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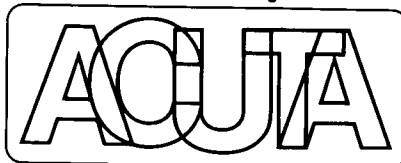
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NEWS

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Association of College & University Telecommunication Administrators

THE VOICE OF TELECOMMUNICATIONS IN HIGHER EDUCATION

VOLUME 15, NUMBER 1

JANUARY, 1986

RUTH A. MICHALECKI, EDITOR

211 Nebraska Hall, University of Nebraska, Lincoln, NE 68588 • Telephone (402) 472-2000

President's Message

—John W. Sleasman, Case Western Reserve

We're about halfway through my term of office, and I'm trying to determine what's good and what's bad. I've said, on several occasions, that ACUTA is only as good as YOU make it. The input from the membership at large is very necessary for the Board of Directors, that often unseen group, to provide useful service. So I need your opinion. Right now, before this gets lost in your stack of things to do, circle the numbers and send me a copy, or send me a note, or whatever. Tell me what you think about:

PROGRAMS

If you attended an ACUTA event, seminar or conference, in the last three years, what has been the general quality of the programs:

Relevance of topics	E	G	F	P
Quality of presentations	E	G	F	P
Quality of facilities	E	G	F	P

PRIORITIES

What do you think ACUTA's priorities should be? What do we do that we should continue to do? What should we do that we are not doing now?

DATA

To identify the needs of various groups, I'd appreciate the following data:

Type of institution or vendor:

—Two year school —Other institution

—Four year school —Industry member

—University —Other ? _____

—Public —Independent —Religious

Approximate enrollment _____

ACUTA Region Number or State/Province _____

How long have you been an ACUTA member? _____ yrs.

Thank you for your cooperation. I will be very interested in the results, and will review your responses with the Board of Directors when we meet just prior to the Seattle Seminar in April.

P. S. - In case you've forgotten who I am or where I'm at:

John Sleasman
Case Western Reserve University
Administrative Services
Cleveland, Ohio 44106

GENERAL OPINIONS

	Excellent	Good	Fair	Poor
How well does ACUTA: Keep members informed about changes in telecommunication?	E	G	F	P
Provide useful service to YOUR institution?	E	G	F	P
Recruit new members and retain existing ones?	E	G	F	P
Provide opportunities for interested members to be involved in ACUTA leadership positions?	E	G	F	P
Provide overall leadership from the current Board?	E	G	F	P

PUBLICATIONS

How useful are the following to you?

ACUTA NEWS	E	G	F	P
Membership Roster	E	G	F	P

How often do you read the ACUTA NEWS? What topics are of most interest?

SHARED TENANT SERVICES

AT COLLEGES AND UNIVERSITIES

— Howard Lowell

The title to this article raises a question that Colorado State University (CSU) has wrestled with for the last two years. It's an issue that many institutions are now or soon will be facing as we all become more involved in operating our own telephone systems. Our experience may be of help to others in resolving this problem in your respective states.

CSU reached the decision to purchase and operate a university owned telephone system in early 1983. To be included within the designed system was our academic campus located in central Ft. Collins, our research campus approximately 7 kilometers west of the central campus, the Veterinary Teaching Hospital located in southern Ft. Collins, all dormitories on the central campus and two apartment complexes owned and operated by CSU and occupied by married students who are pursuing full time academic careers at our university. As part of the initial decision CSU elected to construct our own outside plant facilities and to serve all of the previously mentioned areas via university installed and maintained cable, wire and fibre optic distribution facilities. Only the dormitories mentioned earlier are co-located on the central campus with our principle academic buildings. All the other locations indicated are separated from the central campus by one or more public rights-of-way. CSU negotiated with the city of Ft. Collins for right-of-way access and was granted use of the appropriate row to install and maintain our cable and wire facilities. Construction began and the stage was set for our serving BOC to enter the picture.

As our plans became evident the BOC petitioned the Colorado Public Utilities Commission (CPUC), indicating that by entering public row, CSU was acting as a public utility and did not have the right to do so because the BOC had an exclusive franchise in the area. They further contended that by serving residents in university apartments who had previously been served exclusively by the BOC, we were engaging in the resale of local service and toll access. Resale of local exchange services is an activity that the Colorado Public Utilities Commission had heretofore consistently disallowed. CSU elected to pursue the issue and retained the Denver law firm of Ireland, Stapleton, Pryor Pascoe to represent us.

After many months of filings, hearings, counter filings and more hearings the commission hearing officer recommended, and the full commission agreed, that as of July 1984 CSU had the right to serve the described areas even though some were separated from our principle campus by public rights-of-way. We were restrained, however, from charging end users any more than an amount necessary to recover our capital investment plus a direct pass through of BOC charges as billed to CSU. No overhead or operating expenses can be recovered through monthly billing to end users. CSU was further prohibited from being the sole provider to non-university related entities located on campus. This included contractors; businesses such as a travel agency, florist and restaurants and all federal government agencies. These groups had to use Mountain Bell as their primary source of service and can use CSU service as an additional source. Access to CSU reduced cost long distance facilities by these groups was prohibited.

We here at CSU had hoped this decision by the PUC was the end of the issue but that was not to be the case. In December, 1984, the BOC filed Advice Letter number 1981 which raised the issue of Shared Tenant Services

Tariffs being applied to colleges and universities. In January, 1985, the Colorado State Senate started hearings on Senate Bill 171, a proposal to deregulate Mountain Bell. Shared Tenant Services were a major part of this bill also.

All indications were that the BOC intended to apply the provisions of the Sharing Users Tariff to universities such as CSU. If this had taken place our local central office trunking would have been provided only on a measured basis and costs would have increased from \$16,000 per month to \$109,000 per month. When this impact was pointed out to the university administration the decision was made to involve ourselves again. Ireland, Stapleton, Pryor and Pascoe were retained to represent us at the Public Utilities Commission and arrangements were made for me to work with a legislative lobbyist retained by our governing board to represent us in the legislature.

To condense this narrative let me relate that the University of Colorado, Boulder, joined us in both these endeavors and that SB171 failed of passage in the Senate by one vote and was not introduced in the House.

The BOC, although our agreement is not final as of this writing, appears ready to stipulate that provisions of the Shared Tenant Service Tariff will not be generally applied to CSU and CU. It is proposed that the tariff apply on a proportional basis if either university elects to provide non-university related entities located on campus with unrestricted service. This will put the decision with the university and is an agreement we can live with for the time being.

The result of this involvement was to save CSU approximately \$800,000 in the current fiscal year and hopefully cause the Public Utilities Commission and state legislature to better understand the impacts of deregulation, sharing and resale of service and end user participation.

Howard Lowell is the Director of the Telecommunications Department at Colorado State University in Fort Collins, Co.



"Informal Education During Attitude Adjustment Session"

Can you hear me?

—Francesca Lunzer

Complaining about phone service, once a rarity in the U. S., has become almost commonplace since 1984, when ATT was broken into seven regional holding companies. Since then the volume of complaints about phone service, especially delays in dialing long-distance calls, has risen almost as high as noise levels on the lines themselves. "It's gotten so bad," says an executive at a Cambridge, Mass. firm, "that I try to avoid conversations with our people at the Menlo Park, Calif. office."

Has the breakup really wrought inferior long-distance service? Technologically speaking, no. Most poor sound quality, experts agree, is the customer's own fault. Inferior telephones or the computerized PBXs that can be programmed to find the cheapest phone route or carrier—which customers are buying at a \$3.3-billion-a-year clip—are causing most of the problems for which customers blame the phone companies. "To be sure, there's a minimal level of noise that will always be on the line, caused by random events like the weather," says Edward Goldstein, a principal with consulting firm Management Analysis Center, Inc. and formerly corporate vice president of strategy and development at ATT. But that's not the problem.

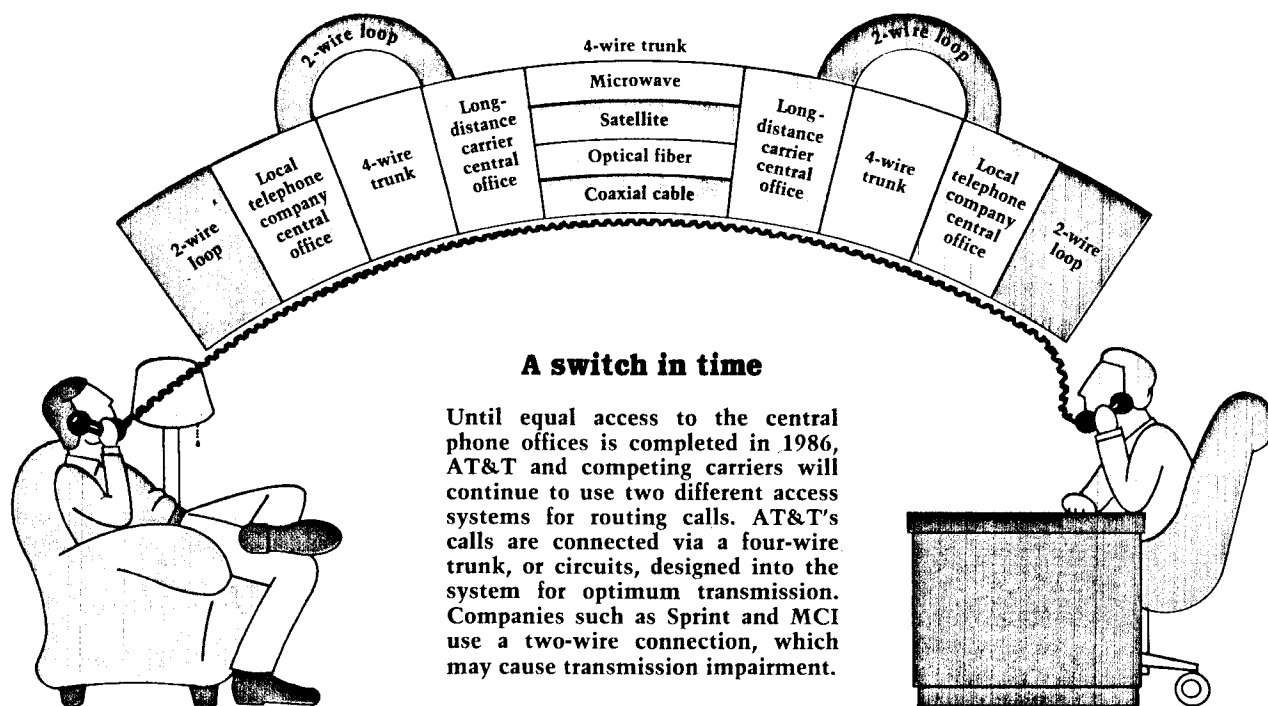
That's today. By this time next year, though, the problem may really be on the line. Here's why: In the mid-1970s ATT began using so-called smart switches, in place of its old electromechanical switches, to route phone calls. These switches created a network based on a five-class hierarchy of call switching. A local central office, for example, into which all calls flow to begin with, was a class five switch. It knew only how to route calls to a receiving point in the local area, regardless of how close or far the ultimate destination of the call. When a call was destined for an area it didn't serve, the switch simply pushed the call up to the next class, a regional switching center, and so on up the hierarchy to long-distance circuits. Then, as the call came closer to its termination point, it would be routed back down the hierarchy, and eventually to the right phone.

Hierarchical switching was no problem, of course, so long as there was only a single, unified system. But competition has changed all that. Long-distance calls are no longer part of a single system. Three different sets of interconnections must now be made to complete a long-distance call. First, a call goes to an originating access network, which is any one of the local phone companies you might use. That might be New York Telephone in New York, which is part of Bell operating company Nynex; or a non-Bell operating company, such as Commonwealth Telephone, which operates in rural Pennsylvania. From there, the call has to be routed to a connection with MCI, Sprint, ATT or whichever other long-distance carrier you choose. Finally, the call is connected with the local telephone company in the area code you're calling (see diagram).

Because ATT was part of the original system, its connections to almost all the local companies are optimum. That means four-wire circuits or trunks, directly tie local central offices with ATT switching centers. As competition for long-distance service began, however, new carriers were given only two-wire lines that connect with the nearest long-distance carrier and the nearest central office. Right now, these carriers must switch their calls to the receiving local company on their own, and that causes the characteristic hiss of transmission delays.

The discrepancy between two- and four-wire lines is compensated for by giving the competing carriers 55% discounts in those areas where their long distance calls are routed by two-wire lines. That's what allows MCI and Sprint to sell cheap service. But by September 1986, when almost everyone will have access to four-wire lines, those discounts will end and the other long-distance carriers will lose their price advantage. Offsetting that, local phone companies will allocate more customers to them from among those households and businesses that do not make a specific choice of a long-distance carrier.

Currently, ATT has 90% of the long-distance business, MCI 6%, Sprint about 3%. Come late 1986 the non-ATT carriers will get more business. But they will pay a price in higher access charges to the system than they are now paying. They will then have to find ways to cut operating costs elsewhere, and that bodes ill for phone call quality.



Can you hear me?/Continued:

One way they may cut costs is to cut down on the number of circuit miles between local telephone offices. (A circuit mile is the number of circuits a company has, multiplied by the number of miles covered by its transmission capacity.) Sprint has 125 million circuit miles, MCI, 300 million, ATT, 932 million. Some analysts believe that ATT's competitors might ultimately implement their own circuits to carry conversations only on big routes that can make a profit, such as New York to Chicago, and lease less lucrative routes from ATT. This would mean more system switching and, hence, more chance for delays.

ATT's competitors could also multiplex conversations--that is, pack in more conversations on a single circuit--allowing them to be sent more efficiently. But at a certain point, if the circuits aren't correctly designed and maintained, you get what engineers call cross-talk--you hear other conversations--which is already raising customer complaints.

Ultimately, what some of the carriers might do to remain in business is to request less-than-equal access from the local phone companies. In other words, you'll have a bit of a delay, but you'll pay less than for instantaneous service. Says Joseph Schatz, a senior telecommunications analyst at Arthur D. Little, "If you want to save money you might be willing to tolerate a few extra minutes' delay." That would set up a two-tier, and two-price, phone system.

Meanwhile, ATT is abandoning its hierarchical system in favor of one that routes calls through circuits that aren't busy, even if it has to go to Chicago to place a call between New York and Washington. That makes its service potentially cheaper than its competitors', no matter what they do to cut costs.

The country may yet get back to square one--a unitified, high-quality phone service. ☺

ACUTA thanks Forbes for the above article from September 23, 1985 issue, pages 186, 190, and 191.



PARTY LINE

—Ruth Michalecki, Nebraska

By the time you read this issue of ACUTA News, the Winter Seminar in Phoenix, Arizona should be in full swing. We have had excellent registrations for this seminar, and rightfully so since the evaluations by the attendees at the Fall Seminar were outstanding. I believe we have over 115 registrations for Phoenix as of this time, and I would expect to receive a few more. I am looking forward to a few days in the warm sunshine, although our winter hasn't been that bad, so far.

The January issue of **FORBES** magazine featured articles on the impact of deregulation in various industries and businesses during the past year. On page 210 of that issue they reviewed Telecommunications. John Hayes was the author. I would like to share some of the article with you. John calls telecommunications the biggest of all deregulating industries with everybody getting into everybody else's pie. I can't argue with that bit of logic! Now on to some of the article:

....."In September "equal access" will be completed--when all long-distance carriers start paying equal charges to local telephone companies for hooking up long distance calls. Discounts set up to help MCI and GTE/Sprint compete with ATT Communications will disappear. With a vengeance, the \$160 billion-a-year

telecommunications industry will enter the age of deregulation.

While long-distance carriers fight it out, regional and local telephone companies are pushing to get into new businesses. The now independent Bell regional companies even want to manufacture equipment in competition with Western Electric and to offer long-distance competition with ex-parent, ATT.

The former Bell companies will probably get what they want. Non-Bell independents, for example, have always had the right to offer long-distance service and have been in the business for years. United Telecom is betting \$2 billion that it can grab a piece of the long-distance market with a nation-wide fiber optics system planned for 1988. Continental has been acquiring nonregulated businesses, such as a telephone equipment distributor and a half interest in a satellite venture. Centel, which is second in five-year return on equity to MCI, has also diversified and so has Southern New England.

Local telephone companies, of course, remain under regulation, and last year state public utility commissions granted only about half of nearly \$3 billion in requested rate increases. But by and large, state regulators did not lower allowable rates of return for telephone companies when interest rates fell. That helped earnings as local telephone companies cut personnel and operating costs last year. Thus, it is good news for the industry that some public utilities commissions are deregulation-minded today. In Illinois, for example, any telephone service that is offered by at least two companies will be free of rate regulation by 1989.

As things now stand, ATT still dominates this industry. Even with three-fourths of its assets spun off, the market value of ATT has recovered to about half what it was the week before the divestiture was announced in January, 1982. Together, ATT and the seven regional companies have doubled in market value since then, compared with a 72% increase for the SP's 500. The old Bell system seems to be a case of the parts adding up to more than the whole.

MCI tops the list for profitability with a five-year return on equity of 32.1%. But for the latest 12 months MCI's return on equity has slipped down to 9.8%, reflecting the huge amount of capital spending needed to compete headon with ATT.

GTE's return on equity was 14.2% in the latest 12 months, close to its five-year average. That is fairly impressive, considering that Sprint is running big losses at the moment. Happily for GTE, two-thirds of its revenues (and almost all its profits) are still derived from local telephone operations....."

The complete article by John Hayes can be found on pages 210-211, **FORBES**, January, 1986 issue.

* * * * *

I have just learned of another state telecom association. This time it's the **Rhode Island Telecommunications Association** and their first president is Patricia Yockell of Brown University. For further information concerning RITA, please contact Pat at Brown University, Box 1967, Providence RI 02912. Her telephone number is 401-863-2007. Thanks Pat for the information and good luck with RITA.

* * * * *

See you next month! ☺

NEW PRODUCT, Continued:

Mileage	Megacom	SDN 4 Min. Daytime Call
0-292	.18	.211
283-430	.21	.234
431-925	.23	.268
926-1910	.24	.29
1911-3000	.26	.329
3001-4250	.31	.351
4251-5750	.35	.374

Although the above comparison is not quite exact (one has to assume a length of call of SDN), it does indicate one fact fairly clearly -- MEGACOM is significantly less expensive than SDN in the per-minute usage rate. Assuming that both MEGACOM and SDN may be accessed by T1 circuits, the overall cost for MEGACOM will be less than that for SDN. In general, since SDN access will have both on-network and off-network traffic, it will be less expensive per unit, but not enough to offset the three- to seven-cent difference in the usage rates. In addition, MEGACOM and MEGACOM 800 service may be combined on the same access group if desired, making this difference even more marginal.

The question has to be raised, therefore, as to the impact of this offering on the SDN offering. SDN, due to the very high installation charges, is clearly intended as a total network offering for the largest customers. The high installation charges inhibit customers from evolving gradually into the offering with selected traffic parcels.

MEGACOM, however, may be used for present off-network traffic with little network rearrangement, minimal installation charges and significant usage benefit relative to SDN rates. There appears to be little incentive to place this traffic on a Software Defined network, other than the management benefits of placing all traffic on a single service.

Both offerings, then, are targeted towards large users. It is unclear, however, as to the strategic intent of ATT relative to the cross-elasticities of these two services.

Other Impacts

By pricing traffic based only on its distance as opposed to the band of the line, least cost routing algorithms and design expense are minimized. This is also characteristic of OCC offerings such as GTE WATS. Further, as indicated above, if the large user can justify the offering in the first place, and if there is any spare capacity on the access facility, it will be straightforward to incrementally cost justify additional traffic. Therefore this will give the network manager the incentive to add traffic currently being carried on other carrier facilities.

Long Term ATT Directions

ATT has recently announced several offerings with the intent of offering volume discounts to large residential and business users, including the Pro America and Reach Out America services. This service also has that characteristic, even though the usage rates are technically not volume sensitive. The high base charges result in the same volume sensitive effect.

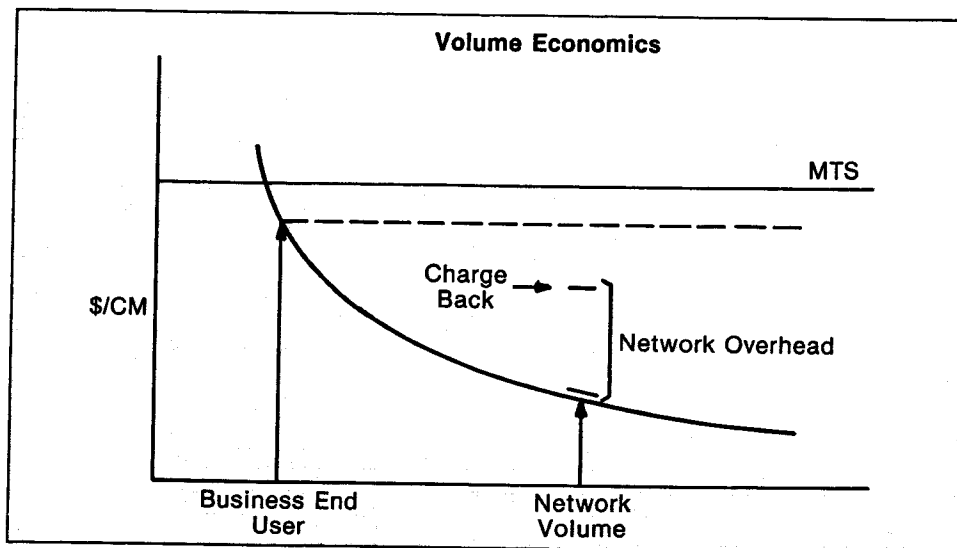
These offerings may be part of a longer-term plan on the part of ATT to eliminate the present DDD and WATS distinctions, combining them into a unified volume-sensitive offering. The other apparent trend, illustrated by Software Defined Network and the MEGACOM 800 offerings, is to add functionality to services based on the power of the public switched network. If these trends continue, they could have an enormous impact not only on private networks but on resellers and carriers.

The curve illustrating the present economic situation is given in Table 1. In this figure we have MTS, which is not volume sensitive, and a volume-sensitive curve representing the overall network cost. The level of this curve will vary depending on whether it is a private network, reseller or carrier, and other factors such as the specific arrangement of the network and the traffic characteristics, but the overall shape is the same.

The network manager takes traffic from end-user locations which by themselves do not have large volume benefits, bundles the traffic into higher-volume units at a network switch (resulting in a decreased per-unit price), adds management and billing overhead, and then observes a benefit overall. In a typical case the benefit is a decreased cost relative to MTS. This is true for private network managers (who generally bill back a percent of DDD) and for resellers/other common carriers, who advertise cost savings relative to DDD.

Elimination of the MTS curve or combination of MTS/WATS into a unified volume sensitive offering would change this picture dramatically, forcing network managers to observe a cost benefit relative to a volume-sensitive structure of the WATS variety. This would make cost-justification much more difficult for private networks and would force a change in the advertising and benefit demonstrations now being performed by resellers and other carriers.

In short, such a move would dramatically alter the economic justification of all non-ATT networks.



NEW PRODUCT

AT&T's MEGACOM Service

— by John Bridges

ATT has introduced new services called MEGACOM and MEGACOM 800, with characteristics of both MTS and WATS, as well as similarities to the Software Defined network offering introduced earlier this year.

Service Description -- MEGACOM

1. There is a base charge of \$1,200 per month per billing number.

2. Pricing is distance and time of day sensitive, with mileage bands identical to those of the recently announced Software Defined Network.

3. The service is essentially WATS except it is intended for bulk (T1) access, although not technically required by the tariff. The major difference between MEGACOM and WATS is that the mileage bands are MTS-like as opposed to the present WATS band structure.

4. Usage rates as provided in the tariff are as follows:

Mileage	First 30 Secs.	Each Add'l 6 Secs.	1 Min. Equiv.
0-292	.09	.018	.18
293-430	.105	.021	.21
431-925	.115	.023	.23
926-1910	.120	.024	.24
1911-3000	.13	.026	.26
3001-4250	.155	.031	.31
4251-5270	.175	.035	.35

As indicated in the right hand column above, if the rates are translated into first minute and each additional minute equivalents, one finds that these figures are identical, which is characteristic of WATS pricing as opposed to MTS pricing.

Service Access

Access to MEGACOM may be performed in three ways:

- Access arranged for by ATT under its Tariff 11;
- Access from the Local Exchange Carrier under its Special Access tariffs;
- Access using customer provided facilities including fiber, microwave or other means.

The tariff indicates that there are about 175 ATT switches with MEGACOM capability, with 54 (!) LATAs having no switches whatsoever. Eight of the twelve Illinois LATAs, for example, have no capability. Access distance may therefore be quite long resulting in very high local channel charges, or the service may often be unavailable.

Overall Economics

In order to evaluate the overall economics of MEGACOM, one must add the cost of access to the above usage

rates. Assuming that a T1 local channel from ATT costs about \$600 and adding the base charge of \$1,200, we have a total access cost of about \$1800 per month. This of course can be significantly higher if the location is distant from an ATT switch with MEGACOM capability, as will often occur. At this rate, however, simple division shows that a customer replacing 10 WATS lines currently carrying 80 hours per line will pay 3.75 cents per minute for access (\$1,800/48,000 mins.), while a customer replacing 15 lines carrying 100 hours per line will pay 2 cents per minute (\$1,800/90,000 min.). At small volumes (for example, replacing 5 lines carrying 60 hours per line) the base cost becomes prohibitive. The service cost justifies for large customers only.

The key to access cost is, however, that there is no volume per line factor in the pricing. This means that, having justified or near-justified the service at all, other traffic may be added to MEGACOM at essentially zero incremental access cost, assuming that there is spare capacity in the T1 channel or other facility being used for access. This is very similar to old Telpak tradeoffs and to present T1 tradeoffs in other applications.

Comparison to WATS, Other Carriers

The situation becomes quite complex when comparing to Other Common Carrier offerings, and when analyzing typical ARS patterns on large network switches.

First of all, flat rated services (Starmax, ITT, SBS) will still, with adequate loading, be significantly less expensive than MEGACOM, and will remain in routing patterns in much the same way as today.

WATS type services are somewhat different. For example, MCI WATS, Rate Step 1, 80 hours per line, all daytime and all on-network traffic prices out at 17.25 cents per minute -- significantly less than the 18 cents for mileage band 0-292 plus access line cost. However, MCI WATS off-network prices are more than WATS when one includes consideration of the higher line charge, and thus these costs are higher than MEGACOM. For example, if a group has 80 hours per line with 80 percent on-network and 20 percent off-network, the overall price per minute is 19.49 cents/minute, still better than MEGACOM considering base charges.

Comparison to Software Defined Network

The most interesting result occurs when MEGACOM prices are compared to those for the recently filed Software Defined network service (see BCR, May-June 1985). Below are the translated prices per mileage band next to the equivalent Software Defined network prices for Schedule B. This comparison is valid since Schedule B is the price from an ATT switch to either an off-network number or an on-network number using standard access lines.
(Continued: Next Page)



* WOULD YOU ASK THE PERSON OR PERSONS RESPONSIBLE FOR THE ACCESS CHARGE: TO STEP OUT INTO THE HALL, PLEASE?!

Comments from Other Parties

Replies to the FCC concerning MEGACOM have been generally favorable from the user community, and generally critical from the BOCs and other carriers. Comments include the following:

1. The Bell Operating Companies indicate that the service will result in severe loss of revenues from bypass and from decreased switched access minutes of use, with BellSouth indicating losses of \$160,000,000 of access revenues in their region alone.
2. The Bell Operating Companies point to a fundamental problem of uneconomic bypass encouraged by the present pricing structures of switched and special access and observe that further degradation of this type will occur until this deeper issue is resolved.
3. Other carriers raised questions as to the cost-justification of apparently similar uses of the ATT network with widely varying prices, as well as implications for continued dominance of 800 service.

Conclusions

1. The service cost-justifies only for large users.
2. The service, considered in conjunction with other recent ATT actions, points to a long-term trend in which ATT may use its enormous economic and technical power to provide services which are very beneficial to the large user community and very detrimental to other carriers. Since ATT is still regulated, it must at this time "reformat" offerings of this type to provide benefit to users: offerings must be disguised with complex tradeoffs and T1 access mechanisms. If any significant deregulation were to occur, it is clear that a virtual flood of these offerings would appear.

This, then, becomes the primary issue: how long will ATT remain restricted in this manner, considering particularly the IBM/MCI/Rolm combination? *Q*

ACUTA wishes to thank BUSINESS COMMUNICATIONS REVIEW for this article which appeared in their November-December, 1985 issue. John Bridges is president of John Bridges and Associates, a network consulting firm in Lewisville, TX.

HB



Three openings in the Chicago area for experienced professional capable of doing voice and data network design in an IBM hardware and software environment. Knowledge of SNA, protocols, and access methods helpful. Data knowledge more important than voice. Working for a large corporate organization, the person must feel comfortable interfacing with all levels of people.

If interested please contact Ted Niezer at 312-751-2188 in Chicago.

Salary ranges from 30 to 50K.

Harris-Burnett And Associates, Ltd.
111 E. Chestnut, Suite 52C
Chicago, Illinois 60611

The University of Central Florida

— Bill D. Morris

The University of Central Florida is currently testing a registration system that allows the student to call a computer, use the tone pad to select the courses and the computer verifies the registration with a voice response. The following article briefly tells why this system was selected and how the system operates. At present, we have 16 direct business lines from Southern Bell to the processor. We selected direct lines rather than lines from our campus PEX to reduce the number of failure points. Also please remember that we are a commuter school—less than 6% of our students live on campus.

This March the system will be used to register approximately half of our students. Tests will continue to be held in early February. If you or your registrar would like more information please call Mr. Chapman at 305-275-2531. If you would like to register from your phone during early February he will give you the necessary information. *Q*

TELEPHONE REGISTRATION

— Wm. Dan Chapman

The University of Central Florida, located approximately 13 miles east of Orlando, has an enrollment of sixteen thousand plus students. It also has remote campuses at Daytona Beach, Cocoa and South Orlando. Students have been able to register at any of these locations for several years, using a campus located 8100 IBM mini-computer, and remote CRT's and printers. Students are assigned priority day, hour and minute times based on their class standing, i.e. senior, junior, etc. and their GPA for their most recently completed term with UCF. Student appointment times are in the computer and they may register anytime after their appointment time has passed, during the scheduled registration period. Most students appear at their exact time. Although the students agree that this is fair, they most often drive to the campus or one of the remote sites, or wait until they are on campus for classes in order to register.

Since an average trip to campus and return is approximately twenty-six miles, it seemed reasonable for both the benefit of the university and its students to seriously consider a new technology.

Several years ago companies such as Periphonics, VCT Corporation, Perception Technology Corporation, American Telephone and Telegraph, developed a process that would read the touch-tone sounds of the telephone and convert it to computer readable data. The next step was to capture the item projected on a computer screen and convert it to voice responses for a recording of anticipated sentences and words. Next, interface a processor that can receive a telephone call, pass it through to a computer which responds through the software programs and back to the processor. It responds with a voice communication to the caller.

It isn't quite like calling time and weather, for there is more than just a recording which changes each minute. Anything your computer is capable of processing to a readable screen image can be verbalized.

Thus any touch-tone telephone anywhere in the world can act as a terminal with the appropriate processor and computer with program and proper linkage.

REGISTRATION, Continued:

This computer process has been used very successfully in supplying auto parts, catalogue items and in the movement of money. Automatic tellers at banks have been very successful with the use of credit cards with no voice interface. Add the voice interface used by the processor and the touch-tone pad used by the caller, it would seem that most anything relying on this type technology could apply.

Why not college and university registrations?

Our first contact with available possibilities was several years ago when a representative of Periphonics came to our campus and talked with me and some of my staff. Periphonics was an affiliate of Exxon and we had previously equipped our office and remote sites with "Qwip", another product of Exxon, therefore, we had had previous good experience with them. The problem that arose was software that would interface with an 8100.

We next talked with the Sales manager of VCT Corporation, and were very serious about using his company. We even went so far as to pay his and a technical representative's way down for a conference with my staff and the Florida UNIFTRAN group. UNIFTRAN was conceived in the office of Jim Morgan, who was Director of MIS of the Florida Board of Regents. It came into existence as a result of the state universities surrendering certain members of their computer programming staff in order to create this project, whose job it would be to assist the participating universities. Shortly after this I talked with the National Sales Manager of Perception Technology Corporation, at the Denver AACRAO meeting, and indicated we were somewhat committed to VCT. VCT had some problems in its capitalization plans shortly after this, and there were changes in their personnel. Their Sales Representative was leaving the company, and although he was very confident of VCT's product ability, we were concerned about future and long range support. Our solution was a bidder's conference!

At this point I should indicate that my computer support staff, consisting of our Systems Coordinator and Senior Systems Analyst, were as excited about the possibilities as was I. In the VCT meeting we had involved the Associate Vice President for Academic Affairs, and by this time of the bidder's conference it was no longer a question of would we - the funds were already set aside, it was a question of whose product would we select, based on who could best fulfill our needs.

Since an earlier UCF registration package had been used as the base model for the Florida UNIFTRAN team in developing a stand-alone registration system for the IBM 8100 mini and UCF had served as the pilot institution, and there were possibilities for each of the Florida universities using the 8100's and UNIFTRAN, we agreed that UNIFTRAN representatives should be present. Five other State of Florida institutions could also benefit.

The Director of the Florida UNIFTRAN project, agreed to write the software for the 8100's and once again UCF would pilot. Mr. Jim Thompson, who wrote the original registration change was assigned the task.

Too many chief's may spoil the stew! - but in the case of most UNIFTRAN projects it has been the philosophy that we would adhere to each institution's needs without doing violence to the project. Human nature being what it is, we have strayed away from what was best for the project on a few occasions.

When the decision was finally made as to which processor, it was delivered to UNIFTRAN and linked with

their 8100 for the software write. It has now been moved to the UCF site and we are constantly testing the software, making modifications to improve. We decided upon a very vanilla (generic) program in our first venture. It was felt that keeping it simple may be the best gift we could provide to ensure its success.

From the student's point of view, he telephones the identified number at a predetermined time as identified previously. The voice he hears welcomes him to the touch-tone telecommunication registration of UCF and instructs him to enter his student number (S.S.#) followed by his PIN (Personal Identification Number, which is in reality his day XX, hour XX, and minute XX of his registration appointment time), leaving no spaces, followed by a # sign. If the student is at or after his appointment time he may proceed (if not, he is asked to call again at or after his time, or if his registration is on hold [outstanding financial obligation, library book out, fine, traffic fine, not in good standing, et al] he is given a number to call if he has doubts and asked to call again when his problems are corrected) by entering the four digit code for each course followed by a # sign. The system prompts the student through one course at a time. It also checks for conflicts, cancelled classes or held sections and informs the student of the status of each course. In the case of conflicts in courses the student may enter his choice. In the case of courses with missing labs or the converse situation, the student is advised and asked to enter the appropriate lab or lecture. When the student has completed his registration he informs the system by entering select codes such as 9999# or ***4#, etc. and it responds with the total hours for which he has registered, the fee amount, where he may pick up the fee invoice and when the fees are due. In any case the student has made a contract with the University when he enters the closing codes.

Students unable to register this way are invited to come in for assistance the next day and are assigned a time for this purpose.

The possible applications are many. If it is presently on a CRT it is applicable - payment by credit card, financial aid, admissions, and I am sure many that slips our minds at present. Applications are limited only by our imagination. ☺

The above article was written by **Wm. Dan Chapman**, University Registrar at University of Central Florida in Orlando, Florida.

