellence and professionalism. Three awards are given annually.

The selection of winners will be based upon the telecommunications department's contribution to support of the mission of its institution. Nominated institutions must provide specific information describing their telecommunications endeavors, products, and services which demonstrate excellence and professionalism. The awards will be presented at the 23rd Annual ACUTA Conference in Anaheim, California July 31 - August 4, 1994.

Each member institution is encouraged to apply or make nominations for the 1994 awards. Applications must be postmarked by March 15, 1994. For more information regarding nominations or applications, contact: ACUTA Institutional Excellence in Telecommunications Awards, Lexington Financial Center, Suite 2420, 250 W. Main St., Lexington, KY 40507.

See "Southwestern..." on page 6

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ACUTA Board approves new governance structure bylaws

Approval of the new ACUTA governance structure bylaws was the top item of planning and discussion of the ACUTA Board in November. The new governance structure represents another milestone in the implementation of the ACUTA Strategic Plan. Other items on the agenda were:

- Update on the member-needs assessment project
- Review and discussion of progress relating to the recruitment of a new ACUTA Executive Director
- Review of feedback and success of the Traverse City Seminar
- Review and discussion of progress relating to the purchase and/or lease of a facility to house the Lexington ACUTA staff.

Submitted by
Dr. James Cross, Longwood College Secretary

New directories mailed in December

Directories including all ACUTA members for 1993–1994 will be mailed early in December. Please check your listing to be sure all information is correct and report errors to the ACUTA office at (606) 252-2882 so that they may be corrected in the next edition.

900 Look-alike phone numbers

Howard Lowell
Telecommunications Director
Colorado State University

Another phone scam is taking place using 800 numbers to work as 900 numbers. This scam operates as follows:

- An 800 number is called and they bill it back as a collect call.
- An 800 number is called and they call back and bill it as a collect call.
- An 800 number is called and a PIN is assigned. Any future calls to the service require the PIN and are billed back to the ANI of the PIN assignment call. For example, a cleaning person calls from your lobby phone and is given a PIN. That person goes home and makes several calls from a phone booth that night using the PIN. All calls are billed to the ANI from the lobby phone (probably an outgoing trunk number).

The following 800 numbers should not be dialed:

- 800-468-3825
- 800-288-9377
- 800-758-4297
- 800-949-1661
- 800-733-7877
- 800-767-4475
- 800-444-6749
- 800-766-6614
- 800-846-2303
- 800-873-7036
- 800-927-9377
- 800-285-9049
- 800-697-7877
- 800-759-4688
- 800-944-9249
- 800-568-8955
- 800-568-8596
- 800-468-4475
- 800-877-3655
- 800-723-5016
- 800-433-0069

Two other numbers to watch out for are 719-898-xxxx and 303-960-xxxx.

As you become aware of other numbers directly tied to phone fraud, please contact the ACUTA News at (606) 252-2882.

Association of College and University Telecommunications Administrators

ACUTA NEWS, Volume 22, No. 12

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President's Message

I hope you and yours have all had a filling and fulfilling Thanksgiving holiday. And, if you have huge quantities of turkey left over, I hope you have found that copy of "99 Recipes for Left-over Turkey!"

Our member-needs assessment is past due, but I'm happy to say it is now a reality. Good things take time and, if time is any measure of quality, this survey should be extremely valuable. Needless to say, we tortured over keeping the survey form to a manageable size while trying to elicit member feedback in a myriad of areas. After several iterations, a "beta test" copy will be mailed to a few of our members in a few days. We are going through this extra step to ensure that the survey form is easy to complete and results in a comprehensive picture of our members.

The questionnaire is four pages in length and is constructed in a way that should allow respondents to complete it in under 15 minutes and with little or no research. Although there is room for comments and free-form answers throughout the questionnaire, it is structured with multiple choice responses and rankings to facilitate its completion. The "beta test" shouldn't take more than a couple weeks. Any minor changes indicated by the test will be incorporated into the questionnaire and we expect to be on our way sometime before the end of the year.

The survey firm of Fetzer-Kraus, Inc., has been retained to develop the questionnaire and to compile the responses for ACUTA. They have been invaluable to the Board of Directors in helping us understand the best ways to elicit information utilizing a written survey instrument. It is not an intuitive process! We helped with the technical categories and elements, but allowed them the freedom to format the survey instrument to yield the intended results: understanding who our members really are and what they desire from ACUTA.

Here are a few important things about this needs assessment that we want you as a member and possible respondent to know:

- Not all members will receive the survey form. Fetzer-Kraus estimates that a 50% random sample will give us the direction we need. They will use a number of methods to ensure that the response rate is high. Needless to say, if you are chosen, it is important for you to promptly complete the form and return it. Even if you aren't an active member of ACUTA, we want your opinion.

- The survey will be completely anonymous. Fetzer-Kraus will compile the responses and report aggregate information to the Board of Directors. Don't be intimidated by any of the questions. Speak your mind; good or bad, we care about your opinions. Of course, as President, I am always eager to hear personally from any of you—and I have heard from many of you in the past four months.

- This will not be a one-shot effort. The Board intends to continue providing a means of keeping in touch with our membership to ensure we're meeting your needs and, more importantly, understand them—and you. It is too soon to know exactly what method we will use in the future to accomplish this, but we are committed to polling you on a regular basis and gearing our strategic planning to match your expressed needs wherever possible.

With the balance of the holiday season fast approaching, it's a busy time of the year. Don't forget to review the materials you received about our Palm Springs seminar coming up in early January. We have two dynamite topics for you: TQM and Organizational Structures and Planning the Telecom Infrastructure. Both are extremely timely and hit two of the hottest topics on our campuses today. There will be member presentations in both seminars to personalize the consultants' more generic views and make the seminars more meaningful to the attendees.

The Program Committee works very hard to incorporate member presentations and panel discussions into our seminars as well as the annual conference. Consult your 1994 Conference and Seminar Planning Guide right now. See what you may be able to contribute to the spring and fall seminar programs and give Mal Reader, our Program Director, a call (403-220-3880). Our annual Call for Presentations for the Summer Conference will be in your mailbox in just a few days. Start thinking about participating now.

ACUTA wants YOU!!!!

And, last but not least, my personal best wishes to you and yours for a happy and healthy holiday season, followed by a prosperous and rewarding new year.

Patricia Searles
ACUTA President
The following is a summary of ideas shared by Anne Apicella in her Managing Metamorphosis presentation at ACUTA’s Annual Conference in Nashville last July.

Cost-Saving Ideas

PBX

- Buy items you know you will use in the future (i.e. line/trunk cards, station sets, software) at the time of the system purchase. The prices are far lower when purchased in bulk under the system purchase discounts vs. post-installation “add-on” pricing.
- Include a fixed-price product list in your contract with the PBX vendor which guarantees prices for hardware and software for a pre-determined period of time. Get a commitment for extra discounts, too, if you purchase a specific dollar volume on one order.
- Consider buying hardware and software for PBX-based ancillary systems (ACD, OAI) at the time of the PBX purchase, even if you do not have an immediate application. Pricing will be much better, and the capability will be immediately available when the need arises.
- Modem pooling and simultaneous voice/data on digital telephones are applications which can save your institution a lot of money in the future. While most users who need these services today have modems or other methods of connection, future users can be added at a much lower cost.
- In addition to manufacturer, promotional, and other discounts, don’t forget to ask vendors for educational discounts on products or services purchased. Salespeople are often not even aware these discounts are available unless you ask about them.
- It is possible to save cost for outside plant by distributing PBX processing around campus. The capabilities and operating independence of remote processors or modules vary depending on the model and vintage of your PBX. With remote processors or modules placed in high density areas of campus, connections to the hub (“master”) PBX are made via T-1 or fiber, eliminating the need for hundreds or thousands of copper pairs.

Network

- Interexchange carriers save a lot of money if they can bypass the local exchange company when completing calls to your campus. And they will share the savings with your institution. Ask the major long distance carriers to perform a study of incoming calls they process to your campus. The study doesn’t cost anything, and if the incoming call volume justifies it, the carriers will install direct termination capability. Depending on volume, the income can be significant. And extra savings can be realized if this arrangement allows you to eliminate some expensive DID trunks.
- Consider using CCIS or other SS7-type connections to link multiple PBX systems. This allows you to share systems (i.e. voice mail, trunks, call accounting systems, virtual network connections) instead of duplicating them at each site.
- Many institutions are growing beyond campus boundaries, and extending campus services to off-campus sites can be rather costly. The cost of T-1 has become very competitive in many areas, and can be far more cost effective than “off-premise extensions” or LEC business lines. T-1 can support off-campus PBX lines, remote key systems, even remote processors from the campus PBX.

Long Distance Service

- It may be beneficial to form a consortium with other institutions in your state when going out to bid for long distance services. The increased traffic can garner deeper per-minute discounts for all institutions without sacrificing the schools’ autonomy in contracting, ordering, and managing their long distance services. The major carriers will comply with your requirements as long as they are reasonable.
- If you maintain separate facilities for incoming (800 service) and outgoing (1+) long distance services, you may be able to save money if you combine incoming and outgoing long distance services on common facilities. You should ask if direct termination and operator services can also be on these shared facilities.

Revenue-Producing Ideas

- Rental of audio conferencing units to administrative departments. Charge a nominal per-day rental. This saves the department the expense of buying their own teleconferencing unit if they have only an occasional need to use one.
- Rental of cellular telephones to administrative departments. Charge a per-day rental plus airtime used. It saves the department the expense of buying their own cellular telephone if they don’t need one all the time, or gives them the opportunity to try one out to determine their need.

See “Telecom saves...” on page 11
U S West to test high-speed transmission

Barry Finnemore
Daily Journal of Commerce
Reprinted with permission from Daily Journal of Commerce, Portland, Oregon (Nov. 1, 1993)

The state of Oregon and a group of universities will become "guinea pigs" early next year when they try out a new telecommunications technology offered by U S West that is designed to rapidly send video, data, and images.

Known as Asynchronous Transfer Mode, or ATM, the service will allow video conferencing, computer-based instruction and greater connection between personal computers, television, and facsimile machines.

The state Department of Administrative Services and the Network for Education and Research in Oregon, or NERO, have signed on to test the service.

NERO, an Oregon Joint Graduate Schools of Engineering project, will use the service to offer scientific and medical imaging and multimedia teaching, among other things. The state will use it to tap into video and high-resolution graphics capabilities.

Oregon State University, the University of Oregon, Portland State University, Oregon Health Sciences University, the state Revenue Building in Salem, and the State Office Building in Portland will use the service.

Eventually, the state's engineering schools would use high-speed data networks to teach and do research and development with small businesses, industrial companies, and community colleges, U S West officials said.

The six-month trial period will allow U S West to get a feel for customer needs and determine if ATM saves them time and money. The company also wants to find out how quickly it can respond to customers' needs and determine the kind of flexibility it needs to be competitive with the service. Asynchronous Transfer Mode is an industry-standard cell-switching system designed to transport data, voice, video, and images at high speeds.

The need for integrating video, data, and voice transmission is driving the development of ATM, according to Doug Taylor, a manager in U S West's business and government services unit. The technology has yet to reach the point where video and voice integration is possible, but video and data integration is a reality today.

See "U S West..." on page 7

ATM comes to campuses in Ohio and New Hampshire

In an ambitious campus ATM project, Ohio State University is planning to provide ATM connections to more than 700 desktop computers. The 155-megabit-per-second links will allow computer science students, faculty, and administrators to conduct interactive data and video sessions. Students will also be able to use the network to review videos of lectures, obtain software-development tools, and read electronic textbooks, according to Communications Week (Oct. 18, 1993). The system will also enable faculty to attach notes to homework they return to students.

By mid-1994, the university plans to install 70 SynOptics LattisCell local ATM switches which could ultimately handle communications for as many as 700-900 workstations and 75 file servers, according to Marcus Salyer, Ohio State network manager, quoted in Communications Week.

Deciding that neither expanding its router-based Ethernet network nor migrating to a Fiber Distributed Data Interface LAN would satisfy growing bandwidth needs, OSU will be installing an ATM network that uses 35 SynOptics' 2800 concentrators, two Cisco Systems Inc. AGS+ routers, and workstation-based routing software.

The university and SynOptics are jointly designing the network and will collaborate on developing new methods for handling ATM traffic.

In Durham, New Hampshire, the University of New Hampshire is setting up a laboratory to test interoperability among various vendors' ATM equipment. To date, more than 10 companies have expressed an interest in participating in the tests. The university is planning to run its first tests from February 28 through March 4, 1994, focusing primarily on workgroup equipment, according to Ronald Pashby, manager of the ATM Consortium at the university, quoted in Communications Week (Nov. 8, 1993). "The consortium will publish general conclusions from the tests but won't reveal details about specific vendor equipment, Pashby said. We can publish the number of companies participating and the types of problems solved, but the lab is not a certification or information clearinghouse. It's there to establish a level ground for people to solve interoperability problems without fear of negative press."

Editor's Note: Thanks to Sydney Paredes, U S West Communications, for providing information for this article.
Southwestern University...
Continued from page 1

Richard Anderson, Comptroller, shows off Southwestern's new ROLM system.

More than a century old, Mood Hall houses sophisticated equipment.

town and a community of active volunteers provide for a high quality of life. The distance from Austin limits the availability of some telecommunication services. The closest long-distance point of presence (POP) in Austin adds to the expense of long-distance carrier T-1 service. The University does have dedicated line service to the University of Texas (UT) Computation Center. Southwestern also has established an Internet node through a 56 kb circuit to UT. However, there is no local access to CompuServe, Prodigy, America Online, etc.

The following features/functions were considered very important in the selection of a new phone system: Improved security to protect against fraud, improved reliability and service by migrating to an all digital system, expanded modem pool accessibility and call tracking, improved software engineering capabilities, and simplified maintenance functionality.

In the spring of 1992, the University decided to stay with the ROLM platform with the purchase of a 9751 Model 40 switch. As the decision process moved along in the final stages, we learned of ROLM's future release of a new series of Rolmphones. One of these phones complemented our plans to expand modem pool accessibility. The new series 612 phone is a 2-line digital phone with the capability of adding a modular data communications option (DCO) device. Using the voice and data capabilities of the switch would enable the University to provide data service to faculty, staff, and students at a reasonable cost. Concerns about connectivity to both IBM compatible and Apple/MAC computers on campus were satisfactorily addressed. With the 2-line feature of the new phones, each student could also have his or her own direct-dial number.

During these final evaluations, the University was also considering the purchase of a voice messaging system. The students were heavy users of analog answering machines on the old phone system. The migration to an all digital switch would not allow the use of the analog answering machines. The pre-purchase investigation and analysis revealed that the 2-line phones could receive message-waiting notification through broken dial tones for each voice mailbox assigned to a specific station number. With the assignment of DID numbers to each student and the 2-line phones, students sharing rooms could easily look at which line was ringing to see who was receiving incoming calls. And with the broken dial tone message-waiting feature, all they would need to do to see if they had messages in their mailboxes was to go off-hook and listen to the dial tone.

With all of these factors in mind, the decision was made to go all digital with the addition of a voice mail system. The University decided on the combination of the ROLM 9751 switch, an Octel Aspen voice messaging system, and a battery backup system. The new system was sized for an on-campus student population of 825 students and 250 faculty and staff telephones. With a total student enrollment of 1200 students, the voice messaging system was configured for 1450 mailboxes, using 16 ports and 50 hours of disk storage. The purchase contract was signed May 22, 1992, and the cutover was successfully accomplished on August 7, 1992. Southwestern was one of the first customers to have the new series of Rolmphones installed. Because the ROLM manufacturing plant is just 15 miles down the interstate, their employees and project managers were able to observe and assist with the installation of the new phones. The new system was up and running in time for the early arrival of resident advisors and students in mid-August.

Southwestern continued its relationship with LDDS as the carrier for both faculty and staff and student re-sale long-distance. A T-1 circuit to their POP in Austin handles all of the 1+ traffic. By using network authorization of personal account codes, LDDS is able to provide the billing service for the student re-sale program and the administrative reporting for faculty and staff long-distance services. AT&T is the carrier selected for operator services over 36 both-way Central Office (CO) trunks. The University has a 24-hour switchboard operation with multiple responsibilities for answering main number and defaulted ring no-answer telephone calls, monitoring fire alarm panels, and supporting the campus police and physical plant radio dispatch system. The University currently utilizes 24 DID trunks. All of the DID and CO trunks are provided over T-1 circuits to the GTE central office. The T-1 service has improved local calling services significantly.

The new system has provided an enhanced level of service at a lower cost.
of security. ROLM account systems engineers have conducted periodic security audits to check on configuration parameters subject to fraud. The system is designed with multiple levels of password security.

During the purchase and installation of the new telecommunications system, Southwestern was also implementing a new integrated administrative database management system. This system was designed to operate on the LANs installed in the first phase of the campus network system. For staff not connected to the LAN system, access to the administrative computer system was provided through digital phones with the modular DCO devices. Rack-mounted asynchronous data communication modules (ADCMs) provide connectivity to the host system. Students have been provided access to simultaneous voice and data communications through the DCO devices. Some of the uses the students are employing include: access to the library database, access to the Internet including E-mail and Gopher systems at other universities, access to bulletin board systems, and access to the resources at the University of Texas Computation Center. For one student, the Internet will be the primary mode of communication with her parents in Brazil.

As noted earlier, the University wanted to be able to track the use of the modem pool. The new switch system is configured to use the same voice call, uncheck, forced authorization numbers as for regular long-distance services. When the data calls are routed to the long-distance carrier LDDS, they are recorded and billed just like a voice call.

Southwestern is very proud of the strong sense of collegiality and community among all of the campus constituencies. The acceptance of the Octel voice messaging system by all parties has been universal. Faculty now communicate on a timely basis with their colleagues on and off campus and with their students. The students are extremely pleased with the system. There have been virtually no complaints about giving up their answering machines. And the staff members are finding new ways to communicate with one another in a more efficient manner. The use of group distribution messaging options has produced a reduction in campus paper mail and has allowed for the timely dissemination of information to the campus community.

We are very pleased with the telecommunications system on the Southwestern campus. We have been able to acquire a system that operates reliably and enhances the academic and student life programs. As we have begun to project our growth needs over the next five years, we see that our vendors' product development strategies and plans will not have an adverse impact on our investment in their systems.

**U S West...**

Continued from page 5

OHSU, for example, will use ATM to access and operate a super-computer at Oregon State, Taylor said.

Taylor and NERO participants said they want to see if the technology helps university staff and researchers store information, share it in real time, and cut down on traveling from campus to campus.

Tad Reynales, computer services manager for OSU's College of Engineering, said NERO wants to "bridge the geographic distance" between faculty and researchers and different schools, allowing for more direct and frequent collaboration.

The service is expected to save money by offering throughout NERO various classes that originate at one location.

Another goal is to gear up existing campus local area networks to handle more information faster. At OSU, an increasing number of computers are able to do more sophisticated things, but bottlenecks currently occur on the LANs and wide-area networks, Reynales said.

U S West is creating dedicated lines for the test period, and will be experimenting to see if ATM is compatible with existing transmission lines.

Taylor said the trial period provides an opportunity to "see what is possible" with ATM before the industry develops operational standards for the technology.

U S West said it wants to offer the service to a wider area by mid-1995. The locations will depend on demand, Taylor said.

**NERO ATM test**

Specific NERO network attributes will include the following:

- High-speed access to Internet
- Higher bandwidth capabilities between sites (eventually gigabit)
- Campus engineering backbone LAN upgrades
- Guaranteed access to local and remote super computers
- Broadcast television signals over digital media
- Video services at the desktop or on personal computers
- Connection to National Research and Education Network
- Wide area networking existing technology

**Did you know...**

...that if Americans recycled all of our Sunday newspapers, we could save over 500,000 trees each week or 26,000,000 every year?

...that one-fifth of the world's population breathes polluted air?

...that pollution from power stations and vehicles is the leading cause of acid rain?
Big MAN on campus links colleges to data center hub

By Barbara Wierzbicki
Network World

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With facilities including nine colleges and an educational center that serve more than 160,000 students across a county of 9,226 square miles, the Maricopa Community College District in Arizona doesn’t operate your average campus network.

Network managers at Maricopa Community Colleges (MCC) realized in the early ‘90s they needed a flexible infrastructure to support facilities that pepper the metropolitan Phoenix landscape. So the user decided to build a private T-1 microwave network capable of supporting voice, data, and video traffic.

Today, the metropolitan-area net serves as a backbone that links campus buildings to a District Support Services Center, which acts as the hub of the star-configured net.

The microwave net supports data traffic generated by any of the 11 Digital Equipment Corp. VAX 6000s, three VAX 4000 minicomputers, more than 40 Unix servers and approximately 8,500 workstations among various sites.

The local-area network architecture of the campus nets—predominantly Ethernet—supports approximately 130 LocalTalk and 15 Novell, Inc. NetWare LANs. A universal wiring system provides a minimum of eight twisted-pair wires to each classroom for voice and data, as well as a minimum of three coaxial cables for videoconfderencing.

On the voice side, the network uses channels on the microwave net to link 12 NEC Corp. NEAX 2400 digital private branch exchanges to support a five-digit dialing plan across the district. The video communications network consists of nine NEC Visualink 5000 digital video coder/decoders, operating at T-1 speeds for delivery of courses, meetings, and special events.

"There are probably more technically elegant networks, but I doubt you’ll find one that’s more open, accessible, or egalitarian than ours...and that’s what makes it so special," according to Jan Baltzer, MCC’s director of Computing and Communications.

“Our goal is to provide total access to resources for our faculty and students,” Baltzer says.

Total access through total integration: There are no separate telecommunications, data communications, or video departments at MCC. Management of its information technology networks is integrated within the Information Technology Services department at the District Support Services Center and within similar college-based departments throughout the district.

MCC’s voice, data, and video networks are integrated technically, functionally, and managerially. Moreover, they have become “a mission-critical support for teaching and learning as well as administrative processes within the district,” Baltzer says.

The MCC voice, data, and video networks are unique. No other higher education institution in the country has the integration of networking services that can be found in the Maricopa Community College District, Baltzer says. But it’s not just the degree of integration; it’s the level of access to information and resources.

Evidence of network accessibility in MCC can be seen in the ways in which the faculty, staff, and students use the network. More than 95% of all district employees use electronic mail on a daily basis, and 50,000 external mail messages are processed each day. There are more than 3,000 voice mail users within the MCC. Approximately 8,500 of the 10,000 desktop units are connected to LANs and to the metropolitan-area network. More than 75 dial-up lines are available districtwide to students, and over 125 are available to faculty and staff.

Come to Palm Springs January 9–12
The ACUTA Winter Seminars will be held at the beautiful Westin Mission Hills Resort. Explore one of two topics of significance to your role in campus telecommunications:

- Planning the Telecom Infrastructure
- Total Quality Management and Organizational Structures

To register, call Kellie Bowman (606) 252-2882
Student toll fraud: Prosecution and restitution

Allen Moore
Director of Telecommunications
University of North Alabama

Articles addressing the million-dollar issue of toll fraud riddle the pages of telephony publications with quick fix suggestions and elaborate checklists which always seem to focus on stopping the fraud. Is this our only defense?

Using "acceptable loss" standards and mathematical formulas which calculate projected loss from fraud, toll revenue projects predict this loss prior to any implementation. However, once such fraud has been committed despite the safeguards available, what can be done about it?

Shrugging philosophically and moving on to the next crisis is no solution. Seeking restitution may be more difficult, but the long-term advantage is that you punish—and maybe stop—the offender.

Begin with a close look at the abuse. Does it fit into an "acceptable loss" standard? If the abuse exceeds the acceptable loss, a series of inquiries starting with the telephone equipment data should begin. Accurate call accounting is, in most cases, the only way to identify the abuser. Even if you are not offering one-plus resale (as we are not), call-accounting records produce excellent statistical data. This data will become the foundation for building a case against the offender. While the local operating company billing links the abuse to your institution, the call accounting links the abuse to a particular student. Once the data yields an identity, research the previous month's data; there may have been smaller, unnoticed occurrences of fraudulent calling.

Remember that charges from a reseller or a service company subscribing to certain long distance services could take months to show up on your bill. Contact the billing service company. Gather whatever information you can without discussing the details of the case. (Don't forget to add the cost of these calls back to the total restitution amount.)

With a suspect in mind and with the foundation for prosecution laid, go to your institution's public safety office or the person responsible for the immediate jurisdiction of your institution's property. Initial contact with appropriate institutional personnel demonstrates personal integrity and will help protect the institution from possible defamation questions. With this in mind, you should share this information only with those directly involved in the case. Be cautious about taking any steps which could imagine your chance of restitution. After formal charges have been filed, the student's identity will probably become a matter of public record, and your institution's protective responsibility will diminish.

As tempting as it may be, do not disconnect the telephone or restrict or deny usage to the student. This student still has very important personal rights and may need the telephone for an actual emergency. However, you should continue to review the student's call records until the case is resolved and beyond.

You should not expect payment in full upon initial contact. Size up the abuse. Is this abuse a felony? How many states were involved in the fraud? Suspect all calls from the detail on the suspect's telephone, even the local ones. Is voice mail being used? Has the abuser set up a business at the local VMail service bureau and obtained the codes and DISA information?

Check your state laws governing theft of services. What about illegal interstate commerce? There exists a network of "hackers." The exchanging of this information over the public switched telephone network is, in most cases, illegal.

Expect to spend considerable time explaining the details of the investigation to date. You may be reviewing with a case assignment officer, housing staff, legal affairs department or attorneys, business officers, and possibly the state bureau of investigations, local police, and a grand jury.

At this point, you could file for a warrant through the county or municipality in which the offense took place. You should also notify the student legal system of your intentions. Advise the student courts that you expect them to take no action until after the state has taken theirs. It is also very important to notify a guidance counselor of the events about to take place. Even though the student has committed a crime, it is still the institution's responsibility to guide and nurture this person. Once a counselor is notified, the public safety office should request an interview with the offender.

At the interview, bear in mind this is a student, not Bonnie or Clyde. We all have college skeletons—this will be one of this student's. Prior to the interview, ask the business office or registrar to draft a realistic payment solution.

The interview is more important in smaller cases where the accused is less sophisticated and "sex lines" are involved. The fact that you know is often embarrassment enough. Faced with the choice of his or her after-hour calling activities being made part of the public record or of making restitution, most students will choose some form of restitution.

The sophisticated abuser's interview becomes due process. This student may deny the allega-
The sky's the limit

GTE Airfone has announced that United Airlines is equipping its entire fleet of 500 aircraft with GTE's GenStar telecommunications system. Using GenStar, passengers can make and receive telephone calls, retrieve information, and transmit data and facsimiles. It's as easy as removing the handset from the back of the passenger seat, swiping a credit card or calling card through the card reader, and then placing the call.

In other air travel news, Morris Air has gone to a ticketless system, allowing customers to call in with their credit card then show up at the gate with their confirmation number and a photo ID. No ticket. Also, they say, no frills, no meals, low fares, and fuel-efficient Boeing 737 300s. Morris flies 20 cities in the West, including Denver, L.A., Palm Springs, Tucson, and Anchorage.

Intelligent Phones

Prediction: By the year 2000, one quarter of all U.S. homes will own intelligent phones that can pay bills, review bank statements, buy products, and check stock prices or sports scores. These phones will include a built-in screen and flip-down keyboard, and a slot for your credit card. So says a New York market research firm in Investor's Business Daily.

Reality: Citibank and Ameritech have plans in place to begin testing home banking services in the Chicago area, using a telephone, screen, and keyboard. Customers can pay bills, view credit card information, transfer funds, and monitor account activity as well as scan detailed voice-mail messages.

Beam down, Scotty. You gotta see this to believe it!

Electronic government

According to Investor's Business Daily, quoted in Edupage, Vice President Gore's report on "Creating a Government that Works Better and Costs Less" estimates savings directly attributable to the use of information technology at $1.1 billion over five years. For starters, the Agriculture Department plans an all-electronic Food Stamp Program by 1996, and the IRS has a similar deadline for automating all tax filing and collection.

Serious sneakerwear

Rumor has it that on the drawing board at LA Gear is a shoe that will measure how high you jump, how far you run, and your blood pressure and heart rate while you exercise. The secret is a tiny microcomputer embedded in the heel or tongue.

High-tech census

Will the year 2000 be the year of the user-friendly census for high-tech junkies? Your Census Bureau and mine is testing new options for responses, such as a phone center to answer questions and an option to dial in the data via computer modem. They're hoping to reduce the amount of money spent on home visits necessitated by non-responses—which amounted to 20% of the 2.5 billion dollar total cost in 1990. Also on the horizon: computer kiosks Mr. and Ms. American Citizen can use to fill out forms.

Did you know...

According to Consumer Reports, one out of every four phone calls in the U.S. today is a fax transmission.

ACUTA Calendar

- Winter Seminar -
Palm Springs, CA
Jan. 9-12, 1994
HOTEL: The Westin Mission Hills Resort
TOPICS: Planning the Telecom Infrastructure
        TQM and Organizational Structures

- Spring Seminar -
Baltimore, MD
April 24-27, 1994
HOTEL: Hyatt Regency Hotel
TOPICS: Hot Management Topics
        Campus Cable TV

- ANNUAL CONFERENCE -
Anaheim, CA
July 31-Aug. 4, 1994
HOTEL: Anaheim Hilton
TOPICS: Management; Regulatory Issues; Professional Growth; Voice, Data & Video; more

- Fall Seminar -
Richmond, VA
Oct. 16-19, 1994
HOTEL: Hyatt Regency
TOPICS: Network Planning & Management
        Student Services
Toll fraud...

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tions and immediately seek legal counsel. The attorney will look at the records, and if your legal division found substance in them, the student's attorney should do likewise. The student will probably be advised to wait for the state to take action. Waiting for a decision regarding an indictment can be to your benefit. If the student is guilty, he is less likely to stay in an area knowing an investigation is in progress. If he leaves, he is less of a threat to you.

If the state does not return an indictment, the student will not face a court battle, and the chances of recovering your loss are considerably reduced. However, when school is over and the offender must move out of the residence hall or secure a lease on an apartment, you may have some leverage with his credit history. Withholding his diploma and any transcripts will also provide you with some recourse as you pursue restitution unassisted by the courts.

If the state has returned an indictment, the counsel for the student will probably advise the student to settle out of court. Being advised of the court cost and the time involved, the student will probably return to the interviewer and offer restitution. If this occurs, don't think the case is closed. You must review every billing cycle for the next twelve months because you have deferred prosecution. If future billings do not show any additional fraud from this student, the case is closed. If the case should be considered closed without deferring prosecution, the student may then relocate the practice, thereby charging the institution in the same way all over again.

At the last interview, the parents will undoubtedly attend (after all, it is their money). The telecommunications person who first noticed the fraud also should be present. The abuser, in all probability, will be more willing at this time to describe how he "beat the system." The telecom manager's job should include "aggressive listening." After all, how often will he/she have an opportunity to ask questions of an admitted offender? The information gathered from such a confrontation could be invaluable. Be direct and specific. Telecom managers are not investigators. We are administrators who now have the knowledge to make phone bandits pay the price for their million dollar fraud.

Telecom saves...

continued from page 4

- Cable television. Local cable television providers are often interested in installing cable TV service on campuses at no cost to the institution. University departments want cable service (especially Mind Extension University, Discovery Channel, CNN) for a variety of reasons. Students in the residence halls want it for very different reasons. Monthly charge per active outlet can be negotiated with the cable provider at very low rates. The Telecommunications Department can add a small surcharge on the per-outlet charge and realize a significant income.

- Student long distance. If you are not yet providing 1+ and 0+ service to your students in the residence halls, you may be missing a great revenue opportunity. Most programs provide a discount to the students while providing revenue to the university. Management of the billing and collections can be done in house or by an outside vendor. If you don't have residence halls, you can still provide 0+ services to students via calling cards which return commissions to the university. The major carriers are now offering these programs.

- Student voice mail. Many universities are providing voice mail boxes to students at a nominal monthly cost.

- 0+ commissions. Most carriers offer commissions for all 0+ operator-assisted calls made from universities and their hospitals. The commissions can apply to calls placed via trunks and pay phones. The payment of commissions does not increase the cost of these calls, but can provide a significant return to your department.

If you have an idea for saving money or increasing revenues, I'd sure like to hear from you! Contact me at UNM, Telecom Bldg. 256, Albuquerque, NM 87131-3530. Or send an e-mail message to apicella@hydra.unm.edu.

Two suggestions for reducing stress around the office:

- If informal meetings seem to drag on beyond your time constraints, consider meeting in the other guy's office. Then when you feel you've accomplished all you can, you can exit gracefully. If the meeting takes place in your office, it may be difficult getting some visitors to leave.

- Carrying important papers around the office? Be sure the folder or envelope has your name on it. Then if you lay it down, it will find its way back to you. If you take papers with you on a plane, be sure the envelope has your address as well.
Editor's Notes...

Congratulations to Maricopa Community College District in Arizona for being recognized as outstanding in their field by Network World Magazine! And thanks for the opportunity to encourage everyone to let me know when you have received recognition of any sort for telecommunications innovations or applications on your campus. I have read about your accomplishments in a variety of publications from time to time, and would love to turn your story into an article for our ACUTA News. Perhaps you won't feel what you're doing is so remarkable, but it may be the answer that another ACUTA member has been searching for somewhere across the country. I hope you will remember ACUTA when you find a cost-efficient shortcut or discover a new way to handle an old problem or encounter some new product or technique that makes your job easier. Don't we all acknowledge networking as one of the primary benefits of membership in ACUTA? And, after all, this is your newsletter!... Send news and notes (and cartoons) to: Pat Scott, ACUTA, 250 W. Main St., Ste. 2420, Lexington, KY 40507. Phone (606) 252-5665 or fax (606) 252-5673.

Deadline for February ACUTA News is Friday, January 7.

ACUTA News is printed on 15% post consumer waste recycled paper.

- BULLETIN BOARD -

DIRECTORY UPDATES
October 28–November 30, 1993
Welcome New Members

Region 1 (Northeast)
- Clark University, Worcester, MA. Paul Bottis, Jr. (508) 793-7429
- Greenfield Community College, Greenfield, MA. Cynthia A. Wheeler (413) 774-3131
Copper Corporate Affiliate
- Shen Millsom & Wilke, New York, NY. Stephen Carnilla (212) 725-2552

Region 2 (Southeast)
Copper Corporate Affiliate
- American Public Communications Council, Washington, D.C. Lisa Roddy-Burns (202) 296-9800

Region 3 (Midwest)
- Oakton Community College, Des Plaines, IL. Carl Costanza (708) 635-1630

Can you help?
Buck Bayliff, Wake Forest University, would like to know if anyone has a plan for disaster planning or business resumption that they can share. Also, anyone who is using a computerized inventory (equipment) tracking system... what, who, how... Contact Buck at (919) 759-5932 or e-mail bayliff@ac.wfunet.wfu.edu.

Anne Apicella, University of New Mexico, asks how other schools are equipping their systems to provide caller ID to stations on incoming trunks. Does anyone have a non-ISDN solution? How about a cost-effective ISDN solution? Contact Anne at (505) 277-9234 or e-mail apicella@hydra.unm.edu.

Position Available
Telecommunications Network Engineer
Westminster College

Responsibilities: Provide leadership in design, implementation & management of campus network including telephone system, cable plant, & data network. Supervise campus staff, students, & outside contractors assigned to work on network projects.

Requirements: Bachelor's Deg. with additional training desired. Five years exp. in telecom hardware and software mgmt., including hands-on exp. with installation & operation of computer networks. Working knowledge of cabling specifications, network eqpt., network mgmt. tools, security, & network design. Exp. with telephone PBX eqpt. is desired. Leadership, verbal, & organizational skills. Exhibit flexibility in thinking & working with others. Must relocate to within 10 miles of campus.

Application: Send current résumé with salary history & 3 references to: Director of Information Systems, Hoyt Computer Center, Westminster College, New Wilmington, PA 16172.

Deadline: Dec. 17, 1993 AA/EOE

For Sale
Union College of Schenectady is offering used equipment for the Intecom IBX for sale. All of the equipment is in working order and available immediately. For details, contact Diane Winkler at (518) 388-6411.

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