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To LAN or Not To LAN: Do You Really Need a Local Area Network?

Martin B. Solomon
Vice President for Computing, Communications and Information Technology
University of South Carolina (Region 3)

Are you contemplating the purchase of a Local Area Network, or LAN? If so, the first question you should ask yourself is, "Why do I want to buy a LAN?" The answer is critical because the planning, acquisition, installation and support of a local area network is a very complicated endeavor. It resembles brain surgery in some ways, in that a great deal of care is required. Large investments in equipment and personnel are inevitable.

This article, Part One in a two-part series on LANs, covers the first four of seven phases essential for a successful project:

1) Needs analysis
2) Hardware and software specifications
3) Installation specifications
4) Purchasing hardware and software
5) Training departmental systems administrators
6) Training end users of the network
7) Providing ongoing LAN support

• NEEDS ANALYSIS

It is important to understand, at the outset, the problem(s) being solved. A local area network normally contains a central server microcomputer (usually more powerful than an average PC) which interconnects from a few to a hundred personal computers. The personal computers are attached to the server in one of a variety of connection types and protocols. Local Area Networks can provide a variety of functions: to share program and data files, to share input or output devices, or to share communications facilities. In some cases a LAN operates as a minicomputer, where one or more programs actually run on

(continued on page 10)
Update: Incorporation & Bylaws Committee

Kia Malott, ACUTA Past President
Southern Illinois University at Carbondale (Region 5)

The Incorporation and Bylaws Committee members, in conjunction with the ACUTA Officers, Board of Directors and attorneys, have been busy finalizing the revisions to our Articles of Incorporation and our Bylaws. The proposed changes to the Articles of Incorporation will be distributed to all ACUTA members for review prior to the annual conference in Orlando. Revisions to the Bylaws will be addressed by the full Board of Directors at the next scheduled Board conference call.

The primary reason for revising the Articles of Incorporation is to better provide for employee benefits for the Lexington staff. Our current Articles are filed under Section 501 (c)(6) of the Internal Revenue Service Code, which does not allow for tax exempt payment of these benefits. Also, the new tax status will allow a lower postage rate for our mailings.

The membership will be asked to approve the filing of the Articles under Section 501(c)(3) of the IRS Code at the Orlando conference in July. On advice of our legal counsel, a number of other revisions to the Articles have also been proposed to insure compliance with the intent of the 501(c)(3) code. These revisions will be detailed to the membership when the Articles are distributed for your consideration and approval.

A number of sections of the Bylaws will also be amended to reflect compatibility with the Articles of Incorporation and to allow better governance of ACUTA. Some of the more significant changes are as follows:

- a change in the name of industry and corporate members to “affiliates” (for IRS reasons);
- the Immediate Past President will become an Officer of the Board;
- the position of Finance Chair will be eliminated and the duties of the Treasurer changed (to allow for the hiring and functioning of a professional Business Manager in the Lexington office);
- Region Directors will be elected (for two-year terms) rather than appointed;
- the Program and Membership Chairs will be renamed Directors;
- the Officers will officially be designated as the “Executive Committee”;
- the Public Relations and Internal Communications Committee will be eliminated, and its responsibilities will be handled by the Executive Committee and the Lexington office;
- all time- and procedurally-sensitive items will be removed and placed in the ACUTA Policies and Procedures manual.

As soon as all Bylaws work is completed and revisions are approved by the Board, copies will be available to all members upon request to the Lexington office.

If you have questions concerning any of this work, please do not hesitate to call me at (618) 453-2484 or Bitnet: GEO238@SIUCVMB.
MESSAGE FROM THE PRESIDENT

Mike Grunder, Yale University

There's an ACUTA Board member who claims to be able to watch five basketball games at once. This is done through astute use of multiple television sets and remote control units. To hear him talk, I'm sure it's true. He knows more about basketball and remote control devices than anyone I know. Fact is, we're considering him for a lecture series at the conference this summer.

Basketball isn't such a big deal here at Yale. Our games are still played in the gym. It's called "the Amphitheater" but it smells like a gym. No matter, however, because Yale sits right in the middle of the Big East Basketball Conference. And what a conference it is! Syracuse (my hometown), Georgetown, St. John's, Villanova, Providence, Seton Hall, Pitt — and who's in first place? The University of Connecticut! A force suddenly to be reckoned with, UConn's t-shirts now sell nationwide, and through good timing they've just moved into a new domed pavilion. It has a fancy name, but in keeping with the times it's been dubbed the "Conn. Dome" by the students. Safe but exciting basketball is suddenly being played in rural Connecticut!

But enough of this. My support of athletic teams more often than not has seemed to be tied to that team's ultimate demise. So I won't cheer too hard for UConn just yet.

It appears, however, that we can cheer for our membership drive. Early results show about 50 new institutional members so far. If you recall, Membership Chair Bonnie Johnson and the Region Directors have developed a network of state and province coordinators who have been busy identifying the key telecommunications person at every non-member college and university in the United States and Canada. A personalized mailing has gone out to the first 700, and by the time you read this 400 more will be on their way. Roughly 300 more will follow that. Follow-ups will be done, and the new data base created from all this will be used for ongoing recruiting activities. Our goal for the year is 300 new institutional members, and it looks like we're well on our way!

I'm pleased to pass along news of a new position being created in the Lexington Headquarters Office. We've developed and are advertising for a professional Business Manager. This new position will deal primarily with ACUTA financial matters and will allow for a redefinition of the Treasurer's responsibilities more in keeping with the evolving professional role of the Lexington office. ACUTA has become large enough and our financial endeavors (budget development, tracking, accounting, etc.) complex enough to warrant full-time attention. The position of Finance Chair will be eliminated under this new structure, with the Treasurer assuming many of those responsibilities.

By now you should have received your copy of the first ACUTA Monograph. An excellent first effort (if I do say so myself)! I want to restate my invitation to you to give serious consideration to writing one. It's not only gratifying in a personal sense, it is also an extremely effective educational tool. And that, after all, is what ACUTA is all about.

Editor's Note: For more information on the ACUTA Monograph Program, please call the ACUTA Office at (606) 252-2882.
Vegas Seminar to Cover Voice, Data, Video

The complex world of network management will be the topic of ACUTA's spring seminar in Las Vegas next month. The two-and-one-half-day program, designed especially for ACUTA, will be presented April 8-11. Lynn DeNoia will examine in detail the meaning of voice, data and video integration from technological and organizational perspectives. She will scrutinize requirements, benefits and costs, and provide a realistic look at what today's network management products can deliver. The lecture material will be augmented by a user forum/panel discussion and an exhibit hall featuring telecommunications vendors and their products.

Dr. DeNoia is a consultant with more than 15 years of telecommunications experience, specializing in data communications and network design. She has a B.S. degree in physics and a Ph.D. in computer science from Brown University, and an M.S. in information and computer science from Rensselaer Polytechnic Institute.

*ULTRAMODERN RESORT HOTEL*

The seminar will be presented at The Mirage, a luxurious hotel in the heart of the Las Vegas strip. This beautiful resort houses a tropical garden with 40-foot palm trees, seven restaurants, tennis facilities and a lagoon pool, providing plenty of activities between classroom sessions.

The deadline for making reservations at The Mirage is Saturday, March 17. The Mirage is an extremely popular hotel, and it is highly unlikely that late registrations and walk-ins will be accommodated.

To reserve your room, call The Mirage at 1-800-627-6667 or (702) 791-7444. The rate for single and double rooms is $75 per night plus tax. To receive this special rate, be sure to mention you are attending the ACUTA seminar.

*ADDED ATTRACTIONS*

Some exciting special attractions have been added to the seminar calendar. A bonus program will feature motivational speaker Tom Russell discussing “Success Without Stress.” Mr. Russell has appeared on broadcasts of CBS Morning News, Good Morning America and Larry King Live, and in the pages of Newsweek, U.S. News and World Report, Time and Forbes. He will show you how to reduce stress in your environment and how to stay on the winning track when the going gets rough — useful information for anyone in the fast-moving, stressful world of telecommunications.

You will have an opportunity to relax and have fun at ACUTA's Monday night event, which will be marked by the glamour and glitz that only Las Vegas can provide. The evening will include dinner and a Las Vegas show featuring “City Lites” (an entertainment extravaganza that includes singing, dancing and magic). All this will take place In the Flamingo Room of the Flamingo Hilton Hotel. A brochure describing the show will be enclosed with your confirmation letter.

In addition to enjoying these added attractions, you can save on air fare and car rental: Delta Airlines and Alamo Rent A Car are offering special discounts to seminar attendees.

To obtain a seminar registration form or more information, please call Lisa McLemore in the ACUTA Office at (606) 252-2882.
New Corporate Affiliate Program Approved

Recently the Board of Directors approved a new Corporate Affiliate program for telecommunications companies which offer voice, data and video products and services, as well as for consulting firms. The program should not be confused with the current individual industry membership, which is an employee membership (proposed Bylaws will change this to "employee affiliation" for tax purposes) vs. a corporate affiliation.

The individual industry membership was established years ago to allow each institution's telephone account representative to belong to ACUTA and attend ACUTA events. In recent years, corporate level participation has greatly increased, especially in sponsorships and exhibits. Many corporate-level personnel attending the educational sessions thought their companies were members, and therefore they (and all employees of those companies) could attend ACUTA events at member rates. It was somewhat confusing and required explanation continuously to new corporate representatives. This new program will allow companies to appropriately identify (and advertise) themselves as being affiliated with ACUTA.

The program has three categories of membership: Bronze (up to five employees may attend ACUTA events at member rates), Silver (up to eight employees may attend ACUTA events at member rates) and Gold (up to 12 employees may attend ACUTA events at member rates). Each category has a different annual membership fee: Bronze - $700, Silver - $1,000, Gold - $1,450. (Individual industry employees currently pay $200 annual dues).

Corporate affiliates will receive several incentives besides the formal affiliation with higher education and savings on fees. These benefits include advance selection of social sponsorships and booth space, eligibility for participation in the Vendor Liaison Committee (a new program soon to be announced) and eligibility to advertise in the ACUTA monthly newsletter and event brochures (another new program soon to be announced).

Approximately 400 companies received information on the new program this month, and we will keep you advised of its growth. The individual (employee) industry membership will continue for those smaller but very valuable companies which do not have a need for the larger number of people to be directly involved with ACUTA activities.

I hope many of you have made plans to attend next month's seminar in Las Vegas (April 8-11). A great program on networks is planned, along with a Monday afternoon motivational speech by Tom Russell. He has been featured on many television talk shows, as well as in national publications and financial journals. The Mirage hotel continues its magical draw. All 3,200 rooms have been sold out every night since its opening - all advance registrations with no walk-ins available!
Sucess Story: Connecting Campuses in Oregon

Nora Harrison and Chris Moore
(Region 7)

The eight schools of the Oregon State System of Higher Education (OSSHE) range from a teaching hospital in Portland in the northwest corner of the state to a general education college in rural, eastern Oregon. Mountain ranges separate the schools, and many of the campuses are bisected by rivers, railroads or major city streets.

To think that a single telecommunications system could link all eight campuses and appear transparent among the estimated 30,000 users would seem more a dream than reality. According to David Stubbs, OSSHE’s director of telecommunications, for years the idea was just a dream.

“We started discussing an inter-institution computer system nine years ago,” says Stubbs. “By 1983 we had a Request for Proposal (RFP) which outlined our needs.” After discussions with vendors, OSSHE realized the described system did not yet exist. In 1984, OSSHE rewrote the RFP and included telecommunications. A year later telecommunications was split off into a separate project. In May 1987, OSSHE hired a consultant, JTM Associates, Inc., of Atlanta, Ga., to help with the telecommunications project.

• CAMPUS AUTONOMY

“One of our charges was to maintain individual campus autonomy in the management of the system, yet also achieve the economies of scale,” says Joe Massey, Jr., president of JTM. Under JTM’s guidance, a 3,000-page RFP was created. In September, 1988, OSSHE awarded the contract to AT&T.

The contract consists of $19 million worth of equipment and wiring, and more than $10 million in maintenance and other services over the next 10 years. The new system carries both voice and data signals, selects the least expensive routing for long-distance calls, permits more efficient maintenance, allows five-digit dialing among all eight campuses, and provides service to 28,000 lines, including residence halls. Massey believes the telecommunications system is the largest ever installed for any multi-campus, higher education system. The numbers support him: 14.1 miles of copper cable and 26.6 miles of fiber were placed at Oregon State University, according to AT&T project manager Steve Babcock.

“We bought at least one of everything AT&T makes,” jokes Chris Moore, manager of telecommunications for Oregon State University.

The system includes eight fully duplicated System BSSs tied together with Electronic Tandem Networking (ETN) and Distributed Communications System (DCS), eight Call Management Systems, eight AUDIX (voice mail) systems, Centralized Systems Management, ACCUMASTER® Trouble Tracker, 19 AT&T 382 computers, nine AT&T personal computers, 32 AT&T printers, 64 AT&T 615 terminals, and an assortment of analog and digital telephone stations.

Left to right: Steve Babcock, AT&T project manager; Kim Bowman, AT&T branch systems manager; David Stubbs, OSSHE director of telecommunications; Wendy Lucia, AT&T account executive; Joe Massey, JTM Associates president; Chris Moore, OSU telecommunications manager; David Douglass, JTM; Glenn Thompson, JTM; Glenn Thompson, JTM; and Brad Johnston, AT&T Portland branch manager.
"FLAWLESS" CUTOVER

In April, Western Oregon State College (WOSC) was the first campus to install the new system. In June, Oregon State University (OSU) came online. The cutover for OSU was "flawless," according to Massey. Said Moore, "I was very impressed by the way AT&T oversaw the whole process of installation, inspection, and testing. Out of 171,000 splices there was only one bad pair."

Reaction to the new system at OSU has been very favorable, says Moore. "Our people are amazed with the new services. Voice mail has been a big hit." Moore cites "control" as a major benefit. "In the past we have been at the mercy of the Public Utilities Commissioner and the provider of our leased equipment. We had no control over services, and with control comes cost advantages. Over 10 years we will have spent $2.5 million to get telephone service at OSU alone than if we had kept the old system."

Joe Massey attributes the positive reactions to the system to the implementation process. "The system was implemented from the end user up," Massey says. JTM involved all the campus departments in the system design, and with involvement comes a sense of ownership.

DREAM REALIZED

The consulting firm will continue to be involved with OSSHE at least through the installation of the last campus in October 1990. The cutover of the last campus will mark the completion of a project that began as an unrealistic idea a decade earlier. As a manager of telecommunications in higher education, Chris Moore never thought she'd be involved in a project of such magnitude. "With our tight budgets, I never dreamed we'd have access to such exciting technology," she says. At OSU the dream has become reality.

The positive response to the system has continued. "Everything is going so well," Chris reported last month. "User acceptance has been phenomenal."

"The project is a lot of work, though," she laughs. "We certainly have no time to sit around wondering what we're going to do tomorrow!"

Editor's Note: Nora Harrison is a freelance writer and Chris Moore is manager of telecommunications at Oregon State University.

US West Requesting User Input for New Billing System Design

Howard Lowell, Region 7 Director Colorado State University

While attending the recent Scottsdale seminar, ACUTA members from colleges and universities in the US West operating area were given the opportunity to meet with US West representatives. The topic for discussion was a subject near and dear to all of us: BILLING.

Three companies make up US West, and each one had its own billing system that met its individual needs as a unique company. This arrangement created problems when used for one company, however, and US West elected to redesign the billing system to meet its own needs as well as provide new and more flexible services to its customers.

In Scottsdale Sydney Paredees, manager of market operations for US West, introduced Tim Stolman, communications, billing manager. Mr. Stolman reviewed the current billing procedures and services, and then explained that the new billing system will service US West customers in their 14 western states.

The new system is intended to provide considerable flexibility in managing, formatting, timing and designing the bills received from US West.

The new system is in the early stages of development. During 1990, data models will be constructed to provide the foundation of the systems, and US West is asking for input to the design process from ACUTA member schools to ensure that the system meets their needs. Several schools will be working closely with US West during 1990 to determine detailed requirements. The following ACUTA members have volunteered to participate:

Nancy Moulton
University of Colorado - Denver
Carl Schetksy
University of Portland
Robert Aylward
University of Wyoming
David Weiser
University of Colorado Health Sciences
Howard Lowell
Colorado State University

If your school would like to provide information for this endeavor, you can volunteer through your US West account executive or call Sydney Paredees, US West in Portland, at (503) 464-1744.
Puzzled by fast-changing telecom technology? ACUTA's Understanding Telecommunications workshops are scheduled for Regions 3, 5 and 6 in the coming months. If you have not received the workshop brochure and want details, please call the ACUTA Office at (606) 252-2882.

PARTY LINE
Ruth Michalecki
Director of
Telecommunications
University of Nebraska

Teleconference facilities seem to have taken the spotlight for our department this month. We have always had a large and healthy teleconference business, averaging 50 or more conference calls per week. These calls range from five locations to 30 locations and are handled by our operators. Our conference business includes press conferences, training seminars, meetings, bringing speakers to campus via telephone and even using teleconference technology to allow the judges to adjudicate labor disputes across the state on a weekly basis rather than travel to various sites for hearings once a month.

In order to provide better audio quality and make it easier for the operator to set up a call, we purchased the Northern Telecom MS-1 Conference Bridge for our out-going bridge. It is a computer-based system with 24 ports which can be used in any combination as required for the call.

One of the nicest features of this bridge is the "reservations" package. The operator dials all of the participants' names and numbers in the data base, along with any related billing information, conference leader, special instructions, etc. This can be done during non-peak hours (evenings) when the operator has time. About five or 10 minutes prior to the scheduled time for the conference call, the DMS-100 switching system dials all the conference locations (upon receiving a signal from the MS-1), saving 15 to 30 minutes of operator set-up time which was required before we purchased the bridge. We used a WESCOM bridge for many years and it worked all right, with some noise and clipping but adequate audio quality. The technology was simply getting old and our conference business was growing rapidly.

In addition to the MS-1 bridge, the DMS-100 has some great "meet-me" conference bridge facilities. We can handle up to 30 locations on each meet-me facility. The originating bridge (MS-1) can be used along with the meet-me, so we could provide conference facilities for up to 54 locations at once if necessary.

Earlier this week our office participated in an exciting experiment. The University of Nebraska Educational Television Network, using their new Satellite Network, broadcast live a legislative hearing covering funding of higher education within the state. The hearing originated in Lincoln and was broadcast live to 26 hearing sites located throughout Nebraska. We provided real-time audio interface with each location through our meet-me bridge on the DMS-100. The meet-me bridge was "opened" for the conference call by our conference operator, and the site leaders dialed the 800 number that translated to the POTS number assigned to the bridge. Even though the various hearing sites were located in areas with older telecommunications switches and facilities, the audio level was excellent and the transmission was very good.

We were pleased at the outstanding performance, since we are planning on using this facility for the two-way audio requirements for our distance learning network. Our television staff members are really happy because they had anticipated paying a healthy sum for a conference bridge to carry the instructional television programs to students at training sites throughout the state.

It has been difficult to find teleconference units for the individual sites at a reasonable rate. We have tried the old Bell portable conference telephones and they work fairly well, not great but almost acceptable. Next we purchased the SHURE Conference System. It is excellent, but the cost is high, especially if you're looking at a lot of units. CEAC makes an excellent unit, but again the cost is high. We have tried using plain old speaker phones, all makes and models. They simply can't cut it in a classroom environment. We need something that is portable since the site can change at a moment's notice. Most of the group leaders prefer a unit that can be used by the students, without the need to pass a microphone around — as usual, the end-user doesn't want very much!

Anyway, if any of you have found the perfect unit which works well and is not too costly (and cost is relevant, isn't it?), please let me know.

From all I have heard about the Scottsdale seminar, it was well worth attending. Sorry that our Understanding Telecommunications workshop was cancelled due to low attendance. I find it interesting when I see other Introductory workshops being offered around the country (at prices far exceeding the modest fee charged by ACUTA) with good attendance while the ACUTA classes have to be cancelled due to low interest.

Because I was interested in learning what the difference seemed to be, I attended two such courses offered by other organizations. Although
risp mountain air, beautiful blue skies, and an opportunity to learn from the experiences of others -- this sums up the ACUTA fall seminar to be presented in Portland, Oregon, October 14-17. The topic is "Case Studies on Telecommunications Management Information Systems." Mark your calendar now!

I must admit I might be biased, the ACUTA course was far superior to either of the two I attended and paid $595 and $695 for. In addition to far more current information and better material, the ACUTA class has the advantage of being taught by professionals in telecommunications, working in a college or university setting. They can speak to the issues all of us deal with daily in higher education.

If you have any thoughts on how we can increase interest in the Understanding Telecommunications course offered by ACUTA, please let the ACUTA Board members know. The class was developed originally to be of some value to our member institutions in training the newcomer or novice working in the institution's telecommunications department.

I will see some of you in Millersville, PA, in March at the ACUTA workshop. If you don't have a current workshop schedule, please contact the ACUTA Office and the staff will send you one.

We have been struggling with rewiring our buildings, installing new IDF's and cleaning up the cable entrances. It would certainly be easier if we were starting from scratch, but trying to gain even an extra foot of space in the academic buildings for wire and cable is more difficult than getting additional staff. We will keep plugging away, though, until it is finished -- hopefully before what we are doing becomes obsolete...

\* \* \* \* \* \* \*

Student Telecommunications Services will be the focus of my all-day session at the annual ACUTA conference in Orlando. We have made many significant changes in our operation this year, and I am anxious to share our experiences with you. Our changes have greatly reduced the manual activity previously required in this area. We currently have about 9,000 students using our long distance service, and we had to look at ways to work smarter, not harder, to continue providing a good grade of service with the same number of staff -- which happens to be two accounting clerks. They do all the billing, collections, answer questions, keep track of the frequent moves, the whole shebang!

Voice mail/voice processing services has been a big success in the residence halls and Greek houses. Not only is it a hit with the students, it's a winner with the parents as well.

\* \* \* \* \* \* \*

Have you ever made a mistake or blunder that has caused an awkward situation for you? Now I know none of you has ever experienced such a problem, but it is fairly frequent around here. What should you do to lessen the blunder's negative impact on your future? First of all, be the first to tell your boss the bad news -- don't wait for a helpful rival to do this job for you. When telling your boss, don't be defensive! Try to indicate that you are much more interested in learning what went wrong than in placing the blame. If you can, work smarter, not harder, to correct mistakes.

"Sorry" is sufficient, but keep repeating it. Try to have some answers ready -- no competent boss wants you to leave your monkey on their back when you leave their office, so be prepared to offer some solutions, and leave the boss free of your problem.

See you next month!}

The following suggestion from Mary L. Pretz-Lawson, assistant director of telecommunications at Carnegie-Mellon University, will be of interest to ACUTA members exploring new station equipment. She writes, "We are in the midst of reviewing RFP responses from vendors on a replacement telephone system. One of the conditions for the RFP was for vendors to give us actual examples of sets they proposed in their response. Over the life of the system, the actual station equipment is what the users will most experience. We will get the telephone administrators to try out the sets for ergonomics. Although the sets won't be attached to anything, the users can evaluate button placement, feel of the handset, visibility of button descriptions, etc. Their input will contribute to our evaluation of the different telephone systems. Plus, we convey to users that they DO have input and ARE important to us in this evaluation."

Thanks, Mary! If any other ACUTA News readers have similar helpful tips, please send them to Nanci Unger, ACUTA News, Suite 1810, Lexington Financial Center, 250 West Main St., Lexington, KY 40507. We will publish your suggestions in this newsletter.
Local Area Networks (from page 1)

the server or perform cooperative processing between a central server (computer) and local PCs. A local area network usually costs $1,000 or more per personal computer connected, plus several thousand dollars for a central server if each end user already owns a personal computer.

Therefore, to network a group of say 20 personal computers, one can expect to pay $25,000 for the hardware, software and installation at a bare minimum. Extensive renovation or wiring could double or triple those costs. The ongoing training and support costs will be significant — from a half-time person to one or more dedicated support staff.

It is important to evaluate the problems being solved before one embarks upon the LAN journey. For example, a department that wants to share relatively expensive printers should not install a LAN. There are much more economical ways of gaining printer access for each end user, including purchasing a printer for each one. High-quality laser printers cost about $1,000 and good dot matrix printers about $200. In addition, printer sharing devices and cables cost around $80 to $200 per PC; these allow several PCs to send output to one or more printers.

Often I hear people say they need a LAN to share files, but they usually don’t mean it. They usually mean that if Helen is ill, they want John to work on Helen’s correspondence. Or perhaps two people in the office are working on the same project but on different documents. Seldom do several people write the same document.

Often, however, several people need to read the same document and comment. This can be done via LAN or sneakeware — copying a document to diskette and giving the diskette to the next person. Sneakeware is very inexpensive, extremely efficient and reliable.

So what are the valid uses of a Local Area Network?

An excellent application involved a legal firm which employed six legal secretaries. A sizable part of the typing load involved copying boilerplate (commonly used text) into a word processing document and then filling in the specifics for that client. For example, deeds ordinarily involve the same text except the characteristics of the property and the owner. Wills, various types of contracts and agreements are also of this nature.

These boilerplate documents would change frequently, however, due to changes in the laws or improvements in the boilerplate. Before the installation of a LAN, each secretary had a separate copy of all the boilerplate documents, and each had to update her individual files. It was easy for one or more of the secretaries to delay or forget to do this, however, causing some documents to contain obsolete versions of boilerplate.

With the installation of a LAN, only one copy of boilerplate existed on the file server. When it was updated, all subsequent references would retrieve the newest version. A similar saving could result from storing the standard word processor, data base program, spreadsheet or graphics package on the file server, allowing each PC access. When new versions of the software were available, only one update served all PC users. Imagine having 50 or 100 PCs in a company and requiring each user to install each new version of each application! Not only would that waste hundreds of hours, it would also permit some PC users to install the software improperly or not at all, thus requiring more manpower to correct their errors.

Another useful LAN application involves use of so-called office productivity tools. These include scheduling software in which each person’s schedule resides on the file server along with meeting room schedules. To schedule a meeting, one only needs to ask the scheduler to find the first time that the group of selected people and a conference room are available for a particular duration. In this way, not only is scheduling simplified, but each person can review the others’ schedules to determine good one-on-one times or the whereabouts of a colleague. The common use of software or documents (file sharing) can be a powerful use of a LAN.

Another excellent application involves communications sharing. For example, to connect PCs to a mainframe might involve installing a 3270 emulator in each PC, and attaching each PC to a controller, thus giving each PC connectivity to a mainframe computer. A different approach connects each PC to a file server. The cost of the adapter card in each case is similar to the 3270 emulator cost, so the additional cost of connecting to a server is minimal. Then the server connects to the mainframe. The additional cost of installing a LAN is low, since each PC would need one adapter or the other.

The complexity of the LAN is far greater, however, than the complexity of simply connecting the PC as a 3270 terminal.

Once the PCs are connected to a file server, then some of the applications which could not by themselves justify a LAN become cost effective. These include printer sharing in which several PCs share the use of a single printer.

• HARDWARE AND SOFTWARE SPECIFICATIONS

There is an overabundance of Local Area Network hardware and software combinations. The one you choose depends upon your needs. Each provides some functions that the others don’t, but all provide the basic networking functions. When performing specific activities, each performs either faster or slower than the others.

In many organizations, management has standardized upon a networking software strategy, and that often solves the puzzle.

(continued on page 11)
THE "OFFICIAL" COMPUTER GLOSSARY

640K: The salary the average Wall Street PC analyst pulls in each year.

Backup: The chore you were really, honestly going to do the very next thing before your disk crashed.

Debugging: The process of listening to your users complain.

End user: One born every minute.

Expansion slot: A polite term for the fact that your computer didn’t come with everything you needed.

Firmware: Software with permanent bugs hardwired into it.

Nanosecond: The time it takes after your warranty expires for your hard disk to start sounding like a monkey wrench in a blender.

Parity: A ninth memory bit that one time in nine will crash an otherwise perfectly functioning system when it detects an error in itself.

Partition: The wall you have to build around a noisy dot matrix printer that makes only slightly less noise than a free chipper.

Power user: Someone who’s read the manual.

Productivity: Printing 30 different versions of your document before getting the spacing correct.

Shock mounted: Be sure you’re sitting down before you hear the price.

Stack: The place in the corner of the office where you pile unopened software manuals.

Toll-free hotline: A special test circuit that is set up to be always busy.

Toner cartridge: A device to refill laser printers. Invented by the American Association of Dry Cleaners.

Virus: The belief of incompetent users that some mysterious external force is to blame for their own mistakes.

Workstation: A PC that sells for more than $10,000.

Editor’s Note: This article was reprinted with permission from the February 1990 issue of Teleconnect Magazine (1-800-999-0345).

Local Area Networks (from page 10)

On the hardware side, one can connect PCs to servers in a variety of ways. These are usually ethernet, token ring, starlan or arcnct. Again, each of these technologies has a different set of advantages and disadvantages. The point is that somehow you must decide which of the hardware/software varieties to specify in your design. This often requires the aid of an expert or consultant to detail all of the pros and cons.

• INSTALLATION SPECIFICATIONS

The wiring strategy is an important part of the system design. Wiring can be done in many different ways, depending on various factors such as the distances involved, protocol utilized, existing wiring systems available, cost constraints, types of possible electrical interference in the area and speeds required. Again, an expert or consultant is needed to help plan the wiring strategy. It is important to understand that an improper wiring strategy can make an entire network unusable or unreliable.

• PURCHASING HARDWARE AND SOFTWARE

If your organization is commercial, you will probably have your purchasing department buy the hardware and software. If you are in a governmental organization, you may need to develop bid specifications for the equipment. Depending on the rigidity of your purchasing rules and procedures, you may need to spend dozens of hours developing acceptable bid specifications that capture the spirit and purpose of your design. This may require sizable amounts of time.

Incidentally, there may be many utility or auxiliary software packages you might need for various LAN functions. These may relate to automating multiuser usage of printers, electronic mail, scheduling functions or diagnostic software that can help isolate system failures.

Editor’s Note: This is Part One of a two-part series on LANs. Part Two, which will cover training of administrators and end users and ongoing support of LANs, will be published in the next issue of ACUTA News (April, 1990).
### IMPORTANT NUMBERS FOR THE ACUTA OFFICE

**Telephone:** (606) 252-2882  •  **Fax:** (606) 252-5673

(for information on ACUTA activities)

### SEMINARS AND CONFERENCES

- **SPRING SEMINAR**  
  **IN LAS VEGAS, NV**  
  **APRIL 8-11, 1990**  
  **HOTEL:** The Mirage  
  **TOPIC:** Voice, Data and Video Networks  
  **SPEAKER:** Lynn DeNoia

- **SUMMER CONFERENCE**  
  **IN ORLANDO, FL**  
  **JULY 15-19, 1990**  
  **HOTEL:** Buena Vista Palace  
  **TOPICS:** Management, Regulatory Issues, Professional Growth, Voice, Data and Video  
  **SPEAKERS:** Variety of professionals, including consultants, managers, lawyers, ACUTA members

- **FALL SEMINAR**  
  **IN PORTLAND, OR**  
  **OCTOBER 14-17, 1990**  
  **HOTEL:** Red Lion Inn Lloyd Center  
  **TOPIC:** Case Studies on Telecommunications Management Information Systems  
  **SPEAKER:** To be announced

### NEW DEADLINE NOW IN EFFECT FOR ACUTA NEWS

The deadline for articles and information submitted to *ACUTA News* is now the 15th of the month prior to the month of publication. This deadline will make it possible for the Lexington Office to mail the newsletter on an earlier date at a lower postage rate.

### CALL FOR PRESENTATIONS: 1990 ACUTA CONFERENCE

Share your experiences at the 1990 ACUTA Conference in Orlando, where you and your colleagues will explore new opportunities and solve common problems. Your ideas are valuable, especially when you share them and allow others to learn from them. Why not submit a program idea to be developed into an educational presentation for the conference? Send your abstract or a description of the topic you wish to cover to the ACUTA Office, Suite 1810, Lexington Financial Center, 250 West Main St., Lexington, KY 40507, or call (606) 252-2882 for more information.

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