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President's Message

Well, it looks like mean ol' Mr. Access Charge is going to be paying us a visit after all. Centrex users everywhere know the basic financial implications of the decisions to reinstate the access charge. But will they stand for it? Not likely!

Those who up to now, have been in a holding pattern, keeping their fingers crossed, really have no choice but to start actively investigating alternatives to their present service. But what about Centrex? Is it really dead or does it have a chance to survive these torrid times?

Here at Wisconsin, as is the case now in many states, the BOC's have suddenly come alive and given new meaning to the term 'creative accounting'. Folks, Centrex may eventually die, as do all things, but you can be sure it will go out kicking. In the meantime, we may all get a rare opportunity to see the groveling extent the BOC's will go to keep it's customers happily in place. Times have sure changed since the days when phones came in three colors: ebony, onyx and black!

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With the conclusion of the Orlando Spring meeting, we again have seen evidence of larger numbers of members attending the seminars and workshops. It wasn't so many years ago that we considered a meeting successful if fifty people attended. About two years ago a trend began to develop where more people wanted to participate in the meeting than space would allow. We view this as unfortunate because it has never been the ACUTA policy to restrict the number of registrations at any meeting. Actually, it was never considered because, at the final count, there always seemed to be more chairs than people. So, I guess we can say that, in terms of attendance, the seminars of the past two years have been overwhelming successes.

The Orlando seminar was something else again. The original arrangements and commitments to the hotel were made for 75 attendees, based on prior experience and attendance records. That number was exceeded almost immediately and, with the cooperation of the hotel and transportation companies, emergency measures were taken at the end of February to expand this meeting to accommodate a maximum of 120. Within two days we were again at capacity with no other choice but to create a waiting list.

This type of response to the Orlando meeting was totally unexpected and, on behalf of ACUTA, I would like to apologize to anyone who wanted to attend this meeting but had not been able to register because there was no room. Our host, Bill Morris, had attempted to acquire more hotel rooms but because of the location, (Continued on page 2)

Party Line

...by Ruth A. Michalecki

What a lot of excitement our new Store & Forward Voice Message System is creating at Nebraska. It is being installed right now and we should be up and running in a few days.

For a long time now, unanswered telephones (especially faculty phones) have been a major concern of ours. True, we have all the sophisticated call forwarding features and call-pick-up features, but adding the workload of taking messages for a large number of faculty to a diminishing number of support staff, already burdened with a work-overload, didn't add up to solving the problem. It was really creating another problem, in my perception. Oftentimes you can recognize an overburdened communication system by the amount of telephone tag you find people playing—by muddled or mistaken messages and by the countless wasted minutes spent on hold. Did you know that only three calls in ten are successfully completed on the first attempt and that over half of all calls completed are not answered by the called party—yet most of our schools are paying for direct-in-dial, fully featured systems that should be answered by the called party, if they are available to take a call. How many of us pay for key systems and PBX systems to work behind a fully featured major switch, just to cover the answering location and avoid unanswered phones?

With our new system, we plan to call forward automatically a call that isn't answered within a preset number of rings, to the called party's message box. The phone will then be answered, in the called party's voice, and the message will be recorded, digitized and stored in their personal message box. The system user can retrieve the message from any telephone anywhere, anytime, and using the telephone touch tone pad, can perform a variety of functions including saving the message, transferring it, replying to it, or broadcasting it to a pre-determined group of users, or it can be erased.

Very friendly, the caller does not need any special instructions, codes, or knowledge of the system at all. And the system user, with a little practice, can quickly learn the special functions that allow them to control the entire messaging process.

Some of the other uses we are thinking of include: Special numbers for our students to call for instructions on registration, financial aids, student employment, concert ticket information, special and timely hints geared to the season's for the "backyard farmer," and on and on. The imagination is your only limit. The system provides an announcement-only (Continued on page 2)
time of the year, and conflicts with other meetings going on at the same time in the same area, it just wasn't possible to expand the meeting to accommodate everyone. It is unfortunate to see this happen because this particular program was excellent and I feel ACUTA has an obligation to extend all it's programs to the entire membership. Again, we are sorry for any inconvenience caused to those who were unable to register for this workshop.

In anticipation of another big meeting, we have reserved 175 rooms at the Boston Marriott Long Wharf Hotel for the annual Conference this August 5-9, 1984. We feel the program and the city of Boston is again going to appeal to a large group. The conference brochures and registration forms should be in the mail by middle of May so, make your reservations early.

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Hopefully, by this time you all will have received the ICA survey forms that I mentioned in January. These surveys deal with annual campus telecommunications expenses and the general interest in the certification of telecommunications professionals. If you haven't already done so, please take a few moments to complete the survey and return it to ICA. Our participation is very important in providing the educational institution data needed for the overall results to this survey.

Michael A. Toner
President-ACUTA

Party Line (Continued):

Function, and the announcements can be up to 7 minutes long. Think of recorded job listings, library hours, etc.

You can program the system to call someone (such as an emergency situation), and it will continue calling, within the time frame you establish, until the number is answered. Features can be programmed on an individual basis, so you can allow one individual to access certain things, and yet restrict that access from another phone. You receive real-time reports of traffic and from our test trials, it appears to be very easy to manage.

We purchased the large unit, and intend to offer the message service (only the basic service and short storage function) to our students in the residence halls. They are already on our telephone system and this seemed a natural extension of their service. I believe we will have a big winner! I promise to keep you posted--we are so excited over this, I will probably bore all of you talking about our success with Store & Forward Voice Message Service.

The Student Resale Issue is still a subject of interest to most of our members, if the number of calls I receive is any indication. We are still in a legal hassle over this one and I would rather not write much about it at this time--however, it only takes a phone call or a note and I will give you all the help I can with the logistics of implementation at your school. Again, it can be highly successful, is not right for everyone, but if right for you, don't be afraid to tackle it. The problems are easy to solve, if you do

(Party Line-Continued):

your planning carefully. Don't hesitate to call, if you need further information. I hope to publish an article on resale as quickly as I feel free to do so...

The Spring Seminar held in Orlando, Florida was all sold out. Over 150 individuals had registered. The presentation by Joe Massey was outstanding and very timely. With the CALC charges on Centrex being implemented, I guess a good many large Centrex users will be looking at alternatives. If you are interested in a new switch, this seminar on comparative values of several major switches would have been worth your time. As usual, I hope to interview Joe and share some of his materials with our members in the next issue of ACUTA News.

Did you hear about the rate refund Southern Bell plans for 750,000 customers in South Carolina? Apparently they will refund $100,000,000 (the largest & most complicated refund in the state). It was the result of a decision by Southern Bell to withdraw it's appeals to the state's Supreme Court in connection with two previous rate cases decided by the South Carolina PSC in 1982 & 1983. Because the state PSC must look at historical data in rate cases, it was explained, the regulators did not consider the effects of divestiture in the last rate case. By withdrawing the pending appeals, Southern Bell can in effect wipe the slate clean and show a clear picture of its post-divestiture finances and operations in their next rate case. Southern has 60 to 90 days to refund the money and it will involve at least four different interest rates, varying federal excise tax rates and many different types of refunds to its customers. Refunds will range from $100 up....

What about the CALC Charges on Centrex Systems? I was reading where the Washington D.C. PSC stood firm in their decision to rate Centrex users by 6.25 to 1 equivalency ratio instead of the requested 18 to 1 equivalency ratio. They were requested to reconsider their decision by GSA and a group of local universities, contending that Centrex exchange access & Centrex intercommunication rates are too high because of what they regarded as an effectively low equivalency ratio. The PSC said they were concerned about continued viability of CENTREX, and believes that it took steps to preserve its competitive position, but had to balance the interests of other D.C. ratepayers. It also turned down proposed modifications to the CENTREX rate stability plan, under which customers are protected against company-initiated rate increases for a period of three years.

Why don't you let your editor know what is being done in your area regarding CALC (access charges), so we can share this information with all of our members.
In the March-84 issue of DIGITAL BYPASS REPORT, I saw where the Nebraska Public Service Commission to "cease-and-desist" order to COX CABLE'S COMMUNE (a high-speed data transmission service in Lincoln, Nebraska), was struck down by a federal judge. The National Cable Television Association (NCTA) is concerned about whether cable companies, subject to the same regulations as telephone companies, could bypass the local operating company. This specific issue involved COX CABLE bypassing data transport services to institutions and corporations, bypassing the local phone company.

The whole issue of BYPASS is difficult to understand, and I am bothered by it. On one hand, bypass could save the university big bucks—on the other hand, bypass could eventually cause the end of the local operating company. In a recent article in COMMUNICATIONS NEWS, Bruce Netschert, President of National Economics Research Associates, calls bypass "a real, not hypothetical threat. Thus far, the bypassing has occurred on a small scale relative to total traffic—there has been only nibbling at the edge, so to speak...The long-run consequence clearly exists for the capture of a substantial portion of traffic through bypassing," pointing to several technologies offering bypass opportunity: microwave/satellite communications, cable television and cellular radio.

One of the newest bypass threats has become reality, with the recent inauguration of the first Digital Termination System (DTS). New York City based Local Area Telecommunications is providing the service, called Digital Electronic Message Service (DEMS) to a large securities firm that is transmitting financial traffic within New York City. DEMS carries digital data traffic via microwave radio directly to the user's premises. They have received FCC authority for 14 other systems around the country and have applications pending for other cities. The New York City Teleport is another example.

According to Netschert, "Given the small bandwidth available for voice communications and the large bandwidth available in microwave, the marginal cost of providing voice service with microwave data circuits is small. Both the public and private carrier data nets can thus carry voice as well, and this offers the opportunity to bypass the BOC in still another way." He went on to cite an example of a bidding experience in Prince George County, Maryland. "Bidders were required to offer for all public institutions and government agencies in the county a switched communications network that would provide administrative, communications, teleconferencing, facsimile and data services. Obviously, all bidders met this requirement, but two went beyond it. One proposed making the network available to doctors, dentists, and lawyers through service to commercial buildings. Another went the whole way, offering the complete service to any commercial customer. The proposed system was 100 percent digital, with a central switching office serving 600 lines plus three 1000-line remote offices and seven 500-line remote office. For the BOC this is bypassing on a frightening scale. A single switched telephone network can serve all its subscribers with any use of the BOC's plant. Is this truly economic competition or is it an aberration, a give-away in order to obtain a lucrative franchise? The divested companies must also watch their former parent. "The new AT&T, in the same position as all other (Bits & Pieces-Continued):

The FCC (docket 78-72) is moving towards avoiding unequal economic bypass. Commissioner James Quello was quoted as saying: "Bypass, while not widely understood and appreciated, provides perhaps a greater threat to universal service than do increased local rates of a magnitude far above those implied by our actions..."

And from Southwest Bell's John Hayes: "Bypass is here and likely to grow. As for the potential consequences, as bypass grows, the following scenario will unfold. As large business customers deploy their own bypass systems and leave the local network, fewer customers remain to share an increasingly larger portion of the company's plant investment. Those remaining customers will primarily be comprised of residential and small to medium-sized business customers. Rates will rise to recover the cost of that investment. As rates rise, more customers may feel it economically beneficial to leave the network in favor of bypass technology. As a result, the telephone company is left serving the high-cost, low-revenue customers. Or, in a strict economic sense, we end up losing the winners and winning the losers."

Strange, isn't it, how everything in life usually comes around full-circle. Remember when, in ACUTA tried to get the industry to listen to our pleas for consideration due to our size—when they eliminated Telpak, restructured NATS to favor the small user and whack the big user—and on and on and on...Some of their strategy forced large universities to look at alternative solutions in order to survive with our crippled operating budgets of the past few years. Finally we are being recognized as the prime customer—low cost, high-revenue. Exciting times!

In the recent issue of COMMUNICATIONS WEEK, is the result of a survey of communications managers at Fortune 100 companies, conducted by The Eastern Management Group. The survey reveals some dissatisfaction with the way post-divestiture AT&T is providing service.

The survey asked users to rate AT&T on a scale of one to five in the following categories: order processing and installations; repairs and maintenance; billing; new products and services; marketing; and overall service. AT&T scored a 2.7 for overall service, which was just below mediocre on the scale. Rated the lowest at 2.1 on the scale. More revealing than numbers were some of the comments participants made in responding to the survey.

"We are being double-billed for some services and not billed at all for others. The BOC and AT&T are claiming charges for the same circuit. AT&T has not been very responsive—we have orpham lines, nobody seems to own them. The most common complaints were that AT&T was not meeting delivery dates, certain equipment could not be obtained; account executives were not available by phone; and AT&T was unconcerned about customers' problems." According to John Malone of the Eastern Management Group, "the comments were early reactions to the breakup of AT&T and are not necessarily long-term opinions. These kind of problems will linger for some time and unfortunately there isn't much AT&T and the BOC's can do about it. It is the legacy of divestiture." (Continued on page 6)
Telpak May Be Dead, But Closer Look Shows a Better Deal Ahead

...by Ivan Riley
Aydin Monitor Systems

Since the demise of Telpak in 1981, private line rates have continued to escalate. First, there was Hi-Los. Then came multi-schedule private line. Most recently, there has been a new round of proposed increases associated with the divestiture of the Bell Operating Companies. Large volume users, who depend on private lines as the backbone of their networks, have had few alternatives but to pay the higher rates. They could only fondly reminisce about Telpak and the rates they remember.

It has been widely reported that the new tariffs proposed by AT&T will increase private line costs by an average of 10 to 15 percent. This is true for small volume users of private lines; however, it does not need to be the case for large volume users. Under the new tariffs, there are ways for large users to obtain what are essentially Telpak rates for their private lines.

Since early 1983, AT&T has been offering a bulk private line service called terrestrial digital circuit or TDC. It is a point-to-point 1.544 Mbps digital circuit and is probably best known as a T1 circuit. AT&T is reported going to begin promoting it as Account T1.5 Service. By using this high capacity digital signal processing equipment just now coming on the market, toll quality private line service can be obtained at costs 35 to 80 percent below equivalent analog voice grade circuits.

Because TDC is a bulk service, small volume users of private lines will not be able to realize savings of such a magnitude. If a user has fewer than 20 voice circuits between two locations, a TDC may not prove to be cost-effective. If, however, data circuits are in use between the two locations, it often pays to examine the situation closely. In many cases, by combining the data traffic with voice traffic, the voice savings will pay for the TDC and associated equipment, while the data network is obtained at no added cost.

To understand how the benefits of a terrestrial digital channel may be obtained for a given network, it is necessary to review the AT&T private line prices in effect at the end of 1983 and the new prices which have been proposed. These new revised prices were scheduled to go into effect on January 1, 1984, but in October 1983, the PCC deferred the effective date of the new tariffs until April 3, 1984.

LINE CHARGES UNDER OLD TARIFFS

Under the old tariffs, private line charges were in three categories: a fixed charge, a distance-sensitive charge, and local termination charge. There was only one distance-sensitive charge, and it was based on mileage between serving central offices. In addition, special service charges such as conditioning and special terminations were also tariffed.

With divestiture, most of the serving central offices will become the property of the local exchange companies. AT&T, as well as other competing carriers, will own the interexchange transmission facilities, and the local exchange companies will own the local distribution facilities. In the future, all private line circuits will be furnished by two or more carriers—an interexchange carrier and one or more local exchange companies. An adventurous user can deal with all of these companies independently. The less adventurous will no doubt prefer the total service concept wherein one carrier takes total responsibility for end-to-end circuit performance and billing. In most cases, these single carrier will be an interexchange carrier who will subcontract for service from the local exchange companies.

Another result of the AT&T divestiture has been the division of the entire US into 160-odd local access transport areas or LATAs. For example, Philadelphia, Delaware Valley, Atlantic Coast of New Jersey, North New Jersey and Metropolitan New York City are each LATAs. A LATA can be described as the geographic region in which an interexchange carrier terminates its service. Interexchange carriers will provide service between LATAs (even if both are in the same state), and local exchange carriers will normally provide service only within LATAs. For further subdivision, LATAs are partitioned into rate centers.

In the new AT&T tariffs, a private line again has three components: an inter-office channel or IOC, a LATA distribution channel or LCD, and a terminating channel or TC. An IOC is the circuit between the servicing offices of the interexchange carrier, that is the inter-LATA circuit. An LCD is a circuit which crosses rate center boundaries within a LATA. A TC is the circuit which completes the connection to the customer premises. It is important to note that if the customer premises and the interexchange carrier serving office are in the same rate center, and LCD is not required since no rate center boundaries are crossed. In the new tariff, both the IOC and the LCD have distance sensitive pricing. Only the TC has a flat rate.

Another new concept introduced in the tariff is that of a service function. Every private line must have at least one primary service function or PSF. Secondary service functions or SSFs are optional. The PSF is described in the tariff as the design and maintenance activity required to provide a circuit, and the testing and coordination required to maintain circuit transmission parameters. SSFs are more concrete and include special service such as transfer arrangements, multiplexers and special line conditioning.

Last, but not least, the tariffs incorporate an item called the surcharge. This is, of course, much discussed access charge and is always included as part of the terminating channel rate.

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Table 1. Comparison of the total monthly rate for four different private line services.

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Comparison of Monthly Rates

Table 1 is a comparison of the total monthly rate for four different private line services—the terrestrial digital circuit or TDC, the voice grade circuit or EFC, a 9.6 kbps Dataphone Digital Service. Table 1 tabulates prices for these services as a function of IOC circuit length for year-end 1983 and for the new 1984 tariffs. As mentioned above, the only distance sensitive element in the 1984 IOC tariff was the LDC price. In the new tariff both the IOC price and the LDC price are distance sensitive. The columns labeled "No LDC" in Table 1 assume the customer premises and the serving office of the interexchange carrier are in the same rate center and no LDC is required. The "With LDC" columns assume different rate centers with a LDC length of 20 miles. This is a fairly long LDC, so most users will probably find their actual price is somewhere in between those listed under 1984.

Terminating Channel at End of Link

Each end of the link must have a terminating channel. It is interesting to note that the terrestrial digital circuit surcharge is a flat $600 irrespective of the number of voice, data or video channels which may be derived from it. Each private line requires only one private service function. In Table 1, the data PSF charge was used once it is a prerequisite for obtaining data conditioning. The secondary service function of C-5 conditioning is also used in Table 1 at both ends of the link, and will have no affect on use of the circuit for voice traffic. It was included simply to make later comparisons of channel characteristics more valid; voice grade circuits for voice-only use would be $125.50 lower than the 1984 prices shown on Table 1.

With one exception, the 1983 and 1984 prices in Table 1 are for identical private line services. The exception is the exclusion of the customer service unit in the 1984 DDD prices. In 1983, the DDS prices included a customer service unit or a CSU. Because of a Federal Court decision, CSUs can no longer be offered under tariff. A user should be able to lease a CSU for about $5 per month. So for direct comparability, $90 should be added to the 1984 DDS prices.

The data in Table 1 is shown graphically in Figure 1 and Figure 2. Figure 1 shows voice grade circuit prices and Figure 2 shows terrestrial digital circuit prices. In both cases the upper 1984 lines include a 20 mile LATA distribution channel at each end of the circuit and the lower lines have no LDC. As may be seen, there is a substantial increase in voice grade circuit prices at distances less than 1,000 miles.

Over 1,000 miles, VGC prices are essentially unchanged. This net increase, however, is the basis for the statements that analog private line prices will increase an average of 10 to 15 percent in 1984. Referring to Figure 2, it can be seen that TDC prices are increased slightly under 500 miles and are reduced by about the same amount over 1,000 miles. The net result is to make TDCs very attractive for use with some of the new channelizing equipment now on the market.

Attractiveness of TDC

The degree of attractiveness can be seen in Figure 3 which shows the monthly price for a single TDC and for 24, 48, 72 and 96 voice grade circuits. (VGC prices are those which include a pair of the 20-mile LDCs; however, excluding LDC costs will not materially affect the conclusions to be made below.) At distances less than 100 miles, a single TDC is priced about $3,000 to $8,000 per month less than 24 VGCs. If a pair of standard, D-type channel banks are connected to the TDC, 24 voice channels can be derived and some savings could result. Far more impressive savings can be made, however, if a greater number of channels could be derived from the terrestrial digital circuit.

There are now available on the market, channel banks which can derive 48, 72 and even 96 voice channels from a single TDC. Through use of such equipment, per channel prices equivalent to the old Telpak rates can be obtained. For example, a 2,000 mile TDC costs $57,710 per month. If 96 circuits can be derived from it, then the per channel price is approximately $600 per month. For those who can remember, that is a Telpak "D" price.

The above example is not completely correct since the cost of the channelizing equipment was omitted. Aydin Monitor Systems manufactures a line of channelizing equipment which will perform the necessary functions. The 6248 VQL Channel Bank converts 48 analog voice channels to and from a terrestrial digital circuit. Similarly, the 6272 VQL/DSI Channel Bank handles 72 channels and the 6296 VQL/DSI Channel Bank handles 96 channels.

Returning to Figure 3, a few words of explanation are in order. The prices shown are for 1984, but the cost of the channelizing equipment necessary for using a TDC

(Continued on page 6)
is not reflected. Not only does the channelizing equipment which can put 48, 72 or 96 voice channels on a TDC have different prices, there are also differences in its performance. A good measure of voice channel performance is its ability to carry data, modem traffic. The VGL codec can consistently carry 9,600 b/s modem traffic without inducing any bit errors. The end to end channel quality is equivalent to a completely analog channel with C-5 conditioning. The continuous variable slope delta modulation (CVSD), or delta-node codecs currently on the market can carry only 2,400 b/s modem traffic and exhibit distinctly inferior subjective voice quality.

This, to make an "apples-to-apples" comparison, the line labeled "48 VGC" in Figure 3 assumes all 48 circuits have C-5 conditioning. The 6248 VGL Channel Bank with a TDC can carry 48 simultaneous channels of full duplex modem traffic at 9,600 b/s just the same as 48 C-5 conditioned voice grade circuits.

Modem Traffic Is Limited

Because of the digital speech interpolation (DSI) process used in the 6272 and 6296 VGL/DSI Channel Banks, the ability to carry modem traffic is limited, although the subjective voice quality of the channel is not affected. About 10 percent of the 6272 channels can carry modem traffic while the 6296 is not recommended for applications having any appreciable degree of modem traffic. Therefore, in Figure 3, the "72 VGC" line is priced as voice only. The "96 VGC" line assumes all channels are voice only.

To use a TDC, a channel bank or multiplexer is located at each end and all derived circuits originate and terminate at these two locations. For VGCs, this geographic bundling need not be the case. Further, the user need only pay for the exact number of VGCs required. With a TDC, the user pays for 1,544 Mo/s whether it is all used or not. This is the bulk aspect of TDC service. Of course, the VGL Channel Bank can be equipped with on the exact number of channel modules required and this will reduce costs somewhat. At 100 miles IOC length, the break even point between VGCs and a 6248 equipped TDC is 14 voice channels. At 2,000 miles, the break even point rises to 32 voice channels.

Clamor Over Rising Costs

Presently, there is a great clamor throughout the country about the rising costs of telecommunications. Many of those doing the complaining have not taken the time to see if lower cost alternatives are available. They simply want things to be as they have always been, and that is not going to be the case with the continuing technical evolution in telecommunications. For the large user, analog voice circuits and encoding a voice channel at 64 kbaud are going to become a thing of the past. Already, a number of the largest corporations have committed to putting their private line networks on terrestrial digital circuits. In the year ahead, many, many more will. Yes, Telpak is dead, but if you look closely, an even better deal may be available.

(Telpak May Be Dead, But Closer Look Shows a Better Deal Ahead," was reprinted from the January, 1984 issue of Communications News). 28

Bits & Pieces (Continued):

Here in Nebraska, we are still struggling with all of the various statements we receive from AT&T. It has been a nightmare trying to identify which circuits the bill is for (since they no longer list the circuit number on the statement, but have replaced it with a special account number—not letting us know the relationship), then matching it to the BOC charges for the same circuit so our customers will not get the feeling they are being overcharged. We had ordered a lease circuit to New York last fall, it was supposed to be installed in September—but was delayed several weeks. To make a long story short—the line was finally installed in January 1984. But due to a failure to communicate with the Chicago link—we had to wait still another three weeks to engineer the circuit, even though it was physically installed at both the New York and Lincoln ends. Our hands were absolutely tied along with the local Telco & Northwestern Bell in Omaha who also tried to help us. Here's hoping the future service function is recognized by AT&T.

...A couple of items of interest—Duquesne University has set up a Personal Computer Network for their students. In cooperation with Sperry Corp., they invested $1.7 million in new computer communications equipment to supplement the University's mainframe. Students will integrate their study programs using Sperrylink units and terminals. The Duquesne administration will use the system for all financial functions, financial aids and admissions, and for alumni records. In addition, faculty training programs are being designed to enable faculty of all disciplines to implement the new curriculum; a core curriculum which will incorporate computer sciences & communications courses as part of the degree requirements for graduation. Duquesne is a Catholic University near Pittsburgh and has 4200 undergraduates and 2200 graduate students enrolled.

And my second item is: Golden Gate (San Francisco) will offer courses in its telecommunications management masters degree program covering introduction to telecommunications; corporate telecommunications; data communications; marketing telecom products & services; managing the office of the future technologies; network & management systems; and advanced data. Both MJD degrees and certificates are offered by Golden Gate, with the university providing courses in downtown Los Angeles, the San Fernando Valley, Orange County and in San Diego. Interesting to me—the university has an advisory committee consisting of working telecom managers/directors from a wide variety of organizations and institutions. That should help bring classroom experience and real-world experience together, a big plus for the students!
Metro Tel Introduces Quick Call 2000
For "Intelligent" Speed Dialing And LCR

Metro Tel timed the introduction of its new "Quick Call 2000" for the USITA Showcase.

The Quick Call 2000 an extraordinary "speed caller" that, by a simple hookup of a single small device where the telephone lines have been brought into a facility, totally automates the system and every phone in that system for two and three-digit dialing. The basic system stores up to 240 telephone numbers in its memory bank and operates with single line telephones, key telephone systems, and loop start PABXs.

The system works with AT&T and other Common Carriers such as MCI, Sprint and Telesaver, as well as with international calls. One to twenty-four incoming lines are accommodated with simple insertion of additional line cards at the interface box.

Expanded for use with all PBX systems, both loop and ground start, and for multiple OCC use, the Quick Call 2000 has brought a variety of "intelligence" features to automatic telephone dialing.

A major one is that the system can be programmed for Least Cost Routing. This capability permits the user to initiate the two- or three-digit coded call and the system will determine which subscribed to OCC offers the least expensive service of that call. No additional dialing instructions or additional codes are required. The system automatically carries out the OCC selection and routing, according to the area code of the number that has been stored in memory.

Also, if one carrier is "down," the system can be programmed to automatically advance down the list of OCCs to which the subscriber has in service until an operating one is found. Failed services can be programmed to be locked out from use for any time period chosen—say 15 minutes. All subsequent calls during that interval proceed directly to the second OCC choice. With Quick Call 2000, in every case the user enters the information once; the speed dialer will retry dialing with that same information until the call is completed.

A second major new feature is a user and billing code provision. With this accommodation, the subscriber easily determines to whom the call was made and who made the call; each clearly defined on the monthly OCC billing sheet. This is an excellent feature for law firms and other services that charge clients for out-of-pocket billings.

Other than assignment of the two- or three-digit codes to the numbers being stored in the system's memory, programming of all user features and system functions are done by the installer, dealer or by the factory. The system's high degree of flexibility and technical advances permits it to be programmed remotely via the normal telephone circuits, e.g. A system is initially set and programmed with one or several OCCs. When a new carrier is added, certain numbers and billing codes must be reallocated among the OCC services.

Quick Call systems have a self-test feature. That too can be accomplished remotely as can a full test procedure. Also, a built-in lifetime battery assures retention of memory and programming during power outages. With no power, the battery will carry out its function for 11 years.

(Continued on page 8)

Call for Nominations

During the 1984 Annual Conference in Boston, all full ACUTA members in attendance will be able to vote on a slate of officers to serve as the Board of Directors of ACUTA for the coming year. Only full members with dues currently paid will be eligible to vote or serve on the Board of Directors.

There will be three "automatic" changes of responsibilities, as provided in the ACUTA constitution, and three actual ballots.

AUTOMATIC

Mike Toner, the incumbent President, will become immediate Past President, and his new duties will include Chairman of the Past President's Council, Chairman of the Nominating Committee and Chairman of the Constitution and Bylaws Committee. At board meetings he will act as Parliamentarian and have a tie-breaking vote only.

Ruth Michalecki, the incumbent Executive Vice President, will automatically become President, assuming all duties and responsibilities associated with chairing the ACUTA Board of Directors.

John Sleasman, the incumbent Vice President, will automatically assume the office and duties of the Executive Vice President.

SUBJECT TO BALLOT

Vice President—To be elected from a slate of nominees assembled by the Nominating Committee and finalized with any nominations that may be received from the floor at the election meeting.

Secretary—The incumbent secretary, Kia Malott, can, according to our Constitution, be elected to a second year in office. Technically, the second year is not mandatory and therefore Kia could run for election to another vacant position if he so desires.

Treasurer—John Curry is presently in his second year as Treasurer and our Constitution stipulates a maximum of two consecutive years for that office. Therefore, we must elect a new Treasurer for this year.

NOMINATIONS

All ACUTA members may submit nominations for the above offices. However, before placing a name in nomination please be reasonably sure that the person you are nominating is in fact willing to accept the responsibilities that accompany the office, and is aware of the considerable commitment required, particularly in terms of support from his/her institution. Upon receipt of each nomination, I will contact the nominee personally in this regard just to be doubly sure.

Please send all nominations to:

Steve Harward
University of North Carolina
Telecommunications Office
Room 115, 440 W. Franklin St. 454A
Chapel Hill, North Carolina 27514
Illegal Telephone Calls Hit Total Of $350,000

NEW YORK (UPI)--Nearly $350,000 in illegal telephone calls made on credit card numbers were discovered in the past few days in the metro area, including $125,000 charged to a federal agency, phone company officials said.

New York Telephone Co. spokesman John Quinn said the latest case uncovered was that of a U.S. government agency "in lower Manhattan." He said the agency report it was charged with more than $125,000 in fraudulent telephone calls.

"It is still under investigation," he said, refusing to identify the department hit with the bill.

It brought to nearly $350,000 the total of calls fraudulently charged to phone company customers in the metropolitan area in the last few days.

More than $188,000 in long distance calls were charged to three Westchester County families.

A 2,578-page bill for $109,504.86 was sent to Jane Landenberger of Bedford, N.Y. by United Parcel Service because it was too bulky for the mail.

The victim was charged with thousands of calls to and from Europe, South America, Africa and the Far East.

(Reprinted from the "Lincoln Star," 3-14-84)

Quick Call 2000 (Continued):

The simple single installation of the system entails hooking up a modular-plugged (standard RJ31 plugs) device to the telephone company's lines where they have been brought into a facility. Metro Tel's Quick Call 2000 consists of two 8.75" x 7.15" x 2.5" boxes mounted on a common board. One box contains the microprocessor control and power supply circuits, the other housing the receptacle slots for the line cards.

It is important to note that the new system is said to be compatible with AT&T and other Common Carriers such as MCI, Sprint and Telesaver, as well as with international calls. One to twenty-four incoming lines are accommodated with simple insertion of additional line cards at the interface box.

It is claimed that if one carrier is "down," the system can be programmed to automatically advance down the list of OCCs to which the subscriber has in service until an operating one is found. Failed services can be programmed to be locked out from use for any time period chosen--say 15 minutes. All subsequent calls during that interval proceed directly to the second OCC choice. With Quick Call 2000 the user enters the information once; the speed dialer will retry dialing with that same information until the call is completed.

(Reprinted from the October, 1983 issue of "Communications News.")

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(Reprinted from the October, 1983 issue of "Communications News.")
UNIVERSITY TELECOMMUNICATIONS

MANAGEMENT:

A NEW PRIORITY

By Andrew D. Lipman, Esq.*

and

Stan Fine**

Mark S. Fowler, Chairman of the Federal Communications Commission ("FCC"), frequently invokes the following ancient Chinese expression as solace to people facing upheaval in the telecommunications marketplace: "May you live in interesting times." Chairman Fowler will likely find no quarrel in this observation from college and university administrators attempting to comprehend recent regulatory and judicial developments which have turned the telecommunications industry on its head. The uncertainty is particularly acute for large telecommunications users, including many of the nation's universities. In these interesting times, university administrators must grapple with rapidly increasing local rates, more complicated long-distance rate structures, and a myriad of new service and equipment offerings.

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Various decisions by the FCC and state public utility commissions will have a dramatic effect on a university's bottom line. Yet, long-range planning is difficult, however, since many of the FCC's decisions affecting telephone rates and services are currently on appeal. Nevertheless, many aspects of the telecommunications revolution (including the breakup of the Bell System) are already known and their effects calculated. While certain services (e.g., local rates) will undoubtedly be more expensive, other aspects of a university's telephone bill, such as equipment and long-distance charges, may decrease. Moreover, numerous opportunities (e.g., resale and sharing of telecommunications services) exist for universities to control and possibly even reduce their overall telecommunications costs. This article will attempt to identify several significant telecommunications developments affecting most universities and discuss their likely effect on university budgets.

Until recently, universities, like most other large telecommunications users, generally relied on the local telephone company for end-to-end telephone and data service. For more than 80 percent of the country, the telephone company was a Bell Operating Company ("BOC"). The BOC would supply the telephone instruments and other customer premises equipment ("CPE"), as well as bill the customer for local and long-distance services.
To the chagrin of many universities, these costs became a significant and uncontestable portion of overall operating costs. Many universities (particularly those in urban areas and with a large number of lines) subscribed to Centrex service provided by the BOCs. In essence, Centrex involves the use of a telephone company's central office switching equipment to provide local exchange service and intra-premises communications services (e.g., intercom, call forwarding, and direct inward dialing). In many respects, Centrex offers some, but not all, of the features provided in a private branch exchange ("PBX"), smaller switching equipment located at a customer's premises. Like many other aspects of telecommunications, the future of Centrex rates and service offerings is unclear.

The Rapidly Changing World of Customer Premises Equipment

Within the past decade, the FCC has issued a series of decisions which has encouraged competition in the supply of customer premises equipment (from simple rotary-dial telephones to sophisticated PBXs). Historically, telephone tariffs prohibited subscribers from using any equipment not supplied by the carrier itself. In 1968, in its seminal Carterphone decision (involving connecting mobile radios to AT&T lines), the FCC found
this restriction unjustified and provided customers the right to use and interconnect any telecommunications equipment, provided that it does not harm the network.

This series of decisions created an extremely competitive environment for CPE, permitting universities and other users to obtain their equipment from a number of independent suppliers, with an incalculable number of price and service offerings. In contrast to the BOCs, which provided equipment only on a leased basis, many of these independent suppliers permitted customers to purchase their CPE, thus permitting their customers to take advantage of the investment tax credits and depreciation allowance associated with such equipment. Indeed, within the past several years, large numbers of universities have purchased CPE from independent equipment suppliers, such as Rolm, Northern Telcom, and United Technologies. In many cases, these companies' computerized PBXs and associated equipment offer such diverse enhancements as billing and accounting for individual telephones, least cost long-distance routing, and energy control and monitoring.

In its landmark Second Computer Inquiry decision, the FCC further required that telephone companies, beginning January 1, 1983, deregulate all CPE that is not in use of in inventory as of that date (i.e., new CPE). Consequently, telephone companies
must now unbundle CPE from their local service rate and provide such equipment on a detariffed basis. As a competitive safeguard, the FCC required AT&T to establish a separate subsidiary (i.e., AT&T Information Services) to market CPE and engage in other unregulated services. In furtherance of this deregulatory philosophy, regulators are now requiring telephone companies to offer their customers the option of purchasing existing CPE. Frequently, this equipment can be purchased at significant savings over the lease option. Thus, before extending the lease of existing phone systems, university administrators should consider purchasing equipment from the telephone companies or independent telephone suppliers.

Under the divestiture agreement between AT&T and the Department of Justice, beginning January 1, 1984, the BOCs must transfer all embedded CPE to AT&T. Instead of dealing with New York Telephone or Southern Bell for this equipment, universities will now be dealing with AT&T. Both AT&T and the BOCs have identified the university marketplace as one of intense competition for telecommunications products and services.

Although the FCC deregulated all new CPE sold after January 1, 1983, it deferred its decision on how to regulate CPE in use prior to that date. In November 1983, the FCC, however, decided to deregulate this "embedded" equipment. In return for
providing the phone companies freedom to set unregulated equipment rates, the FCC requires the BOCs to lease "embedded" equipment to subscribers at predetermined rates for several years as well as offer their customers the option of purchasing the equipment. For those universities with Two Tier or VTPP contracts with the BOCs, the BOCs promise that they will honor their existing contracts and generally expect their customers to do the same.

**Rising Local Rates and Decreasing Long-Distance Rates**

Other actions taken by the FCC have increased competition in the provision of long-distance services and radically changed the method by which these carriers (e.g., AT&T, MCI, Sprint), as well as business and residential customers, will pay to obtain access to local telephone company facilities used to originate and terminate long-distance calls. This method of compensation, commonly referred to as access charges, will likely have a dramatic effect on university telephone charges and change the entire philosophical underpinning of pricing local and long-distance service. To understand the concept of access charges, it is necessary to evaluate how telephone costs and revenues are
presently distributed between local and long-distance carriers.

Although customers generally pay a single charge for a long-distance call, that call accesses the facilities of several telephone carriers. When a customer, for example, places a call from New York to Chicago, that call utilizes the facilities of New York Telephone and Illinois Bell (two local telephone companies) as well as a long-distance carrier. The local carrier's costs for originating and terminating long-distance calls fall into two categories: (1) traffic sensitive ("TS") costs (directly related to the number of minutes such facilities are used for interstate calls) and (2) non-traffic sensitive ("NTS") costs (unrelated to the number of minutes such facilities are used for interstate calls). An example of NTS costs are the wires connecting individual telephones to the local telephone company switch; an example of TS costs would be certain types of telephone switching equipment. Every customer generates NTS costs, whether it uses the long-distance network once or ten thousand times a month.

Currently, AT&T compensates each local telephone company for the use of its facilities on a usage-sensitive basis. It pays one charge for each minute of TS use and a different charge for each minute of NTS use. However, because of their comparatively inferior interconnection with local telephone
companies (e.g., inaccessibility to rotary-dial telephones and requirement for customers to dial excess digits for long-distance calls), MCI, Sprint, and other long-distance carriers pay the local carriers a discounted rate in comparison to that paid by AT&T. It has been estimated that this discount may be as high as 75% of AT&T's charge, thus permitting these companies to underprice AT&T Long Lines.

As a practical matter, the long-distance carriers passed these charges through directly to their customers, who are primarily business (e.g., university) users. A customer who placed 150 long-distance calls per week would pay 10 times the amount of a customer who placed only 15 long-distance calls a month, even though both users bear similar NTS costs. By paying both the TS and NTS costs on a usage basis, these business users were, in effect, subsidizing other telephone customers. The cross subsidies presently inherent in the telephone network result in 37 cents of each dollar of long-distance revenue used to compensate local telephone companies. Because of these subsidies and the absence of cost-based pricing of long-distance service, the FCC feared that many business users (including universities with multiple campuses) would bypass the local exchange through microwave or satellite technologies. For example, it has been reported that Brigham Young University has a
private microwave link to Salt Lake city, resulting in a $42,000 annual loss to Mountain Bell -- the local BOC. With the defection of these large users from the telephone network, the local carriers would be forced to raise their rates to existing users, thus encouraging even greater bypass.

In its seminal Access Charge decision earlier this year, the FCC devised a new plan for computing access charges. In essence, it determined that long-distance carriers (and, in turn, their customers) should not be required to continue paying most of the local carriers' NTS costs. Instead, over a several-year transition period ending in 1990, the responsibility for paying most of the NTS costs would shift from long-distance carriers to end users. According to the FCC's initial decision, effective in April of 1984, the local companies can charge residential and single-line business users a flat rate of $2 per month, which will rise to $3 per month in 1985 and $4 per month in 1986, with smaller increases occurring in subsequent years. In a more recent decision in this proceeding, the FCC decided to defer collection of this charge until after the completion of further proceedings. At this time, the FCC believes that the charge to these customers should be capped at $4 per line until 1990. For business users, the flat monthly fee will be capped at $6 per month in 1984, with small increases in the succeeding five years.
Contrary to common myth, the FCC's Access Charges decision does not mean that every business user will be paying the same local access rate nationwide. Under the Commission's decision, the local telephone companies may compute their flat rate charge based on the NTS costs in their exchange area. It has been estimated, for example, that the monthly fee for customers of Illinois Bell could be as low as $1.59 per month, while the monthly rate for customers of Bell of Pennsylvania could be only $2.47 per month. In addition to these charges paid by end users, AT&T and other long-distance carriers will continue to pay usage-based charges to local telephone companies, which will be measured in terms of access minutes. As a result of the Access Charges decision, the FCC expects a significant reduction in long-distance rates to offset local rate increases. AT&T has proposed a 10.5 percent reduction in long-distance costs, but as a result of the recent deferral of residential access charges, it is likely that this reduction would be closer to 5 - 8 percent.

One aspect of the FCC's Access Charges decision of interest to many universities is how Centrex lines will be counted for access charges purposes. Access charges are computed on the basis of the number of telephone lines between an end user's facilities and the telephone company's switch. Centrex requires a separate loop from a telephone carrier's central
office switch for each of the subscriber's stations. In contrast, a PBX (which offers comparable service to Centrex) is linked to the central office by substantially fewer lines (or trunks). (In many cases, one PBX trunk provides the equivalent transmission capacity of 7 - 8 Centrex lines.)

Because Centrex service is comparable to PBX equipment, many universities, hospitals, and other large users argue that Centrex should be subject to a lower access charge than that prescribed for other "business" lines. In the absence of this discounted rate for Centrex lines, many large Centrex users assert that they would experience sharply increased rates, dislocation, inconvenience, and expense. Despite the pleas of these user groups, the FCC refused to count Centrex lines in the same manner as more efficient PBXs. But, as a compromise, the FCC agreed that Centrex lines in place or on order on July 27, 1983, would be counted under the lower "residential" line rate of $2 per line per month in 1984. The FCC does not presently expect that the 1985-86 charge to exceed $3 per month as Centrex lines placed into service after July 27, 1983, would be subject to the generally higher business line rates, which may be as high as $6 per month.

Virtually every aspect of the Access Charges decision (including its treatment of Centrex users) is before an appeal...
to the U. S. Court of Appeals for the District of Columbia. In addition, Congress may in the future, resurrect legislation that will modify and repeal certain sections of the Access Charges decision. Regardless of the outcome of the Access Charges proceeding, it may now be an appropriate time for university administrators to reevaluate their current complement of telecommunications equipment and services as well as consider cost savings alternatives.