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Ironically, even as the competition brought about by the 1996 act permits the relaxation of traditional forms of rate and market entry regulation, the FCC and many state PUCs are erecting a whole new regulatory infrastructure in order to protect consumers from its excesses.

—Attorney Jeff Linder, p. 12

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Jeri A. Semer, CAE
President’s Message

Leading in the New Legislative and Regulatory Environment

The Telecommunications Act of 1996 has, without doubt, changed our jobs as telecommunications/IT professionals more than any other single event in the recent history of the telecommunications industry, including the breakup of AT&T.

The breakup of AT&T in 1984 challenged our business and technical dexterity as we responded to a new environment in which we no longer obtain all of our telecommunications services from a single source. With long-distance services provided by one vendor, local service by the RBOC, and a greater potential to furnish our own equipment, we have been forced to hone our technical skills and our business acumen.

The impact of the Telecommunications Act of 1996 is much broader. As telecommunications/IT professionals we need to understand that this act is based on the premise that no sector of the telecommunications marketplace—including local exchange, long distance, broadcast, cable television, and wireless—should be held immune to competition. By letting these segments of the industry back into the competitive marketplace, the act has created a totally new legislative/regulatory environment that will be challenging our leadership skills and abilities for many years.

This year, as president, I have emphasized the need for all of us to understand the value of leadership and to apply leadership skills as we go about our daily activities, not only within our telecommunications/IT units but as we interact with others throughout our institutions. Increasingly, we are being asked to assume a leadership role as campuses respond to actions initiated by

- the FCC as part of its responsibility to implement the various provisions of the Telecommunications Act;
- Congress as it responds to industry and consumer pressure; and
- state utility commissions and boards as they react to what they see as challenges to their state’s rights.

Staying current with the actions of these groups has become an essential component of our positions given the extraordinary potential impact their decisions can have on our departments and our institutions. Our jobs now require not only that we monitor the actions of the various commissions, boards, and agencies but also that we keep key campus administrators fully informed about the potential impact of actions taken by these various bodies.

We now find our weeks regularly filled with meetings that facilitate communication with departments with which we have had only limited interaction in the past. Many of us now know the members of our university’s general counsel office on a first-name basis. Establishing lines of communication with the office that handles governmental relations has become essential. Forming working relationships with the professional staff members in your campus public relations office has also become necessary. As professionals, we must have their insights and sensitivities regarding specific legislative/regulatory issues that could be viewed negatively by members of the university community or by the local and state communities. In addition, meetings with
budget and finance personnel are required to keep those departments informed about potential cost implications of various legislative/regulatory initiatives.

Legislative/regulatory issues that previously have been handled at the departmental level have much broader implications today, and keeping essential personnel informed frequently falls on our shoulders. We must recognize that these issues cut across economic, operational, and political lines as we attempt to educate this wider audience within the university about key issues. Our ability to assess and communicate the effect of legislative/regulatory issues has become a necessary component of our job as telecommunications/IT professionals.

Communicating these issues and assessing their impact clearly presents a leadership challenge for all of us. A major part of this challenge is knowing the following:

- What do I communicate to whom?
- What areas of the campus are most likely to be affected directly?
- In what form is that impact likely? What will it cost? What facilities are affected? What other resources are required?
- How best do I communicate effectively with all necessary campus units? In person, one-to-one, or through a group meeting? Via memo, e-mail, or through the use of some other communication vehicle acceptable to this audience?
- How can I communicate in language these many different campus units can and will understand? Can we talk in their language?
- Do we understand what is important to different audience segments?
- Can we deliver our message to gain their understanding and support?
- Can we influence the decisions of our campus administrators and colleagues based upon the message we deliver?
- Can we manage this communication to positively reflect on our units and ourselves?

The job of the campus telecommunications professional is rapidly evolving, and nowhere is this more evident than in the legislative and regulatory environment. I hope you find the articles in this issue of value as you prepare to meet the challenges that certainly lie ahead.
As colleges and universities race to build and expand advanced voice, data, and video networks on their campuses, public utility companies are becoming more aggressive in asserting themselves both politically and legally to take a piece of what they see as a lucrative market for evolving public network data and entertainment services. The University of Connecticut’s battle with Charter Communications is litigating many of the key “infrastructure rights” issues that will face universities early in this new century.

How the Conflict Began

UConn’s legal battle began as a result of the university’s attempt to upgrade its campus video services at the expiration of a 10-year agreement with the local cable television provider, Charter Communications. First, the university wanted to improve its academic and institutional video service offerings by moving to a university-funded bulk service that would be “on” in every academic and student room at all times. The new network plan also added more educational programming on the campus, including 26 new channels of language, govern
The campus of the University of Connecticut, with its traditional spires and its basketball dome rising from among the trees, hardly looks like a campus that has been embroiled in a heated controversy for the past year.

ment affairs, news, computer training, and student programming. As a secondary goal, the university wanted to address years of student complaints about service and pricing by significantly reducing the total cost of providing video services on the campus.

**Legal Machinations**

After five years of failed negotiations with Charter, the university sought the counsel of the Connecticut attorney general’s office on legal alternatives for providing service and executed a public bid process to establish a new contract with Charter or any other provider on the university’s terms. When Charter failed to submit a bid, Connecticut-based Campus Televideo won the project and the university began building its campus video network in concert with new residence hall data systems in January 1999.

Just as the bulk of the network construction began, Charter filed with the state Department of Public Control (DPUC) requesting a declaratory ruling that would assert Connecticut’s mandatory access law for multiple dwelling units as a justification for Charter to continue to stay on the campus and use the campus conduit infrastructure even after its 10-year agreement expired in August 1999.

Charter’s filing also asserted that the university’s system should be declared an illegal unfranchised cable television system because, from Charter’s position, the public status of the University of Connecticut made all campus roads “public streets.”

The declaratory ruling request raised many of the regulatory barriers for campus network operators related to the definition of a cable television system. In Connecticut, a CATV system is defined by General Statute 16-1-a as follows:

- C.G.S. 16-1 A. 15. “‘Community antenna television service’ means (1) the one-way transmission to subscribers of video programming ... and subscriber interaction, if any, which is required for the selection of such video programming ...”
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• C.G.S. 16-1 A 16. "Community antenna television system’ means a facility, consisting of a set of closed transmission paths, designed to provide community antenna television service which includes video programming ... in, under, or over any public street ..., for hire, to multiple subscribers, but such term does not include ... (2) a facility that serves only subscribers in one or more multiple unit dwellings under common ownership, control or management, unless such facility is located in, under, or over a public street or highway; ...”

Like the federal definition enforced by the Federal Communications Commission, a campus video system must meet multiple conditions in order to fall under the regulatory definition of a cable television system and trigger the regulatory oversight of local and federal bodies:
1. There must be subscribers of video services and subscriber interaction.
2. The system must be in, under, or over any public street.
3. Specific to Connecticut, the system also must be for hire.

The university felt its system did not meet the criterion of having subscribers because the service was “on” in every room, eliminating the "subscriber interaction.” The fact that no semester fee increases or monthly costs accompanied the new service appeared to eliminate the “for hire” activity that is required to meet the statutory definition. Further, the university has exclusive control of the roads on the campus and considered them to be “state institutional roads,” not public streets. (In fact the university has converted several of the “public” roads Charter referred to in its filings into a pedestrian mall and garden.)

Precedents and Implications

Purdue University provided a 1967 Federal Communications Commission Declaratory Ruling addressing exactly these issues. The FCC declared that because Purdue’s system was operated “without any separate charges for service apart from the university’s charge for dormitory rental” it was not a cable system. The conclusion was based on the facts provided, that “the proposed television distribution system is not a community antenna television system within the meaning of 74.1101(a) of the Rules since television signals will not be distributed ‘to subscribing members of the public who pay for such service’ and because the system will serve only the residents of one or more apartment dwellings under common ownership, control or management’” (FCC Docket 67-1023).

Although the merits of UConn’s case appeared self-evident, the university became uncomfortable with the way arguments were being framed by Charter’s counsel and also began to question if the DPUC was making its rulings biased by the information provided by Charter. Coincidentally, the attorney general’s office began to question the DPUC’s jurisdiction over other state agencies like the university.

Connecticut sovereign immunity law requires that legislative language specifically include the state itself if the state is to be regulated. It became clear to the attorney general’s office and the university that the DPUC did not have jurisdiction over UConn. By March, the university had requested that the DPUC rule on its jurisdiction over the state itself, which the presiding commissioner quickly tabled and subsequently ignored in spite of numerous formal reassertions of the question, a motion to dismiss, and even a no-show by the attorney general’s representative and the university at a June hearing.

Photos Tell a Story

During this time, Charter began using the key control access provided to it under its 1989 agreement to take numerous photographs of university-owned wiring closets, conduits, and junction boxes that were under construction for the video and data networking projects. The photos, which were then submitted to the DPUC, claimed that the university conduits, junction boxes, and cables, which Charter was using as part of the 1989 agreement, were actually Charter property that was being disrupted and damaged by the university’s networking activities. The filing requested “emergency relief” to stop construction of all university network (implying voice, video, and data) activity indefinitely to “protect” Charter’s franchise “obligations.” Luckily, the university had an extensive library of pre-1989/pre-Charter as-built drawings documenting in detail the university’s ownership of the conduits and junction boxes, and in its most pro-university ruling, the DPUC denied Charter’s emergency request.
Troubling Developments

On August 10, after ignoring numerous requests to rule on the jurisdictional issues, the DPUC issued a ruling that asserted all of Charter’s rights to continue to occupy university-owned conduits and to provide its service on the campus. Although the DPUC took no actions to shut down the university’s system, it indicated that it believed all campus roads were public ones and that any university network might be a cable television system. (In failing to rule against the university, it also failed to rule on the no-subscriber, not-for-hire arguments that would have been a green light for the university to proceed.)

“The fact that UConn is responsible to some degree for the upkeep and maintenance of these roads does not alter their public status. As such, the Department agrees that it is a reasonable conclusion that the roads and streets on the campus of a public educational institution that is funded for the most part by taxpayers must be classified as public, not private roads” (Connecticut DPUC Docket 99-02-06 Final Decision).

Much of the DPUC’s decision was based on Connecticut’s mandatory access law for multiple dwelling units (MDUs). (California is apparently considering similar legislation.) The MDU law says simply that property owners of MDUs may not deny a cable operator the ability to provide service to tenants. Similarly, the cable operator must provide service to every unit that requests it. For the university, the DPUC’s decision to rely on this law seemed once again misplaced, as the Connecticut definition of an MDU is as follows:

“Any ... building ... which is rented ... as the home ... of three or more families, living independently of each other and doing their own cooking upon the premises.”

Because UConn’s residence halls do not have any student kitchens, most rooms have university-assigned roommates, and there is not any family housing, the applicability of the law to university housing was questionable, particularly when used as justification to give away nearly 7 miles of underground conduit purchased by the state to a private for-profit entity.

Charter immediately filed for a new declaratory ruling focused on shutting down the university’s network. Within weeks, the university also filed new litigation in the form of an appeal of the DPUC’s first decision along with an injunction to block the DPUC from any further actions on Charter’s new request until the Connecticut Superior Court decided jurisdiction.

Separate from the litigation, the university’s commitment to its students to provide a no-cost video service had already been announced in a summer letter to all resident students and their parents. This commitment forced the university to follow through with the activation of the 2,000 rooms located within the uncontested campus property at the core of the university. The university did, however, hold off on activating the nearly 2,200 units that were across declared state highways on the campus. (The university still believes the not-for-hire and no-subscriber arguments are legal grounds to cross those two highways without being qualified as a cable television system; however, the university has found an alternative method to provide service and has not crossed the streets with its own new network.)

New Demands

As Charter’s subscription in the core of campus fell by more than 90 percent, it requested a series of meetings with senior university officials through nonregulatory and nonlegal channels to discuss the possibility of “a deal” to end the ongoing battle. In the discussions, Charter, which is preparing to offer cable modems next year, indirectly announced its intentions to assert new rights to take over not only the university video network but also the campus data and possibly telephone networks. A coincidental press release from manufacturer General Instruments indicated that Charter was intending to buy literally millions of new, advanced set-top digital boxes that would integrate traditional video, digital video, Ethernet, and telephony into a single bundled box that would not allow video, data, and telephony to be easily separated at the end user’s location.

As the scope of Charter’s demands grew, the university’s senior leadership ended the conversations and approved the activation of the remaining 2,200 rooms using the existing satellite-provided video signals. In response and within 36 hours of the failure of the “talks,” Charter filed a new 60-page lawsuit in Connecticut Superior Court, demanding that the university be forced to sell its video and data infrastructures to it at installation cost. Charter’s suit, which is directed both at the university and at Campus Televideo, asserts that the university’s
“tying” of mandatory room rates to Ethernet and video services constituted unfair business practices and is the essential creation of a monopoly service by the university.

In a press release issued on Friday, January 14, 2000, Connecticut Attorney General Richard Blumenthal said, “Charter Communications is a private cable franchise with absolutely no right to control public property that belongs rightfully to the state and its university. The lawsuit is a blatant attempt by Charter to enrich itself at the expense of public education and the University of Connecticut’s students.”

Conclusions

While the aggressive legal activities are interesting, the fundamental misconceptualization by Charter of the university environment and the advanced networking that already exists on the campus is more disturbing. Not only is the technology Charter proposes to deploy next year inferior to equipment that the university replaced for obsolescence last year, but Charter also fails to acknowledge or understand that information networks are so fundamental to the daily operation of the institution that the university can never afford to lose control of their cost structure and bandwidth assignments.

A misguided conceptualization of campus voice, video, and data technology in the public utility and regulatory arenas is apparent. It appears that the utility’s council and some of the regulators are predisposed to make decisions from their existing knowledge base of only publicly available voice and CATV services. To these individuals, cable modems and xDSL technologies truly are “state of the art.” They do not understand that even faster and more widely deployed networks (which may be years older) exist in the campus environment. Further, the idea that the campus may not be an appropriate mandatory market for franchised utilities as they begin to deploy “advanced services” is a hard realization for corporate budget and network planners who thought the campuses would be their richest markets.

Finally, Charter’s failure to recognize and live up to the end date of a 10-year agreement is disturbing when viewed against its vigorous defense of the agreement during its term. The total disregard for an agreement that protected the university’s property rights for its “rented” conduits and Charter’s subsequent lawsuit to assume permanent control of that property is dumbfounding. If the 10-year time frame were to be compressed, it could appear as if Charter were using the agreement mechanism solely to get onto the campus. By Charter’s actions, it would appear that its intention was always to assert “squatter’s rights” and “take” university property through litigation.

The University of Connecticut, with the assistance of our attorney general, will continue to fight Charter’s intrusion into our campus; we have no choice.

We also think it is appropriate that our peers in ACUTA need to consider not only these arguments but their tone as well.

Clearly, the expiration of a prior contract triggered the UConn battle, but we are confident that Charter is using the situation to test a number of arguments that may have broader application. These issues are ones that we should all be prepared to see asserted more regularly as cable and data providers continue to consolidate and look for new and lucrative markets.

Rob Vietzke is manager of Video Communications at the University of Connecticut. Reach him at rvietzke@comm.uconn.edu.

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Since the 1996 Telecommunications Act, all kinds of “C” words have come into vogue: competition, consolidation, convergence, and now, consumer protection. The emergence of consumer protection as a front-burner issue stems in large part from other consequences of the 1996 act.

For example, the restructuring of access charges and universal service, along with the introduction of number portability, has spawned a host of new charges that many customers find confusing and seemingly excessive. In addition, increased competition expands opportunities for unethical “entrepreneurs” to bill consumers for unauthorized products and services, as reflected in an increase in “cramming” complaints from 800 in 1996 to more than 20,000 in 1998. Similarly, while slamming has been a problem for more than a decade, the new competition triggered by the 1996 act has contributed to a steady increase in slamming complaints, notwithstanding federal and state laws and regulations designed to counter this conduct.

Ironically, even as the competition brought about by the 1996 act permits the relaxation of traditional forms of rate and market entry regulation, the FCC and many state PUCs are erecting a whole new regulatory infrastructure in order to protect consumers from its excesses. The remainder of this update examines four underpinnings of this new infrastructure—rules governing truth in billing, slamming, cramming, and privacy.

Truth in Billing

In response to the rising incidence of slamming and cramming, the FCC has adopted truth-in-billing rules. According to the commission, these rules are intended to ensure that customers know (1) who is asking them to pay for charges on their phone bills, (2) what those charges are for, and (3) where they can call for more information. The truth-in-billing rules impose five main requirements:

- The name and toll-free contact number of the service provider associated with each charge must be clearly identified on the bill.
- Carriers must label customer charges for federal assessments (such as universal service, the subscriber line charge, and local number portability) in conformance with FCC guidelines (which have not yet been developed).
- Where charges for two or more carriers appear on the same bill, the charges must be separated by service provider, and the billing entity must provide clear and conspicuous notification of any change in service provider.
- Charges contained on a telephone bill must be accompa-
ned by a brief, clear, nonmis-
leading description of the service
or services rendered.

Where a bill contains charges
for basic local service in addition to
other charges, the bill must distin-
guish between charges for which
nonpayment will result in discon-
nection of basic local service and
charges for which nonpayment will
not result in disconnection.

Most of these rules will not
take effect until April 2000 because
of concerns about diversion of
resources away from Y2K
remediation efforts and the inability
of some smaller carriers to perform
the necessary system changes any
earlier. All of these requirements
apply to wireline carriers. Cur-
rently, only the first two apply to
wireless carriers. Nonetheless, the
commission has asked whether it
should apply all the rules to
wireless providers.

Slamming

Section 258 of the 1996 Act
gave the FCC authority to adopt
rules to deter slamming. The
commission’s rules, however, have
been stayed following an appeal by
MCI WorldCom. In particular,
many long-distance carriers
objected to a requirement that the
unauthorized carrier compensate
the customer directly, rather than
paying the customer’s authorized
carrier. That restitution requirement
is not currently in effect as a result
of the court’s stay.

The FCC is considering how to
address slamming in the wake of
the stay. A group of IXCs led by
MCI has proposed an industry self-
regulatory body that would police
unauthorized switching of
presubscribed carriers. However,
many state regulators, consumers,
and members of Congress believe
the proposed industry approach
would be ineffective.

The FCC also is considering a
request by CompTel to permit the
submission of letters of agency
over the Internet. Letters of agency
(LOAs) are one of three means the
FCC permits carriers to use in
taking over as a customer’s
presubscribed service provider.
The commission originally pro-
posed not to permit Internet LOAs
for fear of abuse, but it is under
pressure from some influential
members of Congress to change
its mind.

Finally, as is true with all of
these consumer protection issues,
the FCC certainly is not the only
game in town. The states have
been very active on the anti-slamming front, with 16 states passing legislation in 1998 and an additional 9 doing so in 1999. For its part, Congress will seriously consider bills to combat both slamming and cramming—and, in an election year, such proconsumer measures would appear to stand a decent chance of passing.

**Cramming**

Probably the hottest consumer protection issue since passage of the 1996 act has been cramming, the placement of charges for unauthorized services or products on telephone bills. Cramming complaints have increased 2,500 percent since 1996. In addition, new forms of cramming—in particular, charging small businesses for “free” Web site hosting services—have become prevalent.

The industry, regulators, and legislators all have taken steps to combat cramming. For example, the incumbent local exchange carriers (LECs) have adopted a set of “best practices” designed to minimize the incidence of unauthorized charges appearing on phone bills. Some LECs have gone even further; US West, for example, has stopped billing for some classes of third parties, claiming that they cause a majority of cramming problems. Not surprisingly, this has been an extremely unpopular move among many companies for which US West discontinued billing.

At the federal level, the FCC’s truth-in-billing rules should have some effectiveness against cramming, although they do not address the issue of verifying authorization of charges. The Federal Trade Commission has also proposed anticramming rules, in a proceeding in which ACUTA participated. And Congress, as noted above, may well pass anticramming legislation in 2000.

States also are taking action against cramming. The Texas PUC, for example, recently adopted rules requiring that before charges are placed on a customer’s bills the provider must (1) inform the customer about all products and charges, (2) verify the customer’s consent, (3) get consent from the billing telephone company, and (4) provide contact information and access to a toll-free inquiry line. Providers that fail to comply with these rules are subject to fines of $5,000 per day per violation and must make restitution to the customer. Montana has adopted similar requirements.

**Privacy**

Much of the action on the privacy front concerns the collection of personal information from users of the Internet, a subject that is outside the scope of this article. Nonetheless, the long-standing telecommunications privacy issues surrounding the use of customer proprietary network information (CPNI) remain quite active. In fact, the Tenth Circuit Court of Appeals recently vacated the FCC’s rules implementing the new CPNI provisions of the 1996 act. As a result, while the statute’s protections remain in place, the commission’s regulations, which interpreted and applied those protections, are in limbo.

In light of this uncertainty, the simplest means of protecting your own CPNI, as always, is to inform your service providers that you do not wish that information to be used for any marketing purposes. If you are concerned about limiting the use of CPNI, you should make clear to your account representatives that they must obtain your affirmative written consent before using any information derived from your telecommunications usage for any purpose other than providing the services you already have ordered.

**Conclusion**

Competition is a tremendous boon to telecommunications consumers, bringing lower prices, increased responsiveness, and heightened innovation. At the same time, there is a dark lining around this silver cloud, since competition can create opportunities for deceptive, misleading, and fraudulent conduct by a small minority of companies. Regulators and legislators at all levels of government will continue their efforts to address these problems in the coming year. At one level, their actions can be seen as immediate reactions to acute situations. At another level, however, it is likely that the new laws and rules regarding slamming, cramming, and other conduct will form the foundation for a new telecommunications regulatory regime going forward, one that no longer regulates prices and terms of service, but rather seeks to adapt to telecommunications the same sort of consumer protection laws that govern other industries.

Jeff Linder is an attorney with the Washington law firm of Wiley, Rein and Fielding. This information is based on a presentation he delivered at ACUTA’s Winter Seminars in Newport Beach, California, January 10, 2000. Reach Jeff at jlinder@wrf.com.
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Shoulds and Musts for ADA Compliance

by Curt Harler
Contributing Editor

In an era when college basketball stars filch handicap parking stickers and health nuts fight to get the front parking space at the exercise spa, it’s good to know some people take access issues seriously.

Today, the Americans with Disabilities Act (ADA), which was signed into law in 1990, mandates handling of communications resources for the disabled. ADA is a “must.” Some other ideas—such as providing a resource center for people who have hearing, access, sight, or other impairments—are “shoulds.”

For some people, the impairment is a temporary inconvenience resulting from an accident. For others, it’s a lifelong challenge.

There are some nice stories that prove colleges were attuned to special needs long before ADA. For example, in the mid 1960s, Southwestern University in Georgetown, Texas—with an enrollment at the time of approximately 800—took extraordinary steps to meet special needs. A coed, out on a date, was in danger of missing curfew and finding herself in a lot of trouble. At the edge of campus is a railroad track, and, in a hurry, she and her date raced a locomotive and lost. She broke both legs, an arm, some ribs, and her jaw, and suffered head injuries and lost teeth. When she finally returned to school, she was in a wheelchair. Although wheelchair access was not then mandated by law, at least two buildings—the administration building in which many classes were held and the dorm—were outfitted with ramps just for her.

Today, there are an estimated 54 million Americans with disabilities. Persons with disabilities are
the largest minority group in the United States, yet despite their numbers, their advocates maintain they do not experience equal participation in society. Regulations mandating compliance for everything from ramps to seating, from phones to signage are the government’s way of leveling the field.

The Musts

Groups like Arkenstone, a nonprofit organization in Sunnyvale, California, are dedicated to creating reading solutions for people with visual impairments. Jim Fruchterman, president of the charity, says there are three key measures driving accessibility: the ADA, Section 255 of the Telecommunications Act, and the Revised Section 508 of the Rehabilitation Act, whose requirements currently are under modification.

Each state has its own version of access regulations. Diane Golden is director of the Missouri Assistive Technology Council Office (MATC). “State laws are not consistent,” she acknowledges. While every state and territory has an assistive technology council of some sort, they are not necessarily even under the same branch of government. MATC (www.dolr.state.mo.us/matc) is in Jefferson City under the Labor Department.

Golden speaks for the Association of Assistive Technology Programs, which represents 46 states in hearings before federal commissions and other groups.

Although each state’s setup is different, their intents are parallel. Missouri’s law closely follows Section 508 of the Rehabilitation Act. Missouri says state agencies, including four-year and two-year public colleges, “shall comply” with the regulations “unless an undue burden would be imposed.” Likewise, states such as Arkansas and Minnesota (except the University of Minnesota, which is not directly covered) cover schools. Maryland and Texas have no specific definition.

In most cases, Golden says, there are exceptions for significant difficulty or expense. In Missouri, technical difficulty provides an escape clause from the 508 requirements. Arkansas law gives a three-year phase-in period. Exclusions to the access clause are allowed when costs exceed a set level.

Some states’ regulations are stronger regarding the visually impaired. Others seem to focus on physical disability. New York and Maine have policies, not laws, but they are quite comprehensive.

Some go beyond simple documents. The state of Maine is piloting a test lab that looks at commercially developed software and custom applications to see how they conform to or complement access issues.

Individual state offices are a good place to start dealing with access issues. Keep in mind that the foundation for all of the current laws, both state and federal, is ADA. If you are not familiar with it, you should be.

For telecommunications professionals, Section 255 of the Telecom Act and Section 508 of the Rehabilitation Act are the best places to start a compliance check.

Section 255

The FCC recently issued Section 255 regulations, spelling out what should be done and how complaints will be handled. These
rules, which were adopted by the FCC July 15, 1999, implement Section 255 of the Telecommunications Act of 1996 and Section 251(a)(2) of the Communications Act of 1934. The action by Report and Order (FCC 99-181) was approved by FCC Chairman William Kennard and Commissioners Ness and Tristani, with Commissioners Furchtgott-Roth and Powell approving in part and dissenting in part.

Kennard said the FCC's action "represents the most significant opportunity for people with disabilities since the passage of the Americans with Disabilities Act in 1990." While the FCC was the motivating power, the actual legwork is done by a government agency called the Access Board. The FCC's Section 255(e) directs the Access Board to develop equipment accessibility guidelines "in conjunction with" the FCC and to periodically review and update the guidelines.

Among the requirements is that "a provider of telecommunications services shall ensure that the service is accessible to and usable by individuals with disabilities, if readily achievable." This is set out under Part 1193 of the regulations. Whenever either of these is not readily achievable, "such a manufacturer or provider shall ensure that the equipment or service is compatible with existing peripheral devices or specialized customer premises equipment commonly used by individuals with disabilities to achieve access, if readily achievable."

Determinations as to what is readily achievable will be made on a case-by-case basis. The FCC said it will consider factors such as the cost of the action, the nature of the

action, and the overall resources available to the entity.

This is one area where there is no passing the buck. The law clearly states that telecommunications equipment and customer premises equipment shall pass through cross-manufacturer, nonproprietary, industry-standard codes, translation protocols, formats, or other information necessary to provide telecommunications in an accessible format. In particular, signal compression technologies are forbidden to remove information needed for access.

"Section 255 holds manufacturers of telecom equipment and some service providers to make their equipment accessible if 'readily achievable,'" Fruchterman says. "That's a pretty low standard." He has hope, however. "A lot of the improvements needed are software. The cost is low, so a lot of things will be easy to do," he says.

Arkenstone has one-handed keyboards available and foot-driven mice. Special scanners with OCR (optical character recognition) software and a voice synthesizer make it possible for the blind to "read" printed material. Nobody is requiring schools to make them available. But it is good to know that talking keyboards, speech communicators, touch screens, and pressure switches are available to students and staff.

One way to help is with "adaptive technology," usually computer-based technology that removes or reduces the barriers facing disabled people on campus.

"Blind people don't have a problem with the average phone," Fruchterman notes. "Their problem is with Internet and e-mail access." He adds that he thinks there will be improvements, but that gains for the disabled will be gradual.
Accessibility to information on the Web is dependent on the format of the information, the transmission media, and the display system. Many of the issues related to the transmission media and the display system cannot be affected by the general user. On the other hand, anyone creating information for a Web server has control of the accessibility of the information. Careful design and coding of information will provide access to all people without compromising the power and elegance of the Web site. An excellent source of information about designing accessible Web sites is www.eskimo.com/~jlubin/disabled/web-desi.htm.

Section 508

There is no doubt that the revisions in Section 508 of the Rehabilitation Act will raise the bar for accessibility requirements. The changes were made with cooperation from the American Association of Access Engineering Specialists and several state and national government representatives.

To begin with, the new 508 regulations will not have a direct effect on colleges. The regulations actually deal with what the federal government must do when acquiring technology. However, the regulations quickly will spread to states and then to institutions that deal with or receive federal or state programs and financial backing. That almost certainly means colleges and universities.

The changes to Section 508 are about two or three years behind those to Section 255. The Revised 508 was passed early in 1998. Regulators have just organized their proposals.

Look for some final resolution on Section 508 early in 2001. The results will be sweeping.

Section 508 requires the federal government to purchase accessible technology unless it “would impose an undue burden.” That is a much higher standard than Section 255’s standard.

In short, if your state-funded university buys a voicemail system that does not deal with the needs of deaf people—and, for a few percent more on cost, it could have
Schools Must Designate 255 Contact Center

FCC rules require all service providers and equipment manufacturers to designate an agent to ensure the manufacturer’s or service provider’s prompt receipt and handling of accessibility concerns raised by consumers or FCC staff. This agent may be either an individual or an office with this responsibility.

The contact information must, at a minimum, include the name of the person or office, telephone number (voice and TTY), fax number, and both mailing and e-mail addresses. The representative or agent should have the means available to convert materials distributed and received into accessible formats.

This information should have been filed by letter by March 1, 2000 with the Secretary of the FCC at the following address: Office of the Secretary Federal Communications Commission 445 Twelfth Street SW, Room TW-A325 Washington DC 20554.


Meanwhile, the Access Board (800/872-2253 or 202/272-5434) is holding hearings on its proposals. The comment period closes March 15, 2000. Two public hearings were scheduled in conjunction with this rulemaking, one on January 31, 2000, in Los Angeles, California; the other on March 13, 2000, in Arlington, Virginia.

The pertinent section is 4.31 (Telephones). It requires a clear floor or ground space at least 30 inches by 48 inches (760 mm by 1220 mm) that allows either a forward or parallel approach at telephones by a person using a wheelchair. The clear floor or ground space shall comply with 4.2.4. Bases, enclosures, and fixed seats shall not impede approaches to telephones by people who use wheelchairs.

Under section 4.31.3 (Mounting Height) the rules say the highest operable part of the telephone shall be within the reach ranges specified in 4.2.5 or 4.2.6.

Section 4.31.5 covers equipment for hearing-impaired people. It says phones shall be equipped with a receiver that generates a magnetic field in the area of the receiver cap. Volume controls shall be provided. Phones must have pushbutton controls where service for such equipment is available. Telephone books, if provided, shall be located in a position that complies with the reach ranges specified above. The cord from the telephone to the handset shall be at least 29 inches (735 mm) long.

—You’re going to be in hot water. Yes, the FCC specifically addresses voicemail and says it must comply. That is one reason FCC Commissioner Michael Powell had reservations about 255.

“I have grave concerns about the draft item’s use of ‘ancillary jurisdiction’ to extend the accessibility requirements of Section 255 to providers of voicemail and interactive menu services, as well as to manufacturers of telecommunications equipment and CPE which perform such functions,” he said. “I think the draft order has chosen to rely primarily on the least sustainable course for covering such services and may have placed much of the good work embodied in this item at unnecessary risk.”

Be that as it may, the measure was approved. The Access Board will publish standards setting forth a definition of electronic and information technology and the technical and functional performance criteria necessary for accessibility for such technology. The deadline set for publication of these standards was February 7, 2000.

These definitions for electronic and information technology must be consistent with the definition of information technology in section 5002(3) of the Clinger-Cohen Act of 1996 (40 U.S.C. 1401[3]). Information technology under that law means “any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information” by a federal agency. Again, note that while the act deals with federal agencies, its scope likely will expand down the road.
The Bottom Line

The legal basis for accessible buildings was printed in the Federal Register, vol. 56, no. 144, on Friday, July 26, 1991. Here is what it says:

1. Text telephones used with a pay telephone shall be permanently affixed within, or adjacent to, the telephone enclosure. If an acoustic coupler is used, the telephone cord shall be sufficiently long to allow connection of the text telephone and the telephone receiver.

2. Pay telephones designed to accommodate a portable text telephone shall be equipped with a shelf and an electrical outlet within or adjacent to the telephone enclosure. The telephone handset shall be capable of being placed flush on the surface of the shelf.

3. Equivalent facilitation may be provided. For example, a portable text telephone may be made available in a hotel at the registration desk if it is available on a 24-hour basis for use with nearby public pay telephones. In this instance, at least one pay telephone shall comply with Paragraph 2 (above). In addition, if an acoustic coupler is used, the telephone handset cord shall be sufficiently long so as to allow connection of the text telephone and the telephone receiver.

Directional signage shall be provided and shall comply with 4.30.7.

Phone cords (from the phone to the handset) must be at least 29 inches (735 mm) long.

There are specifications for the size and design of directional signs pointing out accessible phones that can be used. Most signs from reliable commercial vendors comply to those specifications. However, if you have your signs done in-house or to meet a special architectural look, be sure they conform.

If one or more single-unit public telephones, or one bank of telephones, is provided per floor, then an ADA-compliant unit must be on each floor.
Looking for Resources?
The Access Board is the federal agency that develops minimum guidelines and requirements for standards issued under ADA and the Architectural Barriers Act (ABA). It also develops accessibility guidelines for telecommunications equipment and customer premises equipment under the Telecommunications Act.

www.access-board.gov

Trace Research & Development Center at the University of Wisconsin has an in-depth listing of all of the requirements and may even list some that you didn’t think of at first.

www.trace.wisc.edu

If there are two or more banks of phones on each floor, there must be one compliant phone per bank. The accessible unit may be installed as a single unit near the bank of phones and must be easily visible or have appropriate signage. At least one public phone per floor must meet the reach requirements for a phone.

Additional public phones may be installed at any height. Either forward- or side-reach phones are generally acceptable. The exception is on exterior installations where, if dial-tone-first service is available, then a side-reach phone may be installed instead of the required forward-reach phone.

The FCC wants to see equipment provided with alternate formats and alternate modes. That may include Braille, ASCII text, large print, and audio cassette recording. Alternate modes may include voice, fax, relay services (TRS), text telephones (TTY), Internet posting, captioning, text-to-speech synthesis, and video description.

All phones required to be accessible must be equipped with a volume control. In addition, 25 percent (but not fewer than one) of all public phones must be equipped with a volume control. Those phones have to be dispersed among all types of public phones throughout the campus, dorm, or facility.

Volume controls, capable of a minimum of 12 dbA and a maximum of 18 dbA above normal must be provided. If an automatic reset is provided, then the 18 dbA threshold may be exceeded.

Large Arenas

If an interior public pay phone is provided in a stadium or arena, in a meeting center, or in a covered mall, at least one interior public text phone must be provided in the facility.

In places of assembly with fixed-seating-accessible wheelchair locations, requirements are as follows:

<table>
<thead>
<tr>
<th>Seating Capacity</th>
<th>No. of Wheelchair Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>4—25</td>
<td>1</td>
</tr>
<tr>
<td>26—50</td>
<td>2</td>
</tr>
<tr>
<td>51—300</td>
<td>3</td>
</tr>
<tr>
<td>301—500</td>
<td>4</td>
</tr>
<tr>
<td>over 500</td>
<td>6 + 1 per each add 100</td>
</tr>
</tbody>
</table>

You can’t stuff those phones just anywhere. A clear floor or ground space at least 30 inches by 48 inches (760 x 1220 mm) that allows a person in a wheelchair either forward or parallel approach much be provided. Note that bases, enclosures, and fixed seats must be designed so they do not impede access by people who use wheelchairs.

The highest operable part of the phone must be within the limits shown on diagrams that are available from the Federal Register.

Things such as phone books, if generally provided (they are not mandated), must be located in a position that complies with the minimum reach figures.

Other Resources

Your first stop for resources should be a look at the Access Board Web site (www.access-board.gov). The Access Board is the federal agency that develops minimum guidelines and requirements for standards issued under ADA and the Architectural Barriers Act (ABA). It also develops accessibility guidelines for telecommunications equipment and customer premises equipment under the Telecommunications Act.

There is a wealth of valuable information at the Access Board
site, including technical specifications too detailed to include here. The Access Board’s Electronic Information Access Technical Access Advisory Committee (EITAAC) is another good resource if you are working on computer-based questions.

The Trace Research & Development Center at the University of Wisconsin (www.trace.wisc.edu) is useful when looking at access issues. It has an in-depth listing of all of the requirements and may even list some that you didn’t think of at first. For instance, are the computers in the library accessible? Do the school’s alarms have light systems or other means of notifying deaf students?

The law requires sleeping rooms to comply, stating “auxiliary visual alarms shall be provided and shall comply” with the law. Visual notification devices shall also be provided in units, sleeping rooms, and suites to alert room occupants of incoming telephone calls and a door knock or bell. Notification devices shall not be connected to auxiliary visual alarm signal appliances.

Permanently installed telephones must have volume controls complying with the law, and an accessible electrical outlet within four feet (1.220 mm) of a telephone connection has to be provided for a text telephone.

Barbara Uniek, technical assistance specialist for the ADA at the University of Illinois, Chicago, notes that TDD (telecommunications device for the deaf) systems are generally used in the non-hearing community. The center can be reached at 800.949.4232. A brochure entitled Using a TTY is available free of charge from the Access Board. TTY provides direct two-way typed conversations. The cost of these devices starts at $200. They can be operated by anyone who can type.

In Ohio and 22 other states, Sprint provides relay (TRS) services. Sherri Berislavich, customer service specialist for Sprint in Shawnee Mission, Kansas, explains that they provide relay services for hearing-impaired, speech-impaired, or deaf clients at 800/676-3777 TT/V. Relay is an operator-assisted way to enable communications for those with hearing disabilities. The services are available for both inbound and outbound calls.

Christine Shipley is Ohio account manager for Sprint. Located in Columbus, she communicates via relay since she is deaf. Contacting a relay service is the way for anyone without a TTY phone to contact a person who uses TTY. The communications assistant, or CA, will stay online to relay the conversation at no cost to the caller.

Several commercial groups are involved in providing equipment to help schools comply with ADA requirements. Among them is Ultratec, Madison, Wisconsin, which made a presentation at ACUTA’s 23rd Annual Conference. Pamela Holmes, director of consumer and regulatory affairs for Ultratec (pholmes@ultratec.com), has a compliance checklist that is available to ACUTA members.

These groups are not just information or service agencies. The FCC has ordered manufacturers to consult them. “Working cooperatively with appropriate disability-related organizations is one of the factors that manufacturers must consider in their product design and development process,” the FCC says. This is meant to be a two-way process since the manufacturer gets information on barriers to the use of its products and may also be alerted to possible sources for solutions. The process will also serve to inform individuals with disabilities about what is readily achievable. In addition, manufacturers will have a conduit to a source of subjects for market research and product trials.

No matter how much cooperation there is, and how well intentioned everyone purports to be, there will be differences of opinion. They will eventually be resolved in the courts.

See additional information in the “Summary of Information Technology Access Laws and Policies” on pages 24–25

Under Section 508 individuals can sue the federal government if they feel they have been wronged. Odds are good the “trickle down” effect will be felt by any school that eventually comes under the 508 guidelines but is felt by individuals or groups to be outside conformance.

“So,” Fruchterman concludes, “we really won’t know what is absolutely required until there are some big lawsuits.”

Curt Harler is a freelance writer who lives in Strongsville, Ohio. He is a contributing editor for the ACUTA Journal and a popular author and speaker on telecommunications issues. Reach Curt at curt@curtharler.com.
Summary of Information Technology

All states have Section 508 assurance. Some states have additional IT laws, rules, regulations, and/or policies in place. The following is a preliminary summary based on data collected from 27 states/territories and illustrates the variability of current laws and policies.

<table>
<thead>
<tr>
<th>Federal</th>
<th>Maine</th>
<th>Minnesota</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Covered Entities</strong></td>
<td>Federal departments and agencies; Per NIDRR letter “states” covered</td>
<td>State Agencies</td>
</tr>
<tr>
<td><strong>Access Definition</strong></td>
<td>Comparable Access; No specific definition recommended in EITAAC report (Proposed rules from the Access Board should be issued 3/10/00)</td>
<td>No specific definition</td>
</tr>
<tr>
<td><strong>IT Definition</strong></td>
<td>Access Board shall define, broad definition proposed</td>
<td>Information products and services; data, voice, and video technologies</td>
</tr>
<tr>
<td><strong>Access Required</strong></td>
<td>Developing, procuring, maintaining or using EIT</td>
<td>Comply with software access standards; place in all contracts</td>
</tr>
<tr>
<td><strong>Access Standards</strong></td>
<td>Access Board shall develop; Per NIDRR letter, standards apply to “states”</td>
<td>Standards adopted for computer application program accessibility</td>
</tr>
<tr>
<td><strong>Contracting and Purchasing</strong></td>
<td>Standards from Access Board incorporated into FAR</td>
<td>Access clause required in all contracts</td>
</tr>
<tr>
<td><strong>Exclusions</strong></td>
<td>Undue burden and national security; Undue burden means significant difficulty or expense</td>
<td>Waivers for noncompliance with access standards will be considered on a case-by-case basis</td>
</tr>
<tr>
<td><strong>Ensuring Compliance</strong></td>
<td>Administrative complaint procedures required and civil action authorized</td>
<td>Software testing to verify standards compliance</td>
</tr>
</tbody>
</table>
Access Laws and Policies

Note: Louisiana has a non-visual IT access law, but specifics are not available. Bills have been introduced in West Virginia, Kentucky, Arizona and Oregon for "non-visual" IT access that were very similar to the Arkansas legislation.

<table>
<thead>
<tr>
<th>Missouri</th>
<th>Maryland</th>
<th>Texas</th>
<th>Arkansas</th>
</tr>
</thead>
<tbody>
<tr>
<td>State agencies, public colleges</td>
<td>State - no specifics</td>
<td>State agencies</td>
<td>State agencies, public bodies and entities in receipt of state funds</td>
</tr>
<tr>
<td>Compliance with standards</td>
<td>Ability through methods not requiring sight, to receive, use and manipulate information, and operate controls</td>
<td>Similar ability to communicate with or make use of technology per reasonable accommodations under ADA</td>
<td>Ability to receive, use, and manipulate data and operate controls per reasonable accommodations under ADA</td>
</tr>
<tr>
<td>Any electronic information equipment or interconnected system</td>
<td>All electronic information processing hardware and software</td>
<td>“Automated information system&quot; - computers and telecommunication apparatus and devices</td>
<td>All electronic information processing hardware and software</td>
</tr>
<tr>
<td>Developing, procuring, maintaining or using IT</td>
<td>Include access clause in all contracts</td>
<td>Provide blind or visually impaired with equivalent access; include clause in contracts</td>
<td>Provide blind or visually impaired with equivalent access; include clause in contracts</td>
</tr>
<tr>
<td>AT Council and Office of IT shall adopt access standards</td>
<td>Standards not specifically addressed</td>
<td>Standards not specifically addressed</td>
<td>Nonvisual access standards shall be established by the state</td>
</tr>
<tr>
<td>Implement review procedure, provide reports, train purchasers</td>
<td>Access clause required in all contracts</td>
<td>Access clause required in all contracts</td>
<td>Access clause required in all contracts</td>
</tr>
<tr>
<td>Undue burden; significant difficulty or expense, including technical feasibility</td>
<td>Essential elements cannot be made nonvisual; or cost of nonvisual access would increase the total by more than 5%</td>
<td>No specific exclusion, but see definition of access with reference to “reasonable accommodations”</td>
<td>3-year phase-in, exclusions allowed when costs exceed set level; or no available means of nonvisual access; or information is inherently visual</td>
</tr>
<tr>
<td>Administrative complaint procedures required and civil action authorized</td>
<td>Not addressed</td>
<td>Not addressed</td>
<td>Civil action authorized</td>
</tr>
</tbody>
</table>

Source: Missouri Office of Assistive Technology Governor’s Council on Disabilities
You are sitting in your office near the end of a long day of meetings scanning your e-mail and you see a message with the subject “New Research Building to Be Built on the South Campus.” Upon opening it, you read “... projected cost is $50 million dollars ... architect hired ... fast track, design build...” As you finish you begin to wonder about that feed cable, the fiber, and the conduit system that supports the south campus. You have heard in recent staff meetings that “we need to figure out a way to upgrade the infrastructure that supports the south campus,” and an upgrade has been a line item in your capital budget requests over the last few years, but funding has been denied repeatedly.

You can probably relate to two or three things in this description. The first is a given: You have likely read your e-mails late in the day. Second, you have probably been involved with a construction project for a new building. The third familiar item is your budget that has been cut before you even got it.

Telecom: A Part of the Plan

Chances are there are a few more things that you may or may not be able to relate to. For instance, do you really know the state and capacity of the copper and fiber infrastructure feeding your south campus? Do you, or does your staff, have a detailed strategic plan for the telecommunications systems? And more important, has your department ever been consulted during the earliest planning phase—not the construction phase—of a new building?

If your institution is typical, chances are you are barely given sufficient resources to manage the existing infrastructure, much less afforded the luxury of being able to strategically plan. However, for the sake of discussion, let’s say you are atypical, and you
Figure 1: T0 Drawings

Shows the physical and logical connections from the perspective of an entire campus, such as actual building locations, exterior pathways, and interbuilding backbone cabling on plan view drawings and major system nodes and related connections on the logical system drawings.

do have a detailed strategic plan for implementing or enhancing the telecommunications systems on campus. How many campus master planning meetings have you been invited to attend and how many building project budgets have you seen with an accurate number for telecommunications costs? My guesses to the last two questions are not too many and none.

However, it is not for a lack of planning. Your department has a strategic plan, the university or college you work for has a master campus utilities plan, and the building project has a preliminary plan. The problem generally is that the telecommunications plan is not incorporated into the master plan of a campus early enough in the design of a building—if it is incorporated at all.

A lack of coordination among the plans results in cost overruns, change orders, delayed occupancies, and blown project budgets—all of which become the fault of the telecommunications department and the “new” project requirements. In the case of the “New Research Building on South Campus,” the construction budget most likely does not include the necessary upgrades to the infrastructure.

It is difficult to understand how voice, data, and video services are considered new requirements. It is hard to imagine going to work in a building without a phone, voicemail, PC, pager, cell phone, fax, printer, copier, access to the Internet, and a local network. These are the basic tools of the modern work environment.

Division 17 Offers a Solution

The answer to fixing this lack of coordination is the use and acceptance of the proposed Division 17. Division 17 is a comprehensive organizational model designed specifically for organizing telecommunications requirements during the design and construction of a new building, and on which cost estimates and project specifications can be organized. It is called Division 17 because the document that has been widely used by the design and construction industry for over 35 years to organize the requirements for a new building currently ends at Division 16. This document, published by CSI (Construction Specifications Institute), is called the MasterFormat™. The first 16 divisions address such aspects of construction as general requirements, site construction, masonry, metals, conveying systems, mechanical, and electrical. Division 17 has been proposed to ensure that telecommunications requirements are included in the next edition of the MasterFormat, due out in the year 2002.
Another component of Division 17 is a set of “T” Series drawings that have been developed specifically for telecommunications infrastructures and systems, including a comprehensive layering standard. The drawings were created to manage the telecommunications infrastructure and systems and along the way to be plotted out and built from. Figures 1–5 include brief descriptions of the different types of T Series drawings.

**Drawings Improve Communication**

Using Division 17 and the set of T drawings to organize the telecommunications requirements for a new building enables the telecommunications industry to communicate in a format native to those working in the traditional design and construction industry, which adheres to a very well-established infrastructure of forms and formats and methods for designing and constructing a building. Because of this fact, the telecommunications industry must learn how the construction industry works. At the same time, the construction industry must recognize that telecommunications is an integral part of the process and work to integrate all the players and requirements into the process.

At the institutional level this must start with master planning and carry through to day-to-day operations and use of a new building. On most campuses this is not how the system works, and making the appropriate changes will not be a quick fix. Departments must change the way they interact and develop new processes and relationships with each other. Long-term benefits of such changes will be a reduction in telecommunications costs and increased availability of services in a new building.

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**Figure 2: T1 Drawings**
Layout of complete building per floor. The drawing indicates location of serving zones, communications equipment rooms, access points, pathways, and other systems that need to be viewed from the complete building perspective.

**Figure 3: T2 Drawings**
The building is divided up by its serving zones. Drawing indicates drop locations, communications equipment rooms, access points, and detail callouts for communications equipment rooms and other congested areas.
High-Level Support

Some major players in the telecommunications industry have recognized the value of the philosophy behind Division 17. In an article titled “It's Time to Integrate Telecom and Building Automation Systems,” which appeared in the December 1999 issue of Cabling Installation and Maintenance, Lucent Technologies’ Bill Fortin and Chas MacKenzie wrote, “The industry is definitely moving toward integration of telecommunications cabling and building automation systems (BASs). Recently, the Telecommunications Industry Association and the Electronic Industries Alliance (TIA/EIA—Arlington, VA) established a working group to analyze and develop standards for integration of BASs with telecommunications cabling. In addition, coordinated efforts between BAS vendors, telecommunications cabling manufacturers, and furniture manufacturers will modernize the workspace and further drive such integration.”

A copy of Division 17, an overview of the initiative, additional sample T Drawings, and more can be downloaded from the initiative Web site located at www.division17.net.

Tom Rauscher is president of Archi-Technology, LLC, in Rochester, New York. He has presented at numerous BICSI conferences and CSI chapter meetings. He is also participating in the editing of the next edition of the TIA-606A Standard.

ACUTA supports the proposed addition of Division 17 to the Master Format. More information about this subject is available online at http://www.division17.net.

Figure 4: T3 Drawings
Detailed look at communications equipment room. Drawing indicates technology layout (racks, ladder racks, etc.), mechanical/electrical layout, rack elevation, and backboard elevation. May also be an enlargement of a congested area of T1 or T2.

Figure 5: T4 Drawings
Detailed drawings of symbols and typicals such as faceplate labeling, faceplate types, installation procedures, detail racking, and raceways.
Miscellaneous Charges Complicate Job for College Telecom

by Sharon Reynolds

College and university phone bills are long and complex documents. Checking them for billing errors is labor-intensive, time-consuming, and difficult, but it’s more important than ever now that the government and service providers are levying so many new charges. At ACUTA’s winter seminar in January in Newport Beach, California, a panel of experts offered some special insights into the issue of miscellaneous phone charges from the point of view of the federal government as well as local exchange and long-distance carriers.

The entrance of so many new competitors into the telecommunications marketplace and the passage of the Telecommunications Act of 1996 are responsible for much of the confusion about phone bills, according to Ellen Blackler, special assistant to the bureau chief of the Federal Communications Commission. While each campus owes it to itself to verify charges assessed, said Blackler, “It’s the service provider’s responsibility to explain your bill to you. There’s probably not a whole lot else you buy that you don’t understand the bill at all.” All the subsidies built into
the phone system should be explicit and portable, Blackler noted. But, she added, “just when you think you understand things, the federal government makes a new decision and six months later your phone bill changes.”

There are two kinds of subsidies at play in the phone system: Universal Service subsidies that support initiatives such as phone service in high-cost areas, rural health programs, and relay service for the deaf; and less explicit subsidies for local phone service through toll charges.

As a result of these subsidies, there are several charges that end up on customers’ phone bills:

- State-regulated 411 and 911 charges
- The subscriber line charge (SLC), a per-line charge assessed by the incumbent local exchange carriers (ILECS) on long-distance carriers
- The presubscribed interexchange carrier charge (PICC), which started two years ago as part of the FCC overhaul of telephone fees. Long-distance companies pay a flat fee to the local phone company when you presubscribe your telephone line to their long-distance service. The charge is designed to compensate the local telephone companies for the costs associated with providing local loop service. “Long-distance companies can recharge you for this any way they want. Some don’t even charge. It’s a competitive issue,” Blackler said.
- Universal Service surcharges. In support of Universal Service, long-distance carriers put this charge on their phone bills. Some states also have a Universal Service surcharge. “This is an assessment the federal government puts on toll carriers, and they decide how to recover it from the customer,” said Blackler. “Large carriers may use different terms for this surcharge. The FCC has tried to get more uniformity in the terminology, and we do our part to establish truth in billing procedures.”

However, she noted, it’s important for consumer groups like ACUTA to make their voices heard. “In the debate that goes on between the federal government and the carriers, sometimes the
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voice of the customer gets lost. Groups like ACUTA need to weigh in on issues like cramming and slamming that move money around from one place to another and hit your pocketbooks.

**Implicit and Explicit Charges**

Panelist Dan Jacobson, with Pacific Bell’s regulatory department, talked about various surcharges and miscellaneous charges that are implicit and explicit. Charges to the end user include the SLCs, which PacBell calculates quarterly, and the PICC.

“We bill PICC to the end user whether you select a carrier or not,” said Jacobson. “We bill once, based on the designated carrier at the beginning of the month, even if you changed carriers at mid-month. The PICC charge can change from one month to another because this is a cost-recovering mechanism. But you shouldn’t have to pay more than once during a billing period.”

Other surcharges in California include a high-cost fund charge as a set percentage of intrastate usage. It serves a similar purpose as the USF charges on a national basis.

“The high-cost fund in California is intended to subsidize some of the small, independent exchange companies,” said Jacobson. “But that’s never happened because small companies have moved into the B fund, which is to cover the cost of providing service in rural areas or in areas where it costs us more than $20 a month to provide service.”

California also charges for the universal lifeline telephone service, which assists low-income phone customers. The California Teleconnect Fund surcharge subsidizes discounts at schools (K-12), community-based organizations, and hospitals. Schools can get 50 percent off the price of advanced services.

“On our phone bill we have a title for each one of these surcharges, but my sense is it’s fairly cryptic and most people don’t understand all these charges on every line,” said Jacobson. “In my opinion, as more and more competition is introduced into the local exchange market, these will go away because the bulk are to handle price changes that the government’s not quite willing to approve.”

Jacobson advised ACUTA members to take into account increases in PICC and SLC fees when planning a telecom budget. “You may be protected against any regulatory fee increases,” he added.

**A Carrier Point of View**

Representing long-distance carriers, Bob Kargoll, with AT&T law and government affairs in San Francisco, said: “Although these miscellaneous charges appear in a variety of forms under different names, they really go toward the same goals—keeping basic exchange rates in this country at affordable levels, funding programs for low-income subscribers, and promoting discounted services for libraries, hospitals, and schools. AT&T, as an IXE, is tasked with providing its fair share toward those goals.”

The two miscellaneous charges that cause AT&T the most “concern and grief” are the PICC and USF (called the Universal Connectivity Charge by AT&T), according to Kargoll.

“We are billed or assessed by the local exchange carrier for every customer that subscribes to interexchange service with AT&T. Each local exchange carrier can have a different PICC charge. AT&T and other carriers incur their own costs in administering these charges, answering customer questions, and dealing with uncollectibles. We recover these costs through PICC as well.”

These miscellaneous charges represent the real cost of doing business for companies such as AT&T and other interexchange companies. “We do have some latitude in how we recover them,” said Kargoll. “By and large, carriers have seen the need to recover these, and we’ve determined the best way is to make the charges explicit. This is a work in progress. You will see a continuation of that as we address customer concerns and price changes.”

Sharon Reynolds is a freelance writer who lives in Lexington, Kentucky.
Interview:
Kevin DiLallo
Levine, Blaszak, Block & Boothby, LLP

At the ACUTA Winter Seminars in Newport Beach, California, Dave Barta (University of Oregon) and Brenda Helminen (Michigan Tech University) had an opportunity to discuss some legislative and regulatory issues with attorney Kevin DiLallo of the Washington law firm of Levine, Blaszak, Block & Boothby LLP. The following is the text of that interview.

ACUTA: Will college and university student housing facilities be excluded from the definition of multi-tenant dwelling by the FCC in their ruling regarding open access to buildings and rights-of-way?

DiLallo: At this point it's hard to say. There are three interrelated proceedings that could affect the outcome of this issue. The two most relevant are the Competitive Networks and Local Competition proceedings, which are considering new rules that would require that CLECs and other competitive service providers have nondiscriminatory access to customers in “multiunit premises.” The commission hasn't defined multiunit premises, nor has it asked how it should define the term. It seems that the FCC is thinking only about apartment and office buildings, but one never can tell until the order comes out. I think there's a strong argument for excluding college campuses from any rules for multiunit premises.

The commission has emphasized repeatedly that the purpose of these two proceedings is to give all consumers—including those in multiunit premises—access to competitive telecom providers and services. If an educational institution, rather than its students, is the telecom consumer, then the FCC's policies would be inapplicable to the students. In other words, if students don’t have individual accounts with telecom service providers, it would be pointless to give competitive providers access to the student population. The situation isn't the same as an apartment building, where the tenants subscribe to the telecom services they use in their units.

There's a small wrinkle, and that's in the Inside Wiring docket, which is the third interrelated proceeding I mentioned. That docket might be relevant to your issue because the commission is considering whether to apply its Inside Wiring principles in the Competitive Networks and Local Competition proceedings. That could mean any number of things, one of which is that the FCC will look at each college and university to determine whether or not it will be considered a multiunit premise.

The Inside Wiring Order was released early this year, and in it, the FCC specifically declined to classify schools as multiunit premises for purposes of its Inside Wiring rules. The commission didn't say whether “schools” includes colleges and universities, but assuming that it does, the FCC will evaluate each one on a case-by-case basis.

If the issue of nondiscriminatory access to campuses is important to some of your members, they should let the commission know. The formal comment cycle is closed, but parties can still file ex parte submissions, which might be in the form of letters to the FCC commissioners, the Wireless Bureau, and/or the Common Carrier Bureau. Just be sure not to contact the FCC about this after the proceedings have been listed on the “Sunshine Agenda,” usually a week before the FCC meets publicly to announce an order. I don't have any information about the timing of the order, but interested members should act...
sooner rather than later, to make sure they don’t miss the opportunity to weigh in.

ACUTA: Will the FCC require colleges and universities to provide open access to building facilities and rights-of-way on campuses in order to provide competitive telecom services in the campus housing?

DiLallo: I think that the same analysis applies here. If students living on campus typically make their own telecom arrangements and establish their own accounts with service providers, I think the odds are good that colleges and universities will be required to provide competing providers with nondiscriminatory access to their students.

In the Competitive Networks and Local Competition proceedings, the FCC is considering whether Section 224 of the Communications Act authorizes it to require utilities controlling rights-of-way on private property to share those rights-of-way with competing providers. The FCC conceded that there might be compelling arguments against such requirements. And even if the FCC ultimately concludes that it has the authority to order utilities to share rights-of-way, if a university’s students don’t buy their own individual telecom services, there would seem to be no point in giving competing service providers access to the students. The commission hasn’t given any indication that it might require colleges and universities to allow students to purchase their own telecom services if they’re not already doing so.

ACUTA: Will the impact of that on a university depend in any way on whether or not they have filed as a CLEC?

DiLallo: From a legal perspective, it might, if the students purchase service individually from the university CLEC. And if the FCC sees a university CLEC as a “utility” subject to Section 224’s rights-of-way requirements, that could be another angle for requiring the university to give access to competitors. From a business perspective, a university that has some pecuniary interest in a CLEC could lose business if the FCC forced it to open its campus to competitors; but a university that buys service from unaffiliated providers would probably want to shop around for the lowest rates, and so might be more amenable to competitive access.

ACUTA: Will competitive access to cable TV be treated differently from competitive access to telecom facilities? Both facilities are capable of providing ISP, data, videoconferencing, and voice services.

DiLallo: That’s the $64,000 question. Traditionally, cable systems and telcos have had different regulatory models; but recently, the FCC has been looking for ways to harmonize the two. They call it “regulatory parity.”

So far, the FCC has taken a hands-off approach to cable access, but it’s left the door open to do something—such as mandating open access—if it finds that cable operators are discriminating against unaffiliated ISPs. Local municipalities are taking matters into their own hands and conditioning cable franchises on an open-access commitment by the operators. Portland, Oregon, did that with AT&T, and AT&T sued in federal court to invalidate the requirement. It lost. Now, AT&T has appealed the case to the Court of Appeals for the Ninth Circuit, and a decision could come out as early as next month. Video services and telecom services—say, voice service—are easily distinguishable, and if cable operators were providing only video services, the answer would be easy. Internet services, though, are a different animal. If both cable operators and telcos are delivering the same services, it will be tough, but not impossible, to argue that they should be regulated differently. I could see an argument for more lenient regulation of a cable provider that’s trying to enter a market dominated by an incumbent local exchange carrier.

ACUTA: Should the telcos and cable TV companies be required to wholesale as well as retail access to their facilities and cabling under similar regulatory schemes?

DiLallo: As far as I know, the wholesale requirements of Section 251 of the Communications Act applies only to telecommunications services that incumbent local exchange carriers (ILECs) offer to retail customers. Unless a cable operator were an ILEC—and I don’t know of any—it wouldn’t be subject to Section 251’s wholesale requirement. And even if it were an ILEC, it would only be required to offer telecommunications services at wholesale. For decades the FCC has had a more general resale requirement, but it applies only to common carriers, and cable operators haven’t been classified as common carriers—yet.

ACUTA: Should cable TV be required to abandon the program content business and just provide access to its cabling and boosters for video programmers, ISPs, or videoconference service providers to reach into homes and business sites?

DiLallo: I haven’t heard any open access supporters argue for that.

ACUTA: The Ninth Circuit Court of Appeals is considering the open cable access decision of whether localities have the authority to
require open access to cable systems for unaffiliated ISPs. What are the critical issues that policy makers and the courts must consider in issuing a ruling?

DiLallo: Three very important issues are in the balance. One is the authority of local jurisdictions to regulate franchisees that use their public rights-of-way versus the legal right (possibly the Constitutional right) of the federal government to preempt them on the ground that interstate communications are involved. The second issue is a quasi-economic one, and their regulatory-based costs. Some campuses have reported that these charges are amounting to 15 to 18 percent of their total bills. How are campuses dealing with the myriad of new fees that are substantially increasing their telecom costs, and what strategies and negotiating tactics in particular are available to help control or eliminate these miscellaneous charges?

DiLallo: One possible way campuses could lessen the impact of these charges is to try to negotiate lower per-minute rates that offset at least some of the increases resulting from the new charges. Another thing to keep in mind is that the FCC doesn’t require the carriers to pass these fees through to their customers. They do it because they can, not because they have to. In some cases, carriers even mark up charges, like Universal Service, saying that they need to cover administrative expenses. There’s plenty of room for negotiation here, but it all comes down to leverage. The most effective negotiating strategy is to consider more than one carrier, and be willing to switch if you can’t get what you need from your current vendor. You’d be amazed at how accommodating some carriers get when they think they might lose a large customer.

ACUTA: What is your expectation of any future new charges on voice-over-IP services? That is, has anybody calculated what tax implications on either voice or Internet services will apply if voice-over-IP is ready for prime time in five years? Where do you see this all going, and will business interests finally put pressure on Congress to force the FCC to reduce or eliminate these fees?

DiLallo: No, as a matter of fact, the situation looks worse rather than better. The reason is that as voice-over-IP starts to look more like basic telecom services rather than information services, the justification for exempting it from a Universal Service assessment or from paying access charges starts to go away. And Congressional representatives from rural and high-cost states have been eyeing some Internet traffic, especially IP telephony as a potential new source of Universal Service funding for their states.

ACUTA: What form do you see these charges taking? With voice services, it is all circuit switched and it is per circuit, but IP is a different animal.

DiLallo: We don’t know yet. We could see some kind of flat-rate monthly charge, at least for Universal Service, because the Universal Service assessment is already based on total monthly revenues.

ACUTA: The depletion of area codes is being exacerbated by the continued allocations of telephone number prefixes to phone companies in blocks of 10,000 and the FCC’s refusal to allow a different area code to subdivisions of phone numbers such as cellular and pager numbers. Is this the time to begin letting phone companies acquire prefixes for their customers on a just-in-time basis from the phone number prefix administrator?

DiLallo: It is, but the FCC recently changed its policy on assignment of numbers. The FCC will now permit states to allow the assignment of
numbers in blocks of 1,000; blocks of 10,000 numbers are no longer required.

**ACUTA:** Should telcos be assigned phone number prefixes only to meet specific customer needs?

**DiLallo:** That would conserve numbers most effectively.

**ACUTA:** Since nobody knows which phone company provides service to a particular phone number, is there any reason why phone number prefixes can’t be shared among telcos on a first-come, first-served basis?

**DiLallo:** There is no reason, and in fact now that we’ve gone to the 1,000 number blocks instead of the 10,000 number blocks, you may see that. A lot of historical practices with regard to the assignment of numbers are left over from the monopoly environment and don’t make sense today. The FCC is coming to realize this and changing its practices along with the North American Numbering Council. But, this is an area in which users have been fairly quiet. The ones making all the noise are the carriers. Some analysts think that the carriers are creating the illusion of number depletion because they’d like to go to eleven-digit dialing. But there can be serious impact on users when there’s churn in the numbering plan; so this is an area where users could be very effective in making their interests known.

**ACUTA:** Why should phone number prefixes be assigned to a telco in an area where a telco has not begun providing service?

**DiLallo:** They shouldn’t.

**ACUTA:** Calling party pays (CPP) is potentially a very troubling issue. Why can’t pagers and cellular phone numbers be assigned to a new, unique area code? Since calling parties are now being billed at the higher cellular time-of-connect rate, wouldn’t a unique area code for cellular phone numbers be helpful to schools that wanted to be able to block their employees or students from calling cellular phones? Or, at least, enable us to use authorization codes associated with calls to cellular phones?

**DiLallo:** This goes to the question of whether a unique CPP service-access code should be assigned to wireless numbers for subscribers who elect CPP. Examples of service access codes (SACs) are 800 for toll-free calls and 900 for pay-per-call services. In the FCC’s CPP proceeding, ACUTA has argued that users would benefit from the use of a CPP-specific SAC. A CPP SAC would enable PBXs and central to block calls to CPP numbers or at least to require billing information like a credit card or a corporate or departmental identification code. The wireless industry has opposed the idea, because it claims a unique SAC would make wireless CPP phones less competitive with wireline phones. For some reason, the FCC hasn’t embraced the idea.

**ACUTA:** Will Congress ever develop an acceptable censorship mechanism for safeguarding our youngest surfers? What impact will censorship have at the college level?

**DiLallo:** Well, that depends on what you call acceptable. I personally think censorship is a dirty word. Congress has tried twice to develop some kind of mechanism for protecting young users from improper material on the Internet; both times its efforts have been found to be unconstitutional. The tough question is where to draw the line. Most people would probably agree that protecting children from inappropriate or offensive material is important, but it’s all too easy to write a law that’s overbroad and burdens free speech.

As for the ramifications on colleges and universities of filtering legislation—I prefer “filtering” to “censorship”—some have suggested denying Universal Service fund to institutions that don’t implement the federal mechanisms for protecting young users from certain Internet content. Hypothetically, it could also mean that colleges and universities could incur civil and criminal penalties, to the extent that any of these laws provide for them and are upheld by the courts. For example, an institution that negligently allows minors to use its facilities to access inappropriate Internet content could be exposed to any civil or criminal penalties the law may provide for that kind of negligence. The private sector has been very active in developing mechanisms to protect kids from offensive online material. It may well solve the problem before Congress does.

**ACUTA:** Copyright issues loom large as more material becomes accessible online. What is the role of the telecom department with regard to using electronics to misuse copyrighted material?

**DiLallo:** This is more of an intellectual property question than a telecom question. I’m not an IP lawyer, so I can’t tell you what the copyright laws might require. But as a general matter, telecom administrators might consider posting some sort of notice to educate users of their facilities about the types of activities that violate the copyright laws and the warning users about the sanctions they could face if they violate those laws. I’ll bet most users don’t have any idea what they can and can’t do with online content; but an
intellectual property attorney could tell you.

In case the copyright laws extend to owners of facilities that are used in violating those laws—and I don’t whether they do—telecom administrators might think about posting warnings that users of their facilities (such as computer labs) who violate the copyright laws will be prosecuted and have their privileges to use the facilities revoked.

**ACUTA:** First divestiture and deregulation and now voice-over-IP have changed the way long-distance services are provided. Are revenues produced by the resale of long distance a thing of the past? Is it possible to maintain separate standards for circuit-switched and IP-based services? Will outsourcing of telecom services be the wave of the future?

**DiLallo:** Currently there are separate standards for circuit-based and IP-based services, but I think those are going to go away if and when IP telephony becomes more prevalent in the marketplace. As you pointed out, it is difficult if not impossible to track IP calls because of the way they are routed—packetized versus circuit switching. But, as I mentioned, there’s a strong push in Washington for regulatory parity, and if there are two comparable services, but one is more burdened by regulation than the other, there’s going to be a push to find a regulatory mechanism that’s fair to both. Outsourcing certainly has been the direction in the private sector. I don’t know if it makes sense in a university environment, but it certainly can in a commercial environment.

**ACUTA:** You are talking about actually outsourcing the administration of their local area networks even all the way to the desktop?

**DiLallo:** Correct.

**ACUTA:** What would be the primary fallout of an RBOC getting approval to offer long-distance services, particularly in light of the fact that few if any of the CLECs can profitably resell local service?

**DiLallo:** The most tangible result of the RBOCs getting into long distance should be increased downward pressure on those rates. I don’t see RBOC entry into the long-distance market having a significant effect on the CLECs that have staked out a niche. Most CLECs aren’t making their money on local voice service; they’re opening up new specialized markets, like DSL. And so far they seem to be holding their own against the ILECs, who were late getting to the dance. It’s an open issue whether CLECs or others will be adversely affected if the RBOCs can offer one-stop local and long-distance shopping. In the independent local exchange carrier markets, which account for only four percent of residential access lines in the country, I understand that a high percentage of those independents’ customers buy both local and long-distance service from the independents, where those carriers are authorized to offer both. RBOCs might have a different experience because the relationships between the RBOCs and their customers have tended to be less personal than the relationships between independent LECs and their clientele.

Another area where you might see some movement is in the area of access charges. Once ILECs start paying access charges, as the IXCs have done for years, they’ll have a lot more incentive to lower them.

**ACUTA:** Do you think there’s any chance that one way the RBOCs are going to be able to compete will be to move away from measured long-distance service and just bundle it with local service?

**DiLallo:** That’s entirely possible. In the wireless industry, carriers are increasingly offering flat-rated service, such as AT&T’s digital one-rate plan which has been relatively popular with consumers.

**ACUTA:** What’s your assessment of the various antibacksliding blueprint proposals being considered by the FCC? What are the critical issues in developing a sound blueprint? Could you briefly describe what an antibacksliding blueprint is?

**DiLallo:** I think you’re referring to the enforcement frameworks the FCC adopted when it granted Bell Atlantic’s request to enter the New York long-distance market and again when it approved the SBC/ Ameritech merger. In the case of an RBOC’s entry into a long-distance market, an antibacksliding plan measures the RBOC’s compliance—after commencing long-distance service—with the criteria it had to meet to receive long-distance authorization. These criteria are based on the so-called “14-point checklist,” which refers to Section 271(c) of the Communications Act. In the case of a merger, the FCC may condition its approval of the transaction on the merging carriers’ agreement to satisfy certain requirements which the FCC identifies in its approval order. In both cases, long-distance entry and merger, an antibacksliding plan establishes some form of numeric measurements to assess the carrier’s compliance with each performance criterion. The plan will also provide for monitoring of the carrier’s performance and sanctions for noncompliance. The overarching purpose of all these mechanisms is to discourage an RBOC from “backsliding,” that is, from failing to
honor its commitments after it has entered a long-distance market or received merger approval.

The most critical issues in setting up an antibacksliding plan would seem to be: (1) identifying the criteria that are important to fostering and maintaining competition in the relevant market after the merger or RBOC entry; (2) developing metrics that will accurately measure an RBOC's satisfaction of those criteria; (3) implementing mechanisms to ensure accountability, such as publication of the RBOC's performance reports and independent compliance audits; (4) adoption of sanctions with teeth—stringent enough to get the RBOC's attention; and (5) vigilant enforcement of the plan, so that one infraction doesn't lead to a pattern of infractions. It's too early to tell whether the FCC will vigorously enforce the plans it's adopted so far; but otherwise, it seems to have addressed all of the other considerations I've mentioned.

For example, antibacksliding plans require the RBOCs to publicize their compliance with the performance criteria so that other parties, such as CLECs, can challenge their representations if they appear inaccurate. When the FCC approved SBC's merger with Ameritech, it required SBC to appoint an officer to report to the commission on SBC's compliance with the other merger conditions. To monitor SBC's compliance with its merger conditions, the FCC has created a "Merger Compliance Oversight Team," composed of members of the Common Carrier Bureau and Enforcement Bureau.

Antibacksliding plans often include independent, outside-compliance audits, as well. If a carrier isn't meeting its performance criteria, a private party can file a complaint with the FCC or the FCC's Enforcement Bureau can bring an enforcement action on its own. Depending on the circumstances, a state PUC can also bring an enforcement action against the carrier. A crucial element of each plan is the menu of sanctions it provides for non-compliance; these can range from monetary fines to suspension or revocation of the carrier's authority to provide service in the relevant market.

**ACUTA:** Do you think that any of this will be delegated to the states?  
**DiLallo:** The states are already adopting their own antibacksliding plans, and, in some cases, the FCC has incorporated them in its own. In some cases, the FCC has praised the state plans, but adopted its own plans to create an additional disincentive to "backslide."

**ACUTA:** The FCC created the "rocket docket" to address the need for speedy dispute resolution as well as behavior modification. What's your assessment of this program and what changes need to be made?  
**DiLallo:** The rocket docket is an accelerated process that the FCC's Common Carrier Bureau can use to handle formal complaints against carriers where issues affecting competition are involved. The purpose of the rocket docket is to promote competition by swiftly addressing unlawful carrier conduct that is impeding competition. In addition to raising anti-competitive issues, complaints accepted for the rocket docket have to be limited to straightforward legal issues that are within the FCC's jurisdiction. If the parties haven't attempted to settle the matter before the complaint is filed, the Bureau will reject it. When it created the rocket docket, the FCC acknowledged that, in the past, resolution of some complaints came too late for the complaining parties. For example, a carrier whose business was being harmed by the unlawful actions of another carrier could be driven out of business by the time the FCC resolved its complaint. The commission has recognized that, if competition is going to flourish, complaints of anti-competitive behavior have to be resolved quickly. So far, our experience with the rocket docket has been positive. The commission has hired some sharp, experienced litigators from the private sector. The program hasn't had enough of a track record yet to declare it an unqualified success, but the early returns are good.

**ACUTA:** You think there is some chance that this may force better behavior?  
**DiLallo:** No question. Actually we've already started to see it. Just the threat of expedited resolution of complaints seems to be encouraging carriers to settle claims, rather than submit to litigation. It wasn't uncommon in the past for a carrier to put off a party who had a grievance and wanted to talk settlement. If the party ultimately filed a formal complaint with the FCC, the time and expense of taking the complaint all the way to resolution could cause the complainant to lose interest, run out of money, or settle for a lot less than it had originally demanded. In a way, the process created an unintentional advantage for the larger, usually incumbent, carrier with the deeper pockets. The rocket docket was designed to change that, and to level the playing field somewhat. So far, so good; but only time will tell whether it actually has a beneficial effect on competition.
Optical Fiber Networks Benefit Two Rural New York Campuses

by Preston Buck

With their two career-education campuses newly outfitted with all-optical fiber networks, administrators of the Steuben-Allegany Board of Cooperative Education Services (SA BOCES), which serves a large rural area in New York state’s southern tier, boast that they have the most up-to-date networking capabilities of any educational site in the region. They are probably right. All buildings on each campus—the Coopers Education Center, in Coopers Plains, and the Wildwood Career Center, in Hornell—are linked by optical fiber centralized networks, a new design that links all desktop computers directly to a single computing center over optical fiber cables. The campuses, 40 miles apart, communicate over the public network.

In addition, BOCES administrators have taken advantage of the ongoing optical fiber installation to teach their pupils an eminently marketable skill. Students don’t just use the network—they’re helping install it.

The all-optical fiber network described below offers numerous benefits to the high school students, teachers, and administrators of SA BOCES. While the subject of this article is a secondary school setting, the optical fiber centralized
network infrastructure is beneficial to a wide range of educational settings: from primary schools to small technical colleges and sprawling university campuses.

**All-Fiber Network Is a Resource and a Learning Lab**

“We are the first BOCES in the state to employ an optical fiber infrastructure to link all buildings together,” says Jay Bouchard, SA BOCES superintendent. “Students at Wildwood and Coopers Plains enjoy video conferencing opportunities, both internally and externally with the business community, colleges, government, and other organizations.”

SA BOCES students have access to the Internet, video-based applications on CD-ROM, and other electronic resources. In addition, because career education students are expected to pass the same statewide exams as their peers, the new system allows them to tap into the multitude of available resources for math, science, and English, as well as other high-tech reference materials.

Network planners are especially pleased that the all-fiber infrastructure provides SA BOCES with assurance that its network is “future-proofed” against tomorrow’s data communications requirements. They like to compare the network to “a 16-lane superhighway built for a fleet of four cars”—a wide-open system awaiting the technology that will tap its boundless potential for bandwidth and speed.

Administrators also saw in the installation a unique educational opportunity. Select career education students were recruited to work on the installation of optical fiber cable, as part of a co-op training program. In preparation for that work, these 12 teenagers, 6 from each campus center, underwent training in Siecor’s Hands-On Fiber Optic Installation for Local Area Networks course. These are the first high school students in the country to complete that two-week program and most likely the first secondary students to work so extensively on a major optical fiber installation. Students worked...
A small room, added to an existing building, houses all network electronics for each BOCES campus centralized network.

Alongside installers—and frequently on their own—to dig trenches, place manholes, lay exterior conduit, pull cables outdoors and inside buildings, and terminate and test fibers.

Before the project, these kids knew very little about optical fiber. "I heard light passed through, and it was fast," says Ronald Bills II, 18, who worked on the Coopers Plains installation. Like his peers, who are all heavy equipment and building construction students, Bills was not skilled at fine work and was tentative about working independently with optical fiber.

All that changed quickly, according to Randy Mason of Sellard Communications, who supervised student workers at Coopers Plains. "I was impressed with how quickly they learned and how much they took responsibility for," says Mason. "Once they’d built confidence in themselves, they’d come back to me when I told them what to do, and they’d say, ‘Well, you know, what if we do this?’ They’d actually have suggestions about, for example, fiber runs."

"I thought working with fiber would be more difficult," recalls Jonathan Bielski, 17. "The terms made it sound difficult. But it was quite easy to splice, pull fiber, and put on connectors. Sometimes the work was tedious, and we had to be careful. But it was easy."

Andy Dennis, 18, who worked on the Wildwood campus, agrees. "I started wanting to work with heavy equipment, and with fiber you have to think," he says. "You don’t want to be in a hurry. At first a lot of stuff baffled me. But once we worked with our hands, it got easier."

Including BOCES students in the optical fiber installation has been so successful that teachers will make the ongoing installation a part of the curriculum for the next several years, at least.

"After all," says Loren Cooper, SA BOCES director of career education and alternative high school, "this project is about the students. The installation provides a ready-made laboratory."

The Optical Fiber Centralized Campus Network

The SA BOCES network is among the first applications of a revolutionary optical fiber centralized campus cabling design. With all data electronics housed at a single location on each campus, optical fiber cables provide direct links to workstations in multiple buildings. This design takes advantage of fiber’s long transmis..."
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As a new member of the listserv and a relatively new manager in the college telecommunications business, ... I'm considering attending the spring seminar in Miami Beach but would feel more secure in doing so if I could hear a few firsthand comments regarding the content of the sessions at previous seminars...

—Carol J. Brown (cbrown@knox.edu)

For many years, my travel budget only allowed me to attend the ACUTA annual conference. The conferences are great, and we get lots of information on lots of topics. I haven't missed one in many years.

A few years ago, I finally got to participate in some of the seminars, and I discovered how valuable they are. The seminars are special because they are smaller. They give you an opportunity to really delve into a topic that is important to you or your campus. The program typically starts with basic information on the topic and builds from there. The variety of information on the particular topic can give you an insight you normally wouldn't get in a quick one or two hour presentation. Another advantage is that the track attendees stay together through the seminar, so you get to know people better and end the seminar with very good contacts at other schools who have a similar interest in the topic.

I know the Program Committee works very hard to develop seminar programs that offer meaningful content to "rookies" and "experts" alike, so you don't need to be concerned that the material will be inappropriate.

I hope this doesn't sound like a sales pitch, but as a 10-year member of ACUTA I have learned so much by taking advantage of the many educational opportunities the organization offers. I hope you will, too.

—Anne Apicella, Director, Telecommunications, Univ. of New Mexico

One of my colleagues here at UC Santa Barbara has always said, "If I get one good idea, a handy piece of information or a valuable contact from attending an ACUTA seminar, it was worth going".

I can honestly say, this has always been the case for us. Granted we don't attend all the seminars. But for those we have, we have found them to be worthwhile.

I recommend you attend one and see for yourself. I believe you will find the information presented to be enlightening and your time well spent.

—Paul Valenzuela, Assoc. Director & Operations Manager, UC Santa Barbara Communications Services

I would add to Paul's assessment of the value of ACUTA seminars. There is plenty of time and opportunity between formal sessions to meet peers from other institutions, to learn from their experiences, and generally to tap into the collective experience and knowledge. This is especially valuable to a "rookie." You will find as friendly and helpful a family here as you will find anywhere in professional life.

—Dave Metz, Compass Consulting International, Inc.

I'll second the comments from the others who have already responded. We also cannot afford to attend all seminars, but I would if I could. The opportunities to network with others are very valuable and the seminar information always helps me to learn something I did not know...[T]he vendor participation also gives you an opportunity to learn about products and/or services which you may not have known existed. Give it a try and you will be hooked.

—Dave Ostrom, Asst. Dir. for Communications, Washington State Univ.
sion distance capabilities to eliminate the need for computing centers or even any active network electronics in every building.

The SA BOCES network employs a remarkably simple design. One small room on each campus serves as the central computer room—known as the network main cross-connect (MC)—and houses all local area network electronics. Within each MC are all cable management components, hubs, routers, and servers for the entire campus. This centralized cross-connect is linked directly to desktops in all buildings—14 at Coopers Plains and 10 at Wildwood—over optical fiber cables. Sellard Communications of Horseheads, New York, designed the entire network infrastructure, utilizing cable from Siecor and optical fiber manufactured by Corning Incorporated.

The centralized network design represents a radical departure from traditional cabling infrastructures. In the conventional, decentralized network, backbone cables travel from an MC to one or more horizontal cross-connects (HCs) within telecommunications closets on each floor of a single building. The HC typically includes active electronics equipment: hub, concentrator, or switch. Individual outlets for each workstation are located within 100 meters of the telecommunications closet. While most inter- and intrabuilding backbone cable is optical fiber, the segment of the network between telecommunications closets and workstations is typically unshielded twisted-pair (UTP) copper cable.

The transmission distance limitations inherent in copper make the distributed design a necessity, because using copper requires that data electronics be located no more than 100 meters from workstations. Moreover, the use of UTP copper cable in the conventional design places bandwidth limitations on the network. Because of its inherent electrical properties, UTP is vulnerable to electromagnetic interference, radio frequency interference, and cross talk. And because copper is easy to tap, it is also vulnerable to security breaches.

Certain features of the all-optical-fiber centralized network make it especially efficient and cost-effective. By providing direct connections between hundreds, even thousands, of workstations and a single MC, the optical fiber centralized network substantially reduces installation and upgrade costs, requires very little maintenance, and is immune to disruptions caused by electromagnetic or radio frequency interference. With network electronics consolidated in one place, the centralized design is a vehicle for reducing the number of telecommunications closets, which take up valuable real estate and require power and air-conditioning, as well as devices for fire detection and security. One estimate puts the cost of building, maintaining, and cooling a single...
telecommunications closet at $45,000 ("Fiber Fights Back," Data Communications, May 1999).

Any fiber-to-the-desktop design offers significant networking advantages, as well. Most important, an all-fiber cabling infrastructure provides very high bandwidth, which has become critical for educational institutions that require "bandwidth-hungry" applications such as those for graphics, multimedia, and real-time video. Also, the fiber infrastructure is protocol independent and able to accommodate all current and future transmission protocols—FDDI, asynchronous transfer mode (ATM), Gigabit Ethernet, 100Base-FX, 100VG-AnyLAN, Fibre Channel—with no disruptive and expensive recabling.

Benefits to Students

SA BOCES administrators obviously are pleased with the technical and cost benefits their new network brings. But they are just as obviously delighted with the advantages it offers their students. Superintendent Bouchard names Cooper as the driving force behind the project. Says Bouchard, "Loren proved that this system will save substantial upgrade costs in the future compared to conventional technology. He also had the foresight to recognize the vast opportunities that a fiber-optic network could bring to our students. We expect them to benefit greatly from the face-to-face, one-on-one contact that will be possible with this system."

Already the system has provided some unusual face-to-face contact. Taking advantage of classroom Internet access now available on both campuses, teachers recently arranged a real-time video exchange with students in the People's Republic of China.

Also, teachers continue to use the centralized optical fiber infrastructure as a model installation for classroom instruction.

"The installation project is wrapped up," says Cooper. "But we're going to set up mock fiber installations. Students will dig, lay pipe, pull cable, and terminate fiber" as part of their coursework.

According to Cooper, the network is only beginning to flex its bandwidth muscle. In addition to Internet access, the system offers administrative applications for records and finance. Software will be added to allow students, teachers, and administrators to dial in to the network from their homes. And soon voice and video will run on the fiber network.

"This system runs like a clock," says Cooper. "And our network is pushing the limits of the technology."

The all-optical-fiber network also is driving Cooper and his colleagues at SA BOCES to envision nearly limitless educational possibilities for their students.

Preston Buck is market manager for premises networks at Corning Incorporated. Reach him at buckpd@corning.com.

A student cleans a fiber before making a termination.
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From the Executive Director

Maintaining Our Washington Vigil

Jeri A. Semer, CAE

If it appears to you that ACUTA is devoting an increasing amount of time and effort to legislative and regulatory affairs, you are correct. More than ever, telecom operations are being impacted by the decisions of regulatory agencies at the federal, state, and local levels. Just a few years ago, ACUTA members might have been affected by two or three major FCC decisions in a year’s time, but the post-Telecom Act of 1996 world is decidedly different.

We realize that keeping abreast of technology changes, participating in strategic planning for your campus and department, meeting the needs of technology users, and maintaining day-to-day operations are more than a full-time job. Regulatory and legislative monitoring, ensuring that you are aware of and in compliance with new regulations, and planning for the inevitable financial impact of new rules can seem an overwhelming task. However, failure to devote adequate attention to these activities can result in unpleasant and expensive surprises.

ACUTA can be an essential ally in your efforts to keep current on regulatory issues. Through our Member Alerts, the ACUTA News, and the new ACUTA Legislative/Regulatory Update, we summarize key developments to keep you informed of important new public policy developments in telecom, IT, the Internet, and networking. In addition, the Legislative/Regulatory Affairs Committee has created “issue teams” of dedicated volunteers who focus on specific issues, study them in depth, and advise the association on recommended actions. The issues currently being closely watched by issue teams include local number portability; Internet regulation and tax issues; Universal Service Fund and access charge issues; unauthorized charges (slamming, cramming, and fraud); Americans with Disabilities Act compliance; open access and competitive networks; calling party pays and other cellular matters; 911; and others.

In addition to the committee, I am regularly impressed with our members’ expertise and willingness to share knowledge and experience with regulatory issues that is evident on the listserv and through ACUTA educational programs.

In addition to monitoring, on selected issues we step forward and represent the views of higher education telecommunications to key regulatory agencies at the federal level. The fact is that few organizations represent the interests of telecom users in Washington (and with state public utility commissions). Regulators mostly hear from telecom carriers and other industry representatives who employ a large number of skilled lawyers to represent their views. Too often, due to limited financial resources and some degree of fragmentation in the user community, the interests of users are not given the same weight as the industry in regulatory proceedings. The International Communications Association (ICA) and the Ad Hoc Telecom Users Committee (Ad Hoc) are two groups of large, mostly corporate users that advocate on selected issues. Whenever appropriate, ACUTA cooperates with these organizations to add the voice of higher education. Currently, we are working with Ad Hoc to seek to have the interests of PBX owners considered in the FCC’s rulemaking on calling party pays cellular service. On information technology issues in higher education, we often work cooperatively with EDUCAUSE and other educational associations.

Knowledge of important regulatory and legislative issues affecting the telecom industry and an understanding of the state and federal regulatory structures have become important elements of the successful technology leader’s knowledge and skills portfolio. ACUTA will continue to strive to be the best source of information and advocacy on telecom public policy issues focused on your specific needs in higher education. We hope you will think of us as a resource you can always call on and that you will consider contributing your own insights and expertise for the benefit of colleagues in the association.

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—Linda Bogden-Stubbs
SUNY Upstate Medical University

The ACUTA Journal is a valuable resource to me, not just for the content of the articles, but also for information about what companies are offering leading edge technology geared to higher education. When I'm in the market for products or services, the Journal is one of my first stops.

—Margie Milone
Kent State University

The ACUTA Journal has proven itself as an important vehicle for the dissemination of information to telecommunications professionals. Because its unique, targeted audience consists largely of decision-makers on campus, the Journal represents an excellent opportunity for providers of telecom services and equipment to reach their specific market.

—James S. Cross, PhD
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—Jeri Semer, CAE
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