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ACUTA eNews August 1994, Vol. 23, No. 8

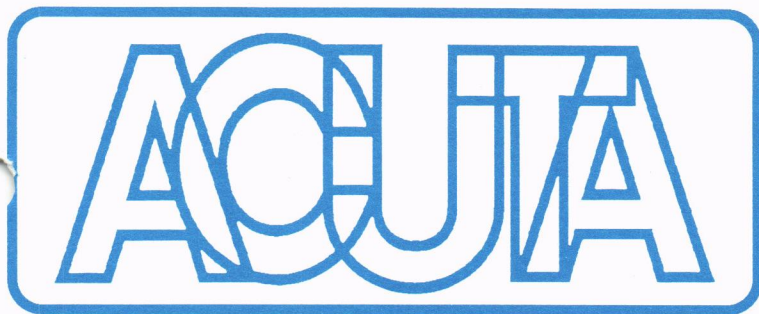
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"ACUTA eNews August 1994, Vol. 23, No. 8" (1994). *ACUTA Newsletters*. 242.
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THE VOICE OF
TELECOMMUNICATIONS
IN HIGHER EDUCATION

NEWS

Association of College & University Telecommunications Administrators

August 1994

Billed Party Preference decision will impact colleges and universities

Whitney Johnson
Northern Michigan University

Billed Party Preference (BPP) is a proposal that would potentially eliminate the option now available to universities to enter into agreements with long distance carriers and then receive commissions for 0- and 0+ interLATA calls sent through that carrier. Under this proposal, such calls would be intercepted by the Local Exchange Carrier (LEC) operator system which would determine the preferred Operator Services Provider (OSP) based on the party paying for the call (e.g., the card holder on a calling card call or the called party on a collect call). Calls would then be routed to the operator system of the designated OSP for call completion and billing.

BPP was initially proposed as early as 1986 under the name of Carrier Identification Service. In 1992 the Federal Communications Commission (FCC) issued a Notice of Proposed Rule Making (NPRM) that addressed BPP along with the use of proprietary cards for 0+ access. The idea of BPP has been on the table without final recommendation since that time.

ACUTA has taken a neutral position on BPP since the membership is divided in their support of both sides of the issue. Some feel strongly that the person paying the bill should be able to determine who carries the call and assesses the charge. On the other hand, some feel that since the caller is using university equipment and generating revenue for the university through commissions on the call, BPP should not be mandated.

On June 6, 1994, the FCC Further Notice of Proposed Rulemaking (FNPRM) CC Docket No. 92-77 was issued. This document is 45 pages long and is available from the FCC and most likely through some of your telephone service vendors. Initial comments were originally due by July 8 and reply comments due by July 29, but these dates have been extended to August 1 and August 31 respectively. Even though August 1 will have passed by the time you read this, it is still worth your time to send a letter to the address listed below if you have concerns about the impact BPP may have on your university.

See "BPP..." on page 6

UMC Re-engineers Student Telecom Service Processing

Mark Burton
*Senior Programmer/Analyst
University of Missouri-Columbia*

During the past few years, the University of Missouri - Columbia Office of Telecommunications began practicing Business Process Re-engineering (B.P.R.) principles without even realizing it. In accordance with Michael Hammer and James Champy in their book *Re-engineering the Corporation*, we managed to rethink and radically redesign a fundamental process — student telecom service sign-up. As a result, we have made dramatic improvements.

The following is a brief case study. In order to understand the case study, a little background information is necessary.

In 1986, the University contracted with GTE to lease-purchase DMS-100 Centrex service. In a hybrid arrangement, GTE allocated two exchanges and sold eight remote switching centers (RSCs) to the University. The University owns most campus plant, including all plant connecting the RSCs. As a part of the agreement, GTE provided three maintenance and administrative positions (MAPs) through which university

See "UMC..." on page 8

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Board Report

ACUTA Board finalizes plans for 1994 Annual Conference

The 1994 Annual Conference in Anaheim July 31–August 4 was the primary focus of the Board during the July 7 conference call. Key items of discussion were the annual business meeting, the ACUTA information session agenda, conference registration, and Show 'n Telecom presentations.

Other items on the Board agenda included:

- July 29 Board meeting in Anaheim
- Financial audit of ACUTA books
- Membership renewals
- Eastern Region meeting held June 15
- Electronic Access Project proposal
- Finalization of the Annual Report
- New Board members orientation session

Submitted by
Dr. James Cross, Michigan Tech
ACUTA Secretary

“ If you can't write your idea on
the back of my calling card, you
don't have a clear idea. ”

—David Belasco
(early Broadway producer)

Mississippi Community Colleges install statewide distance learning network

Austin, Texas VTEL Corporation announced that seventeen of its interactive videoconferencing systems will be installed in Mississippi to form the state's Community College Network (CCN). The comprehensive distance learning network is designed to improve access to educators throughout the state and lower the cost of instruction.

Encompassing the entire state, Mississippi's network calls for VTEL's MediaConferencing™ systems to link fifteen community colleges to the University of Mississippi Medical Center and the Mississippi Cooperative Extension Service at Mississippi State University. The network is expected to be operational prior to the fall semester.

After detecting a steady decline in adequate health care and human services, the Mississippi Community College Foundation deployed the CCN primarily to provide advanced degrees in nursing and allied health professions. The Cooperative Extension Service will deliver a variety of community information and education services in such areas as farm safety, disease prevention, agricultural technology, and other courses that would otherwise be unavailable in rural areas. Other CCN applications will include: advanced placement courses for high school students, public and private civic and business conferences, and international agricultural product demonstrations.

Editor's Note: See another article related to distance learning and partnerships on page 6.

Association of College and University Telecommunications Administrators ACUTA NEWS, Volume 23, No. 8

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President's Message

Happy New Year! ACUTA New Year, that is. As I write this, the Anaheim

Conference is still a few days away, and I'm not yet the President. Oh, the power of printing deadlines!

I'm a firm believer that who we are and our life experiences determine how we conduct ourselves from day to day. Accordingly, I thought that you might gain a greater appreciation of my "style" if you knew more about me—personally.

A farm kid from central Kansas, I certainly didn't plan a career in telephones (that's what it was called then). My career in telecommunications can only be attributed to one thing: dumb luck. A chance meeting at a neighborhood Christmas party lead to nearly ten years with Southwestern Bell, AT&T (remember divestiture?), and United Telephone. Since I was selling to state government and higher education clients, it was a relatively easy decision to make when one of them asked me to manage what I had sold them! You pretty much know the rest.

Rachel (my spouse) and I have three children. Carrie is 18 and will have long distance service as a freshman at Kansas State University this fall (thanks, Fred!). Zachary is 5 and Maggie, 2. If you didn't hear or see them in Anaheim, wait till Walt Disney World in Orlando next summer! As a family, we enjoy dabbling in farming/ranching and rooting for the Kansas City

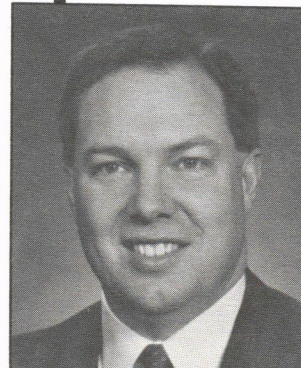
Royals and Chiefs. When I hang up on telecommunications, our plans are to make the farm our permanent home.

I'm truly excited about the upcoming year. I'm sure that the new governance structure will be cause for a considerable amount of head scratching, and maybe a perplexed look or two. That isn't cause for alarm. We plan to treat those occasions as opportunities for moving ACUTA forward.

Additionally, the Board of Directors welcomes a fresh perspective with the arrival of our new Executive Director, Jeri Semer. I believe she will quickly become a valuable asset for our association, and that she will have an immediate, positive impact as we strive to look forward.

Will we be challenged by the continual technological and regulatory changes facing telecommunications? *Unquestionably!* You can bet there will also be protracted debate about the fundamentals of higher education, its funding mechanisms, its delivery, its quality. (What's new?)

The challenge is to weave these elements together, and still "make a difference." All our members face this challenge, whether the campus is large or small, public or private. The only differences are the obstacles particular to each campus. It should be obvious that ACUTA occupies a unique niche in the fabric of higher education. It seems to me that we should work on being the strongest thread—perhaps even the one that holds it all together.



Randy Collett

ACUTA President

Fall Seminars

- ❖ Network Planning & Management
- ❖ Student Services

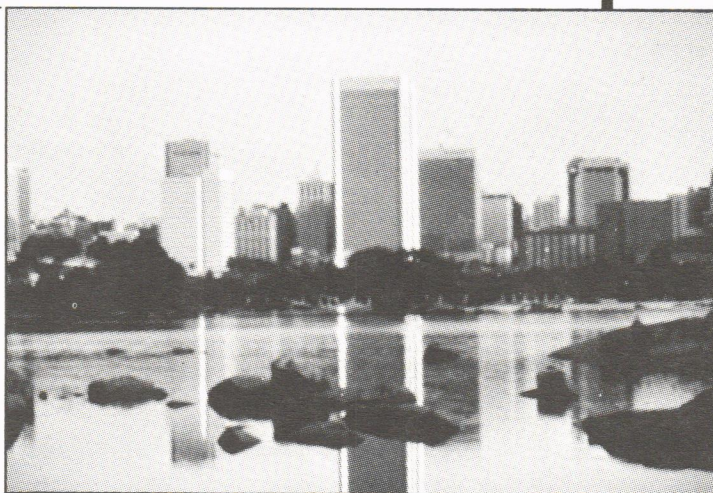
Save \$50

Register by September 16

Call Kellie Bowman

ACUTA Membership Services Coordinator

(606) 278-3338



Richmond, Virginia
October 16–19, 1994
Hyatt Regency

CUPA Administrative Compensation Survey

The publication of the 1993-94 Administrative Compensation Survey marks the seventeenth year that the College and University Personnel Association (CUPA) has gathered this information on an annual basis. This year's survey reports data on 171 positions common to most higher education institutions.

The 123-page work includes 35 tables comparing salaries by institutional classification and budget range, with special tables comparing male/female, minorities/non-minorities, inside/outside hires, and median years of service. In addition, general tables include all institutions, public institutions, and private/religious and private/non-religious by both budget and enrollment.

Responses from more than 1,400 colleges and universities provide comprehensive and reliable data that can be used by the higher education community in making salary-related decisions, including evaluating current pay levels and planning compensation budgets appropriately.

In August, 1993, survey questionnaires were sent to some 3,300 higher education institutions, of which 1,417 responded by the October 1 deadline.

In keeping with specifications of the survey, salaries reported are those in effect as of September 15, 1993. They are at an annualized, full-time rate, reflecting only actual cash earnings, exclud-

ing any services contributed without charge. Enrollment and budget figures are for the operating year 1993-94. Enrollment is stated in terms of equivalent full-time students. Budget figures reported are the total institutional budget including research funds but excluding capital funds.

The results of the positions surveyed revealed an overall average salary increase of 3.2% compared to 1992-93 data. The executive positions which saw the largest increases last year realized a 2.6% increase in '93-'94 which was the lowest except for academic positions which posted a 1.8% increase. Other increases were 3.2% for administrative positions and 3.6% for student services positions.

An analysis of salaries by institutional affiliation shows that public institutions saw an increase of 3.9% compared to a 2.3% increase in median salaries at private institutions.

CUPA is an international network of nearly 6,000 human resources professionals representing more than 1,600 colleges and universities. CUPA informs its members of the latest legal, legislative, and regulatory developments affecting human resources administration as well as trends and innovative policies and practices in the field.

For a copy of the survey or supplemental reports, contact CUPA, 1233 Twentieth St. NW, Suite 301, Washington, DC 20036-1250. Phone is (202) 429-0311.

Salaries within Budget Quartiles for Public Institutions

Institutional Budget									All	
	I '93-'94	I '92-'93	II '93-'94	II '92-'93	III '93-'94	III '92-'93	IV '93-'94	IV '92-'93	'93-'94	'92-'93
Position Title										
Dir. of Telecom.	\$37,856	\$34,576	\$43,359	\$31,900	\$46,440	\$39,168	\$60,000	\$52,313	\$50,441	\$46,896
Dir. of Comp. Ctr.	39,968	35,000	50,537	38,987	55,014	50,051	70,000	65,843	54,972	49,451
Assoc. Dir. Comp. Ctr.	31,260	25,621	39,718	35,000	47,410	43,798	59,420	59,688	48,988	47,227
Chief Info Sys Officer	43,268	38,440	56,724	47,578	65,739	59,461	82,074	76,000	64,807	58,410
Systems Analyst I	34,054	30,000	38,424	32,099	41,865	38,329	44,622	43,750	41,750	39,679
Systems Analyst II	29,494	22,300	30,705	26,450	34,080	30,350	35,186	35,110	34,663	33,162
Data Base Admin.	31,581	24,245	39,831	32,095	42,583	38,929	54,300	36,748	47,100	33,513
Program Analyst I	31,634	26,600	34,730	29,987	35,129	32,923	37,200	36,748	34,937	33,513
Program Analyst II	26,970	22,658	29,967	25,375	20,014	27,872	29,434	28,376	29,269	27,574

Quartile parameters were redefined for '93-'94; note quartile boundaries below.

I	'92-'93	\$10.5 million or less	'93-'94	\$14.4 million or less
II	'92-'93	\$10.5 to \$21.9 million	'93-'94	\$14.4 to \$34.7 million
III	'92-'93	\$21.9 to \$58 million	'93-'94	\$34.7 to \$101.9 million
IV	'92-'93	\$58 million or more	'93-'94	\$101.9 million or more

Fall Seminars to feature Student Services and Network Planning and Management

A capacity crowd is expected for the Fall Seminars to be held October 16-19 in Richmond, Virginia. Attendees may choose one of the two vital topics to be presented: **Student Services** or **Network Planning and Management**.

New technology and changing expectations have created many new opportunities for providers of telecommunications related services to students. Voice, data, and video applications, student interactive systems, voice mail, long distance services, and much more will be examined by those who elect to attend the Student Services track.

For those attending the Network Planning and Management track, a variety of issues will be discussed, including how access to campus networks is enhancing operations for academics,

students, research, administration, athletics, fund raising, medical, registration, housing, and other aspects of campus life. This track will also review client server/multi-architectures and shared database maintenance.

In addition to presentations by the experts, the seminar will provide an exhibit hall with plenty of opportunity to talk face-to-face with the vendors who serve the telecom arena.

Monday evening will find everyone enjoying a relaxing opportunity to network with peers as we feast at the footsteps of history in Richmond's fabulous Science Museum. It will be an evening you'll not soon forget!

Join us in Richmond for another exciting event!

A vendor's view of ACUTA events

Jeanne Hsu

*University Marketing Manager
Octel Communications Corporation*

There is always a lot of preparation for the ACUTA conference. This year, we are hosting a booth and the Octel Users Group meeting. Our challenge is to provide value to ACUTA members in the form of pertinent demonstrations and relevant information to support their telecom applications.

We also announced a new product, Campus Messenger, so we were very excited to talk to university and college telecommunication administrators about it.

Requirements for call processing and telecommunication applications for the university market are unique. ACUTA provides a forum for the exchange of ideas and the uncovering of these new applications. Ed Doherty, Octel Account Executive, University Market remarked, "ACUTA members are very innovative. They've taken IVR (Interactive Voice Response), Voice Mail, and Automated Attendant applications and stretched more horse power out of them with creative ideas."

"Seminars and conferences provide us a unique opportunity," observed Teresa Burnett, Octel Account Executive, University Market. "Telecommunication administrators see us in a different light. Instead of calling on telecom managers, vendors are there on the trade show floor, open to answer questions and disseminate information. From this interaction, we have gotten subsequent orders. ACUTA is very useful for vendors."

Teresa was enthusiastic about the ACUTA organization: "ACUTA is a well-run organization. It's a pleasure to be a sponsor at the annual and regional meetings. They take everyone's needs into account and treat everyone respectfully. I believe it's time well spent."

Of course, there are great opportunities for networking. This can happen in the breakout sessions, during the coffee breaks, on the trade show floor, or at the banquets and dinners. The university community is very well-connected. ACUTA members talk to each other, influence decisions, and help recommend different solutions. The more people you relate with in the community, the better equipped you are to identify with the telecommunications manager's needs.

If you missed the National Conference at ACUTA this year, mark your calendars for July 16th - 20th, 1995 in Orlando, Florida. ACUTA is a worthwhile experience. Don't miss out!

*ACUTA News is always
searching for campus
bloopers and other
fine examples of
how you are
Takin' Care of
Business!*



Partnerships help serve students technologically

Tm Marsh

WSU News and Information Services

Colleges are beginning to use technology to serve their students, thanks to partnerships with industry and foundation, WSU President Samuel Smith said at the National Net '94 conference in Washington, D. C.

In his April 8 speech, "Higher Education and Technology: The Changing Environment," Smith said, "children playing with a Nintendo interactive game are using technology far more sophisticated than what we have available to most students in college classrooms."

He said Boeing's new 777 aircraft is a "paperless airplane" in which computers were used every step in its production. The 777 is an example, Smith said, in "how technology has changed the environment into which students will enter after they earn their diploma."

According to Smith, "We in the nation's colleges and universities can not expect to do the best job preparing our students for the future when we're so behind technologically in what we offer them on campus."

One way to bring the nation's higher education institutions up to speed technologically is through start-up funds provided by partnerships

with industry and foundations "to use information technology to get good ideas off the ground so they can continue on their own." As an example, he cited the support of the US WEST Foundation which has allowed WSU to begin its "Distance Education" program. Using varied forms of technology, WSU offers education to students living in rural parts of the state of Washington.

Distance education, which is energized by the uses of computer networks and broadcast technology, allows a college to become "geographically neutral," he said. Where a college is located is "not as important as where...students are located. Students don't need to come to us, we go to them," said Smith. Information technology means "placebound" students, unable to move to a traditional campus, can have access to college. He noted that higher education institutions with branch campuses, such as WSU, "quite often link professors on one campus with students at the branch campus through interactive telecommunications."

Smith, chair of the Commission on Information Technologies of the National Association of State Universities and Land-Grant Colleges, said technology "must not dominate what higher education is doing, it must support it. It must help create change, but it must not be so big and overbearing that it obscures the vision of an institution."

BPP...

Continued from page 1

The FCC staff have made some cost estimates of implementing BPP and these are large numbers. They estimate savings to the telcos of \$340 million per year in commissions they are now paying to aggregators on 0+ calls. (Some Universities will likely lose hundreds of thousands of dollars yearly on this item.) They estimate that consumers will potentially save \$280 million per year by avoiding OSPs with higher rates. The capital cost of implementation by the LECs is estimated at \$1.1 billion in non-recurring costs and about \$60 million per year in recurring costs, plus the OSPs' annual expenses would be \$35 million. The FNPRM asks the telcos to update their earlier cost estimates and also asks independent telcos to provide cost information not previously submitted. The FCC wants comments on cost recovery plans: recover costs from BPP calls only, BPP and 10XXX calls, all OSP calls, or some other way.

The FNPRM also asks for comments on 10-digit vs. 14-digit screening design. The 14-digit plan allows the caller to use a standard line-number based card with a four-digit personal identification number identifying the desired OSP. If 10-digits are used, the line-number based card may not be possible. It is also expected that credit cards that conform to ISO/ANSI standards should be accommodated.

Aggregators (that includes colleges and universities) will not be allowed to attempt to bypass BPP calls by reprogramming the switch and/or blocking these calls.

If the FCC concludes that BPP is in the public interest after review of the material submitted, implementation should occur as soon as possible. Some have estimated this to be within two to three years after the order is issued. It appears that, based on an analysis of the available information by the FCC staff, the FCC is currently thinking that the benefits to the public outweigh the costs associated with BPP.

One thing we can all count on is that when all the dust has settled and if BPP is imposed, the end user will pay the costs of implementation and operation. If you lose the commissions that you are now receiving on 0- and 0+ interLATA calls, you will have to make up the loss in some way. Some hotels have already started to charge the user a fee for all 800 and 0+ calls. University telecom managers will have to consider ingenious ways to make the user pay more to offset lost revenue if BPP is the rule.

Please consider the impact of this proposal and write the FCC if you have a good case to present. The original and nine copies should be sent to: Mr. W. Caton, Acting Secretary, Federal Communications Commission, Room 222, 1919 M Street, NW, Washington, DC 20554. Reference CC Docket No. 92-77.

Telephone registration is a great success at SMSU

Rae Stevens

*Manager, Telephone Services
Southeast Missouri State University*

Registration for classes is sort of like school lunches back in elementary, you are practically expected to complain about it. Not now at Southeast Missouri State University in Cape Girardeau, Missouri.

SAVRS (Southeast Automated Voice Response System) enrolls students via touchtone phone seven days a week. "You can call from anywhere," said Dr. Ken Dobbins, Vice President for Finance and Administration, noting students can register without leaving home by calling the SAVRS number. The voice response equipment from Periphonics of New York cost about \$50,000, which included hardware, software and training, said Dr. Dobbins. He praised the efforts of the staff of the University's Computer Center and Registrar's Office in getting the system online. Dobbins further stated, "This is a real major change and it is a real convenience to students." For example, non-traditional students who work during the day have difficulty taking off to come to the campus to enroll in classes, he explained. With Telephone Registration, enrolling will no longer be inconvenient for such students.

Students are eligible to call the computerized service on a priority date based on their accumulated credit hours and social security numbers. Registration can be completed easily in three minutes even though the system allows students a maximum of 15 minutes. The new enrollment system includes computer terminals in the Enrollment Office, Campus Assistance Center and the College Advising Offices to accommodate students who do not have access to touchtone phones.

Southeast student have said goodbye to long lines and endless hours it took to enroll for classes. The new SAVRS phone enrollment is both effective and efficient. We are the first regional university in Missouri to have Telephone Registration.

SAVRS went online Monday, November 8th, 1993, at 4 am. Telephone Services arranged installation of 20 T-1 channels connected directly to the voice response equipment for spring enrollment. These lines were operational for approximately 100 hours per week through December 4th. The campus PBX telephone system is not directly involved and the trunks to the PBX are not affected except in accommodating for Residence Hall students calling from behind the campus PBX telephone system. Telephone Services set up 15 trunks in a designated trunk group within the PBX to accommodate the residence hall students as

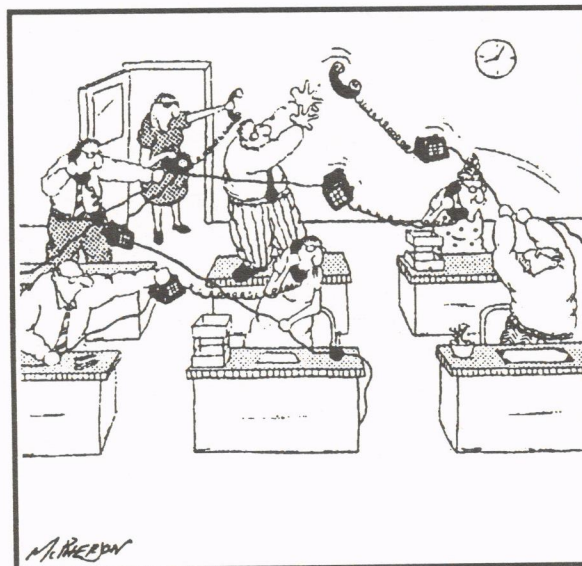
well as faculty and staff calling from the PBX to the new registration system T-1. Enrollment times were from 4 am until 7 pm, Monday through Saturday, and 4 am until noon on Sundays. In spite of some skepticism regarding closed classes and listening to a "machine voice," the opinion overwhelmingly has been that SAVRS is a huge success story.

Student registration is only one of many services that can be automated by colleges through telephone access. The voice processing systems that make phone registration possible can also be used to let students adjust schedules, pay for courses, get grade reports, remove registration encumbrances, schedule orientation sessions, and obtain information ranging from financial aid to snow closings. These multiapplications may be developed over time for future implementation.

The SAVRS system has been installed and operated without adding additional charges onto students' already increasing college costs. SAVRS makes students' lives easier by expediting timely class enrollment in addition to reducing overhead costs associated with having staff respond to repetitive inquiries. The computerized system eliminates labor costs associated with rectifying the data entry errors common to manual registration systems.

University officials said all this would be good news to students. Associate Registrar, Trish Kogge (who is also the "machine voice") promised, "You're going to love it. There's no question about it." Southeast Missouri State University Computer Center and Registrar staff kept that promise!

CLOSE TO HOME JOHN McPHERSON



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Employees at Bumfarb Associates hadn't quite mastered the fine art of transferring phone calls.

UMC...

Continued from page 1

telecom employees process software for moves, adds, changes, and disconnects. We also employ MAP terminals to capture traffic information in raw form. The University paid the last installment of the lease-purchase in 1992.

Like many colleges and universities, the University provides on-campus, resident students with local telephone, long distance, and cable television services. The resident's basic room rate includes local telephone and cable television services. Long distance, voice mail, and advanced telephone feature packages are available to students at an additional cost. Our challenge, therefore, is to earn additional revenues by actively marketing these three discretionary services. Any successful marketing program must be supported by an administrative system capable of processing service requests quickly and efficiently.

Initially, the Office of Telecommunications only marketed long distance service and did not provide voice mail or advanced telephone features to students. Sign-up procedures were largely manual. A student had to sign up in person by filling out a service contract and presenting a valid student ID. A long distance authorization code would be assigned from one of several paper lists of random numbers. When students moved into the residence halls in August, sign-up entailed long, and often hot, lines and teams of telecom employees deployed to sign-up sites in the halls. This process required a great deal of paper shuffling and, unfortunately, offered ample opportunity for human errors by both students and employees. One of the biggest recurring problems was assigning the same authcode to two students in the rush and chaos of sign-up. Other problems included incomplete, incorrect, and illegible information on service contracts.

The worst part of the process, however, was manual data entry. When contracts arrived from the sign-up sites for processing, they first went to a crew of employees trained to activate the authcodes in the DMS-100 via MAP terminals. We staffed all the MAP terminals, except the one used by the University Hospital and Clinics, and manually input 3,000 to 3,500 authcodes in the space of three days. As we guarantee service activation within 24 hours, we wanted to ensure that all students signed up in a given day had long distance service before we went home for the night. As sometimes more than 800 students signed up in a day, we spent some very late nights entering data. Even with the best of data entry operators, a large volume of data and a stringent time constraint inevitably result in entry errors. Later, when we implemented station specific authcodes, which require three steps to

activate in the DMS-100 rather than the one step for standard codes, we compounded the data entry workload and problems greatly.

After we activated the authcodes in the switch, the contracts were routed to our billing staff for input into the university's mainframe-based, student accounts-receivable system. The billing staff laboriously re-entered the same information as well as student name, student number, and address. Like DMS-100 data entry, billing data entry was expensive in staff time, prone to errors, and also incurred mainframe connect charges for many hours of on-line usage.

After the first fall sign-up using station-specific authorization codes, we concluded we desperately needed to improve this process. Although we had not come across the word, this process was crying out for re-engineering. We already had a significant investment in personal computers and had a professional computer programmer with a strong interest in computer automation on staff. We considered how we could leverage that investment to improve this dull, repetitive, time consuming, and error prone process.

Fortunately, we had already developed a customized, DOS-based communications program to handle a separate network access problem. We reasoned this program could provide the platform for improving the sign-up process. We modified the program to enable an IBM PC to function as a MAP terminal, replacing the VT100 and teletype terminals currently in use. We then programmed the specific DMS-100 commands used to activate authcodes into the communications software. Data entry employees could now activate service by merely entering the phone number and authcode. The software would take care of sending the three actual commands to the switch. This meant less typing and thus faster and more accurate data entry. It was a definite improvement.

Unfortunately, the speed at which an employee could enter information was still limited by the DMS-100's sometimes slow response time. In addition, we were still limited to simultaneous data entry on only two available MAP ports. These limitations led to our next development. We enhanced our communications program to process authcode commands, both adds and deletes, in "batch" mode from a data file. We then developed a data entry program to accept authcode and phone number and automatically place that information in a data file. Because the data entry program was not directly tied to a MAP port, more people could be concurrently entering data than there were MAP ports and they could operate with greater efficiency. As long distance contracts came in (in huge piles) for processing, several employees would simultaneously enter the data. As we did not have a LAN then, we copied the data to floppies and transported it via sneaker net. We then merged

the separate data files into a single file to be processed by the communications program. Often the communications program entered authcodes late into the night, long after we had gone home.

Once again, this was a great improvement, but there were still problems that we had yet to address. We were still entering the authorization code and the phone number twice: once into the data entry program for the DMS-100 and once, along with additional information, into the university's mainframe for billing. This meant duplicate effort and, because of data entry errors, ongoing problems with inconsistencies between mainframe billing files and switch authcode tables. These inconsistencies required a great deal of staff time to identify and correct. The obvious solution was expanding the data entry program to accept and store not only the authcode and phone number, but the student name, student number, and address as well. Once employees entered the data, we collected the data onto one diskette and merged it as before. We then extracted two separate files from the data. One contained only the authcode and phone number, which the communications program used to put the authcodes in service in the switch. We reformatted the other file to upload to the mainframe billing dataset in place of doing manual data entry. This eliminated the duplication of data entry and reduced the occurrence of inconsistencies.

This system worked very well and saved substantial staff time. The major problems remaining still resulted largely from human error. One particular error was assigning of one authcode to two students. The DMS would correctly reject the duplicate entry, but the communications program could not recover from the error on its own. If an error occurred, an operator would have to be nearby to restart processing. Also, erroneous authcodes still made it into the mainframe billing data.

Up to this point, the development of this process had been evolutionary. The communications program that interfaced with the DMS was still the same one we started with, albeit highly modified. The data entry program and extraction routines were still DOS-based, stand-alone programs even though the department had moved to a Microsoft Windows environment. With the deployment of a departmental LAN and the acquisition of Microsoft Visual Basic, a highly flexible Windows based programming environment, we had the opportunity to make revolutionary changes.

We scrapped all of the old programs and re-developed them for a networked environment using Visual Basic. We developed a specialized communications program called Extend to interface with the DMS. The new program had an auto-reconnect feature and robust DMS error

handling. These features allowed it to run unattended without failure. It also produced error reports for failed authcode activations. These reports, along with a newly developed data entry program, enabled us to intercept errors before they were uploaded to the mainframe, finally giving us total consistency between the DMS and the mainframe. The new data entry program also enabled us to enter billing information for students who wanted voice mail services or advanced telephone feature packages. Because we developed the new software for a network, we finally retired our sneaker net. All data processing was done from one workstation regardless of where in the office the data entry occurred.

These changes had finally solved our problems with fall semester student sign-up. However, we had yet to address daily service contract processing, because our processes were specialized solely for the mass entry and processing of authcode additions. We still processed students making changes or signing up later in the semester with duplicate data entry into the DMS, though Extend greatly improved this process, and into the mainframe. The overhead required to collect data, process it in batch mode through Extend, and perform mainframe uploads precluded use of our mass sign-up system for daily processing tasks.

We therefore overhauled the system and created what we have now. Instead of dumbly accepting data and passing it on, we gave the data entry program a full database of authcode information and modified it to update this information. The new data entry program could now, for the first time, prevent the entry of duplicate authcodes as well as prevent invalid deletions or changes of service.

We also enhanced Extend to function in a client/server mode. As contracts are entered through the data entry program, the commands to add, delete, or move authcodes are now sent to a server version of Extend which queues and processes the commands as they arrive. This arrangement allows processing of service requests in real time without the need for additional, expensive MAP ports. Any PC with the appropriate data entry software could now serve as a virtual MAP terminal for student service changes. Updates to the mainframe are extracted from the data entry database on a weekly basis. We also added the capability to process faculty and staff authorization codes through the data entry program. We now have one interface for all of our day-to-day authcode activities as well as student voice mail and advanced features.

As this article is being written, we are re-engineering the sign-up process itself for the first

21st Century Technology

Technology vs. work ethics

Many applications programs now have games built into them for workers to play when the boss isn't looking—along with "boss" keys which can instantly throw onto the screen a spreadsheet or some other serious-looking display. In a story found in the *Atlanta Journal-Constitution* (7/3/94), the Gartner Group calculates that businesses lose 26 million hours of employee time (about \$750 million a year) from game playing.

"Cyberscope"

Newsweek magazine has launched a new one-page feature called "Cyberscope" (to parallel its long-standing political "Periscope" section) to offer "news, reviews, and consumer tips from the world of information technology." Should be available at your newsstand.

Pagers in the mainstream

"So there I am, standing in the field, chewing my cud and minding my own business when my beeper goes off and I gotta get back to the barn. Is this new technology making a lazy bum out of that farmer, or what?" Yes, it's true, according to the *Wall Street Journal* (7/27/94), Japanese farmers have put pagers around their cows' necks to beep them when supper's ready. Closer to home, businesses are finding creative uses for pagers, too: Restaurants beep patrons when their table is ready, auto repair shops beep customers when their car is finished.

Just-in-time learning

From *Business Week* (7/18/94): With funding from the Pentagon and Andersen Consulting, Northwestern University's Institute for Learning Sciences is doing leading-edge research into how people learn and applying it to developing multimedia software aimed at creating an electronic, just-in-time teacher. The ILS's ASK system responds to student queries with special "case retrieval" software that gives students access to a video database of subject experts who relay "stories" to answer the questions. "ILS Director Roger Schank and the ILS are 'pioneers on a wild frontier' in teaching and learning, says the NSF's John Clement.

I'm away from my desk...

The Eastern Management Group has calculated that 11,900,000,000 messages were left on voice mailboxes last year.

Interactive TV coming soon

According to the *Atlanta Journal-Constitution* (6/28/94), BellSouth will implement interactive TV in a 12,000-family metro Atlanta test area in 1995. Participants will have access to 300 special TV channels and 60 conventional cable TV channels, and will be able to shop, bank, play games, download movies, and enroll in courses.

But, less the South surpass the North in new technologies, the *Wall Street Journal* (6/27/94) reports that Nynex will ask the FCC for permission to wire some 330,000 homes and businesses in the Boston area for interactive services by the end of next year, also.

Green machines

From *Investor's Business Daily* via Edupage:

Following last year's hoopla over the EPA's "Energy Star" program (which encouraged computer manufacturers to conform to new government guidelines on energy efficiency) demand for the "green" machines is still sluggish. Despite annual energy savings of \$50 to \$100 per machine (which could add up to billions nationwide), most companies are driven by performance, speed, and the bottom line when computer shopping. Noting that there's no price or performance differential between most green and non-green machines, one industry analyst says, "Once retail buyers become aware of the environmental benefits that are available at no added cost, the market should take off."

Lifetime phone numbers

Tired of memorizing a new phone number each time you move? Beginning in September (if the FCC approves) AT&T's True Connections plan will assign you a number you can keep for the rest of your life—or until you stop paying your bill. The new "500" area code numbers will let subscribers program existing phone numbers to follow them wherever they go. They can even ring in sequence: at the office, then at a cellular phone, then at a friend's house...

PCs grow with communications

The *Wall Street Journal* (2/29/94) says Intel expects PC sales to reach 100 million units a year by the late 1990s, as the result of the interdependence of PC and communications technologies. The *Journal* quotes Intel CEO as saying, "Communications is going to shape what is happening to the PC world. Conversely, PCs are going to shape what is happening in the communications world."

UMC...

Continued from page 9

time in order to further enhance customer service and reduce labor costs and human errors. Instead of requiring students to stand in long lines in the August heat, we are now signing them up for services via a mail-in form. We are extracting student data from Residential Life's mainframe database and using that information to build an on-campus student database on our local area network. We then pre-assign each student an authcode. We subsequently mail students a marketing information packet that includes their authcode and a postage-paid, tear-off response card. The student need only check off his/her choice of telecommunications services, sign and date the card, and mail it back to us. When we receive the cards, the only data entry required is entry of the student number (to access the correct record in our database) and marking which services the student chose. Before the residence halls open, we will use this database to drive the installation of services through Extend for those students who returned their cards. We will also extract data for upload to the mainframe billing dataset. When the students arrive on campus, all of the selected services will be in place. This process makes full use of distributed processing and client/server methodologies to minimize staff time and human error.

We have learned many lessons from this experience. As we re-engineer one process, others in need of change become more apparent. Using Extend and Visual Basic, we have developed programs for directory number and Line Equipment Number (DMS-100 line card) availability tracking and assignment. The LEN assignment program even handles node balancing. We also have developed automated systems for traffic data collection and processing as well as many other facets of our operation related to switch management.

Search for New Members continues!

Kellie Bowman

ACUTA Membership Services Coordinator

1994 has been an exciting membership year for ACUTA! In February, contacts with ACUTA members produced an impressive number—about 110—who were willing to serve as “tier peers,” answering questions about ACUTA for prospective members.



The result of this effort is the addition of close to 40 new colleges and universities who have joined the Association. Some 95 First Timers have attended ACUTA events already this year, and our vendor community has swelled by 35 new companies.

As a part of our effort, we made a special offer to nonmembers who attend an event then join within 90 days: They can apply \$125 (the difference between member and nonmember registration fees) to their initial membership dues. Ten schools have taken advantage of that offer. If you have colleagues at nonmember schools, you might want to suggest this as an economical approach to ACUTA membership.

ACUTA has a lot to offer colleges and universities, whether your school is large or small, private or public, and to the vendors who serve the higher education arena. As the new year approaches, we'll be setting goals and objectives to better serve our members. We would love to hear from you! In addition, I always appreciate your calls giving me potential new member contacts.

ACUTA Calendar

**Fall Seminar
Richmond,
Virginia**

Oct. 16-19, 1994

Hyatt Richmond

TOPICS

- Network Planning & Management
- Student Services

**Winter Seminar
Maui,
Hawaii**

Jan. 17-21, 1995

Inter-Continental
Resort

TOPIC

To be announced

**Spring Seminar
Kansas City,
Missouri**

April 9-12, 1995

Hyatt Regency

TOPIC

To be announced

**24th ANNUAL
CONFERENCE**

**Orlando,
Florida**

July 16-20, 1995

Stouffer Resort

TOPIC

To be announced



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Editor's Notes...



From the Changing/
Challenging World
department: Recently I have
acquired a number of publications
detailing **distance learning programs**.
Two of these documents were reviewed
in the April issue of the *ACUTA News*. If
you are interested in completing gradu-
ate level training from a distance, you
might be interested in what these books
have to offer information-wise. Call me.
Read also articles on pages 2 and 6 for
some examples of distance learning
projects....From Tony Tanzi, Brown
University (see June *ACUTA News*, pg.
3): "Thanks for the continued publicity in
the ACUTA newsletter. Financial
response from ACUTA members would
be greatly appreciated. More important,
everyone's prayers and good wishes
continue to sustain our family....John
goes soon to the University of Minnesota
Children's Cancer Center. The bone
marrow transplant is scheduled for
August 2, and we plan to be there to
support him. Before August 2, he will be
getting radiation and other treatment to
prepare him for the procedure....I'll keep
you up to date and again thank all of you
for your help." **It's not too late to help!**
See June *ACUTA News* or call (800)
272-2882 for addresses....Share your
success stories, good luck, and bloopers
with ACUTA! Pat Scott, Publications
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NYNEX vs. 800/900 abuse

Thanks to **Kath Mullholand, UNH Tele-
communications**, for this information:

NYNEX, the BOC for New York and New
England, has announced in their NYNEX
NEWSFLASH newsletter that, "**Effective
May 31, 1994 NYNEX will no longer bill
for '800' numbers which ultimately are
transferred to a '900-type service'.**"

Calls that providers submit to NYNEX are
coded using BOC industry-wide identifiers
that provide information about the type of
call. NYNEX has verified that providers
are no longer passing such calls on to
them for billing.

Univ. of New Hampshire says no such
calls appear on their most recent bills, but
expects to receive direct bills from these
providers over the next few months.

Position Available

**Don't forget the *ACUTA News* when
you have a position to advertise.**

There is **no charge** to our members for
running ads in the newsletter, and you are
assured of reaching people who are
qualified to fill telecom-related positions.

We accept ads for schools and the
vendor community (provided vendors
advertise positions that specifically require
telecom-in-higher-ed experience).

Contact Pat Scott for details

Password Precautions

The Computer Law Association has some
advice on choosing passwords. Don't
choose any word in the dictionary, or one
that relates to you personally (i.e., birth
dates, license plate numbers, etc.). Do
use a password with at least eight
characters that has a mix of numbers,
upper- and lower-case letters, and if
possible special characters such as
&\$@*.

Welcome New Members

Due to preparations for the Conference,
our new member report for August will be
combined with the September list. If you
joined ACUTA after June 28, your
directory information will appear next
month. Sorry for any inconvenience!